Thesis Title	Delivery of Iron Supplementation to Rural Pregnant Women Through Primary Health Care
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ABSTRACT

In Thailand, iron deficiency among pregnant women has been a major national nutrition problems. Iron supplementation during pregnancy was shown to raise hemoglobin and serum ferritin levels in field trials. However, the effectiveness of large scale program remains a problem.

The present study compared the existing system (control) and two proposed alternative strategies of iron supplementation delivery to rural pregnant women through primary health care. The proposed alternatives were the distribution iron tablets by subdistrict health personnel combined with nutrition education and distribution iron tablets by village health volunteer combined with nutrition education. Compliance coverage, program effectiveness and cost-effectiveness

among the strategies were compared. Moreover, factors affecting program outputs and outcomes were investigated. The study was conducted in 3 districts of Suphanburi province. Two hundred and fifty four of pregnant women in 57 villages and 18 subdistrict health centers were recruited. A monthly packet of 60 iron tablets (each containing 60 mg iron and 120 mg/d was recommended) was distributed from mid pregnancy until parturition. Pregnant women were asked to return the used packet every month for the refill and the leftover recorded for each time.

The three strategies were found to be similar with respect to percent coverage, effective compliance and biological outcomes. Pregnant women in the two intervention groups gained significantly more knowledge than those in the control group. Side-effects were reported in 15 percent of pregnant women. Side-effects were reported by more women in the two intervention groups than in the control group. However, women having side-effects also ingested more iron tablets than those in the control group. Properly designed nutrition education intervention helped to retain iron ingestion among pregnant women in the two intervention groups despite of the side-effects. Knowledge gain and positive attitude was shown to be important factors determining compliance. These observations indicated that effective nutrition education is essential for the success of iron supplementation program. The responsiveness of iron status indicators, i.e. hemoglobin and serum ferritin level was significantly higher in pregnant women who had effective compliance (received >3

iron packets or ingested >70 percent iron tablets). Beside the level of iron tablet adherance, initial iron status also determined the responsiveness of hemoglobin and serum ferritin. Negative, significant relationship between weight gain rate and change in serum ferritin was speculated to be due to physiological hemodilution. The distribution of iron tablets by subdistrict health personnel combined with nutrition education intervention was found to be the most cost-effective. However, other strategies were not markedly different. In areas where access to health center is not readily available, use of health volunteers as tablet distributors is a promising option. The control group was apparently equally effective which might be explained by their better socio-economic situation. It is also possible that there was hawthorne effect due to the health personnel's knowledge about the project in the other two areas.