

Title	Periconceptional and antenatal nutritional supplement use in Irish women: data from the IMPROvED Study
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Publication date	2021-12
Original Citation	Kelliher, L., Hennessy, A., McCarthy, F. and Kiely, M. (2021) 'Periconceptional and antenatal nutritional supplement use in Irish women: data from the IMPROvED Study', Proceedings of the Nutrition Society , Volume 81 , Issue OCE1: Winter Conference 2021, 7-8 December 2021, Obesity and the brain , 2022 , E45. doi: 10.1017/S0029665122000453
Type of publication	Conference item
Link to publisher's version	https://doi.org/10.1017/S0029665122000453 - 10.1017/S0029665122000453
Download date	2024-04-19 04:06:39
Item downloaded from	https://hdl.handle.net/10468/12434



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Periconceptional and antenatal nutritional supplement use in Irish women: data from the IMPROVED Study.

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Suboptimal micronutrient status in the early antenatal period can increase the risk of adverse perinatal outcomes, specifically neural tube defects and suboptimal neurological development⁽¹⁾. The aim of this study was to describe the prevalence of nutritional supplement use in the periconceptional and antenatal periods in Irish women participating in the IMPROVED Pregnancy Outcomes by Early Detection (IMPROVED) Study (<http://www.clinicaltrials.gov>: ID NCT01891240).

Participants (n=1509) were healthy, nulliparous women with a low-risk, singleton pregnancy, receiving antenatal care at Cork University Maternity Hospital. Women provided written informed consent during their first trimester and completed a series of clinical- and questionnaire-based assessments at 11-, 15-, 20- and 33-weeks' gestation (n= 409, 1488, 1445 and 680, respectively). Brand-level data on the use of nutritional supplements were reported pre-conception and during the first trimester. Data were analysed using IBM SPSS (Version 27, IBM Corp, Armonk NY). Demographic and health and lifestyle characteristics were compared between users and non-users of nutritional supplements using Pearson's Chi-Square. An alpha of <0.05 was considered statistically significant.

The median (IQR) maternal age was 31 (5) years, 70% of women completed third-level education, 89% were in full- or part-time employment and 93% were married or in a relationship. Smoking was reported by 14% of women at their first study visit, while 3% reported consuming alcohol during pregnancy. The median (IQR) maternal BMI at 15 weeks' gestation was 24.5 (4.7) kg/m².

Prior to conception, the prevalence of folic acid supplementation was 65%. Among users, the median (IQR) duration of folic acid supplement use was 4 (7) months, and 75% of women used folic acid for at least 3 months before conception as recommended by the Irish Health Service Executive⁽²⁾. Folic acid supplementation increased to 99% in the first trimester and 98% met the RDA of 400µg/d. By 15 weeks' gestation, the prevalence of folic acid supplementation decreased to 87%.

The prevalence of multivitamin supplement use in the periconceptional period was low (30%) and 42% of users reported using a supplement designed to support fertility and conception. Multivitamin supplement use increased to 58% in the first trimester of pregnancy and to 70% by 15 weeks' gestation. Overall, 70% and 67% of women used vitamin D- and iodine-containing supplements, respectively during pregnancy. Median intakes of supplemental vitamin D and iodine were 10 µg/d and 150 µg/d, respectively. Women who were older, non-smokers and had completed third-level education were significantly more likely to use folic acid and multivitamin supplements prior to conception and during their pregnancy.

Our findings show periconceptional and antenatal supplement use has remained similar to prevalence rates reported in the SCOPE Ireland Pregnancy Study⁽³⁾ and is linked with socio-demographic background and the intention to become pregnant.

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