ABSTRACT

YAKTIWORO INDRIANI. The effect of Micronutrient Supplementation on the Iron Status and Physical Fitness of the Woman Workers at Reproductive Age. Under direction of ALI KHOMSAN, DADANG SUKANDAR, HADI RIYADI

Nowadays, there are many companies employing women as their main workers. In general, the aims of the study are to examine the influence of micronutrients on iron status (hemoglobin, hematocrit, serum ferritin and serum transferrin receptor), and to assess the physical fitness (VO₂max) of woman workers whose hemoglobin levels were 80 to 125 g/l or marginal and worked at the activity levels classified as moderate to active. The preliminary research was conducted by a survey method with a sample size of 338 households. This research employed an experimental design of double blind, completely randomized design. The experimental unit, taken from the preliminary study, consisted of 39 non-pregnant woman workers of reproductive age whose hemoglobin levels were 80 to 125 g/l or marginal. However, five of them were drop out due to pregnancy or sickness. The treatments applied in the study were by providing three levels of capsules containing: (1) a combination of iron and folic acid (BF), (2) multi-vitamin and mineral (MVM) which contains 15 different vitamins and minerals, and (3) placebo (P) which does not contain vitamins and minerals. The research result showed that the iron status of the woman workers was getting better after the supplementation. The three times per week supplementation with BF could significantly improve Hb 18.2 g/l and SF 10.1 ug/l, while the MVM could increase Hb 16.4 g/l and SF 2.4 ug/l. The increase of Hb levels in group BF and MVM was significantly different from that in group P, but the increase of SF levels was not significantly different among the three groups. The supplements of BF and MVM could significantly improve the physical fitness (VO₂max) of the anemia (Hb<120 g/l) woman workers by 12.5% and 13.7%.

Keywords: woman workers, reproductive age, iron status, physical fitness, BF, MVM, P