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Relationships between a prenatal nutrition education intervention and maternal nutrition in Ethiopia

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In Ethiopia, 17% of pregnant women ages 18-49 are malnourished and have low awareness of prenatal nutrition, which may relate to increasingly high rates of maternal and infant mortality. The purpose of this mixed methods research study was to determine the effects of a community based prenatal nutrition education intervention program on maternal nutrition knowledge and attitudes in the Alaje district of Ethiopia. The theoretical framework was Sen's capability theory of poverty, in which opportunities can lead to well being and promote economic development. Research questions focused on the relationships among 8 independent variables; age, income source, degree of program implementation, marital status, education, number of pregnancies, number of children and occupation with respect to maternal nutrition knowledge and attitudes. Health workers recruited 135 pregnant and non-pregnant women in each of 2 villages: Dejen (control village) and Takha (experimental village), totaling 270 participants. The community intervention program was an add-on to the Ethiopian Government's nutrition program and provided information on portion sizes, the importance of eating an extra meal each day and obtaining adequate rest during pregnancy. Data from customized pretest and posttest focus groups and surveys were collected. Focus groups were analyzed manually and surveys were analyzed using 1-way ANOVAs and descriptive statistical analyses. The key findings were that the women in Takha had significantly greater knowledge of the importance of prenatal health requirements. The implications for positive social change include recommendations for policy makers about proper dietary practices in order to improve pregnancy outcomes related to maternal malnutrition.

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The effects of fermentation and enzymatic pre-digestion of pea on nutrient digestibility in broilers

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Fermentation with probiotics and enzymatic pre-digestion may be able to improve the nutritional quality of pea. This study examined the impacts of different inclusion levels of raw, fermented or enzymatic pre-digested peas on nutrients digestibility in broilers. For fermentation, pea was mixed with water (1:1) containing 2.57×108 *Bacillus subtilis* (GalliPro®) spores/kg pea and then fermented for 48 hours at 30 oC. For the pre-digestion process, pea was soaked in water (1:1) containing 3 enzymes, AlphaGal™ (α-galactosidase), RONOZYME® ProAct (protease) and VP (pectinases) and incubated for 24 hours at 30 oC. Nine standard diets were formulated by supplying 10, 20 and 30% of the protein with raw, fermented and pre-digested peas. The apparent ileal digestibility of Ca, P, K, protein, AAs and fat were measured at d 35. Data were subjected to ANOVA using the GLM procedure. Both types of processes reduced the raffinose, trypsin inhibitor and resistant starch. Increasing level of pea products reduced BWG and FI. Broilers fed pre-digested pea had the best FCR at d 35. Both processes had an identical effect on ileal digestibility of all nutrients except starch. The ileal digestibility of starch in raw pea was lower compared with both processed groups. The digestibility of Thr, Lys and Met were higher in 30% groups compared with 10% groups, while chicken fed 10% products showed highest digestibility of starch. In conclusion, both processes could relatively improve the nutritional quality of pea. Replacement of soybean by pea products at less than 20% inclusion level might have no negative impact on the nutrient digestibility and growth. These indicate the feasibility of both processes for nutritional quality improvement of pea, as a partial replacement for soybean in broiler feed.

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