A factorial cluster-randomised controlled trial combining home-environmental and early child development interventions to improve child health and development: rationale, trial design and baseline findings

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

ID 4599866
Author(s) Hartinger, Stella M.; Nuño, Néstor M.; Hattendorf, Jan; Verastegui, Hector; Karlen, Walter; Ortiz, Mariela; Mäusezahl, Daniel
Author(s) at UniBasel Nuno, Nestor ; Hartinger, Stella ; Hattendorf, Jan ; Mäusezahl, Daniel ;
Year 2020
Title A factorial cluster-randomised controlled trial combining home-environmental and early child development interventions to improve child health and development: rationale, trial design and baseline findings
Journal BMC medical research methodology
Volume 20
Number 1
Pages / **Article-Number** 73
Keywords Cluster-randomised trial; Diarrhoea; Early child development; Household air pollution; Household water treatment; Improved biomass cookstoves; Integrated home-based interventions; Kitchen hygiene; Peru; Respiratory infections
Mesh terms Child; Child Development; Child Health; Family Characteristics; Humans; Peru; Rural Population
Background: Exposure to unhealthy environments and inadequate child stimulation are main risk factors that affect children's health and wellbeing in low- and middle-income countries. Interventions that simultaneously address several risk factors at the household level have great potential to reduce these negative effects. We present the design and baseline findings of a cluster-randomised controlled trial to evaluate the impact of an integrated home-environmental intervention package and an early child development programme to improve diarrhoea, acute respiratory infections and childhood developmental outcomes in children under 36 months of age living in resource-limited rural Andean Peru. Methods: We collected baseline data on children's developmental performance, health status and demography as well as microbial contamination in drinking water. In a sub-sample of households, we measured indoor kitchen 24-h air concentration levels of carbon monoxide (CO) and fine particulate matter (PM2.5) and CO for personal exposure. Results: We recruited and randomised 317 children from 40 community-clusters to four study arms. At baseline, all arms had similar health and demographic characteristics, and the developmental status of children was comparable between arms. The analysis revealed that more than 25% of mothers completed primary education, a large proportion of children were stunted and diarrhoea prevalence was above 18%. Fifty-two percent of drinking water samples tested positive for thermo-tolerant coliforms and the occurrence of E.coli was evenly distributed between arms. The mean levels of kitchen PM2.5 and CO concentrations were 213 μg/m; 3; and 4.8 ppm, respectively. Conclusions: The trial arms are balanced with respect to most baseline characteristics, such as household air and water pollution, and child development. These results ensure the possible estimation of the trial effectiveness. This trial will yield valuable information for assessing synergic, rational and cost-effective benefits of the combination of home-based interventions. Trial Registry: ISRCTN-26548981.
Publisher BioMed Central
ISSN/ISBN 1471-2288

edoc-URL https://edoc.unibas.ch/77734/
Full Text on edoc Available;
Digital Object Identifier DOI 10.1186/s12874-020-00950-y
PubMed ID http://www.ncbi.nlm.nih.gov/pubmed/32241260
ISI-Number WOS:000524521200001
Document type (ISI) Journal Article, Randomized Controlled Trial