Evaluasi Pra dan Paska Intervensi Food Based Recommendation (FBR) Terhadap Kelelahan pada Perempuan Pekerja dengan Sistem Kerja Gilir Malam di Pabrik Tekstil “X” = Pre and Post Evaluation of The Food Based Recommendation (FBR) Intervention on Fatigue in Female Workers With A Night Shift Work System in Textile Factory.

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Abstrak

Latar Belakang. Sebuah pabrik tekstil “X” yang sebagian besar pekerjanya perempuan, mempunyai jam operasional yang mengharuskan pekerja menjalani sistem kerja gilir. Sistem kerja gilir mempengaruhi pola makan dan status gizi pekerja, kekurangan zat gizi memiliki potensi tinggi menyebabkan kelelahan sehingga diperlukan rekomendasi makanan tambaha serta edukasi gizi bagi kelompok pekerja ini. Pendekatan Linear Programming (LP) menghasilkan Food Based Recommendation (FBR) yang mempertimbangkan penggunaan bahan pangan lokal yang disesuaikan dengan pola makan pekerja dengan kerja gilir serta permasalahan gizi kelompok pekerja dengan mengoptimalkan kandungan nutrisi sehingga FBR yang dirumuskan dapat menjadi kebijakan bagi pemilik industri tekstil yang memperkerjakan perempuan pekerja dengan sistem kerja gilir.
Objektif. Didapatkan rekomendasi makanan tambahan bagi perempuan pekerja dengan kerja gilir malam dalam menurunkan kejadian kelelahan.
Metode. Penelitian dilakukan dalam dua fase, yaitu pra dan paska intervensi menggunakan desain quasi-eksperimental dengan uji pra dan paska dengan kelompok kontrol. Subjek penelitian dianalisis secara per protokol sehingga subjek berjumlah 100 perempuan pekerja. Data diet pekerja diperoleh dari penimbangan makanan yang diberikan saat kerja gilir malam, data dikombinasikan dengan 24 hours food recall serta 5 dFFQ (5-days food-frequency questionnaire). Kelelahan diukur dengan menggunakan kuesioner CIS (Checklist Individual Strength) 20R dan Reaction Time. Analisis LP menggunakan sistem Optifood yang merumuskan suatu rekomendasi makanan tambahan (FBR).
Hasil. Berdasarkan hasil pemeriksaan kelelahan pada dua kelompok menunjukkan bahwa nilai rerata waktu reaksi pada kelompok intervensi pra intervensi sebesar 239,29±49,96 setelah dilakukan intervensi terjadi penurunan rerata waktu reaksi sebesar 12,97 millidetik. Penurunan rerata waktu reaksi kelompok intervensi mempunyai nilai p<0,05 (p=0,006) sehingga secara statistik nilai p bermakna pada rerata penurunan waktu reaksi kelompok intervensi paska intervensi. Pada kelompok kontrol pra intervensi rerata waktu reaksi sebesar 236,99±40,56 setelah dilakukan intervensi mengalami penurunan sebesar 3,56 millidetik. Sedangkan rerata waktu reaksi pra intervensi gabungan kedua kelompok sebesar 238,12±45,24 paska intervensi sebesar 229,94±27,34, beda rerata gabungan kedua kelompok sebesar 8,18 millidetik. Artinya ada penurunan kelelahan sebesar 8,18 millidetik paska intervensi. Secara satitistik penurunan rerata waktu reaksi gabungan kedua kelompok bermakna (p=0,007).
Kesimpulan. Intervensi FBR cukup efektif dalam penurunan kelelahan bagi kedua kelompok penelitian, pada paska intervensi terdapat perbaikan kelelahan yang cukup baik.
.....Introduction. Textile factory “X”, where most workers are women, has an operational system that requires its workers to work on shifts. The shift system affects the dietary patterns and nutritional status of

workers. Malnutrition has a high potential in causing fatigue. Thus, additional food recommendations and nutritional education for this population are needed. A Linear Programming (LP) approach produced the Food Based Recommendation (FBR), which considers the use of local food ingredients adjusted to the dietary pattern of shift workers and the nutritional problem of those workers by optimizing nutritional content. Therefore, the formulated FBR can be used as a policy for textile industry owners who employ female workers with a shift system.
Objective. Obtaining additional food recommendations for female workers who work a night shift to reduce the incidence of fatigue.
Methods. This study was conducted in two phases, i.e., pre-and post-intervention, using a quasi-experimental design with pre-and post-test with the control group. The subjects were analyzed per the protocol and a total of 100 female workers was obtained. The data on the workers' diet was obtained from weighing food given during the night shift. The data were combined with a 24-hour food recall and 5 RFQ (5-days food-frequency questionnaire). Fatigue was examined using a CIS (Checklist Individual Strength) 20R questionnaire and a Reaction Time Analysis LP using the Optifood system, which formulated a Food-Based Recommendation (FBR). Data were analyzed using univariate and bivariate analysis.
Results. Based on the results of the fatigue examination of the two groups, the mean value of pre-intervention reaction time in the intervention group was 239.29 ± 49.96. After the intervention, an average reduction of 12.97 milliseconds occurred in reaction time.The mean reduction of reaction time in the intervention group produced a p-value of < 0.05 (p = 0.006). Therefore, statistically, the p-value was significant to the mean reduction in reaction time in the intervention group after the intervention. In the pre-intervention period of the control group, the mean value of reaction time was 236.99 ± 40.56 and decreased by 3.56 milliseconds after the intervention. Meanwhile, the average pre-intervention reaction time between the combinations of the two groups was 8.18 milliseconds. This means that there is a decrease in fatigue by 8.18 milliseconds after the intervention. Statistically, the reduction of mean reaction time between the two groups was significant (p = 0.007).
Conclusion. Adequate energy intake will improve the health status of workers, especially to avoid physiological disturbances and fatigue. The additional food menu chosen as the FBR recommendation is the one with the highest nutritional content. The recommended FBR was quite effective in reducing reaction time for both study groups. In the pre-intervention group with the mean value (239.29±49.96) and the post-intervention mean value (226.32±31.19), there was a decrease in reaction time of 12.9 milliseconds. Recommendations for providing additional food menus and nutrition education can be used as recommendations for workers and company owners.