

CHAPTER 26

HOME SCIENCE

Doctoral Theses

01. AGGARWAL (Srishti)
Feeding Difficulties and Nutritional Status of Children with Cerebral Palsy and Counselling Intervention in Underprivileged Settings.
Supervisors : Dr. Ravinder Chadha and Dr. Renuka Pathak
Th 23995

Abstract
(Not Verified)

Feeding difficulties and nutritional status of children with cerebral palsy along with their caregivers' feeding and nutritional care knowledge and practices were assessed. Effectiveness of counselling intervention in improving knowledge and coping strategies of caregivers and improvement in feeding difficulties and dietary intake of their children was also assessed. A total of 205 children (2-14 years) with cerebral palsy were recruited from NGOs working in Delhi with families of differently abled children belonging to underprivileged settings. Feeding difficulties and caregivers' knowledge and coping strategies were assessed by interviewing caregivers and through observations during mealtimes. Dietary intake was assessed using 24-hour diet recall and semi-quantitative food frequency questionnaire. Severity of motor impairment was assessed using Gross Motor Function Classification System. Anthropometric status was assessed by measuring height, weight and knee-height. Counselling intervention based on social cognitive theory of behaviour change was carried out with 62 children and their caregivers. Activities such as group discussions, individual counselling sessions, demonstrations and practice feeding sessions were conducted. The intervention focused on oral motor exercises, altering consistency of food, improvising seating and feeding utensils and incorporating locally available and affordable nutritious food in diets of children. Feeding difficulties, inadequate food intake and undernutrition were common among the children. Inadequate dietary intake and poor anthropometric status of the children had a significant association ($p < 0.05$) with socio-demographic characteristics, type and severity of cerebral palsy, feeding difficulties and child's behaviour during mealtimes. Intervention resulted in a significant increase ($p < 0.001$) in knowledge and coping scores of caregivers, mean per cent adequacy of food group intake and decrease in number of feeding difficulties among children. However, weight for age did not show any significant improvement. Counselling intervention was effective in improving caregivers' knowledge and coping strategies and feeding difficulties and dietary intake of children with cerebral palsy from underprivileged settings.

Contents

1. Introduction 2. Review of literature 3. Methodology 4. Results and discussion-phase I 5. Result and discussion-phase II 6. Summary and conclusions, references and annexures.

02. BATRA (Shivani)
Assessment of Carbon Footprint and Water Footprint of Garment Manufacturing Units under OGTC.
Supervisors : Dr. Bhawana Chanana and Dr. Sushma Goel
Th 23994

Abstract
(Not Verified)

One of the largest environmental concerns today is the climate change and issue of water scarcity. The study was planned in three phases with an objective to understand the carbon and water footprint, assess the carbon and water footprint of the GMUs and make the personnel aware of reduction measures. Phase I of the study provides the background information which includes about the concept and researches on climate change, LCA, case studies on environmental impact of textile and apparel supply chain. Phase II of the study includes the data collection and the assessment of carbon and water footprint. The scope of the study was a gate-to-gate approach by evaluating the process of garment manufacturing units for three consecutive years i.e. FY 2012-13, 2013-14, 2014-15. The average per product carbon footprint of category (a), (b), (c) of GMUs was 1.58, 0.729, 1.26 kilograms of CO₂eq. The result indicated that the impact from indirect sources of emissions i.e. electricity consumed and under scope 3, the third party deliveries and employee commutation have high emissions. Water footprint was determined as operational and overhead blue water footprint. The water footprint of the garment manufacturing units calculates the amount of water consumed to produce garments. Green & Grey water footprint associated with the production of the GMUs was zero. Blue water footprint of category (a), (b), (c) of garment manufacturing units was 12.26, 4.99, 14.81 litres of water per product. The total indirect water footprint of all the GMUs was higher than the direct water consumption. The last phase of the study involved suggesting recommendations to the GMU personnel on how to work for the future assessments and advice on investigating areas for footprint reduction. The software was developed for the greenhouse gas accounting and considers scope 1, 2, 3 of their activities.

Contents

1. Introduction 2. Review of literature 3. Methodology 4. Results and discussions 5. Summary and conclusions. Bibliography and appendices

03. DHINGRA (Rachna)
Capacity Building of Construction Professionals on Green Buildings.
Supervisor : Dr. Pujya Gupta
Th 24004

Abstract
(Verified)

The present research entitled 'Capacity Building of Construction Professionals on Green Buildings' envisaged to develop capacities of construction professionals by adopting evidence-based approach. The research was carried out in Delhi-NCR Regions. This study was conducted in three phases namely, Phase I: Pre-intervention Phase, Phase II: Design and Development of Capacity Building Program and Phase III: Post-intervention. In pre-intervention phase, six case studies were conducted and unit of inquiry were sixteen green building consultants (GBC) and twenty-four contractors. Need assessment for capacity building was done a sample of eighty construction professionals. In phase II, a need-based capacity building program was designed and developed for imparting knowledge and skills to construction professionals regarding green buildings. In post-intervention phase, the capacity

building program was implemented and post-assessment was done on a sample of eighty construction professionals. Tools used for data collection were interview schedule, knowledge and skill testing questionnaire (pre-post intervention) and reactionaries. Branding, popularity and environmental consciousness were the reasons to go for green building construction. Credit list in a green building rating system was categorized on the basis of selected parameters. Contractor's role was found to be significant at $t(80) = -5.71, p < 0.0001$ indicating they play an essential role. An overall change in knowledge and skills post-intervention were 54% and 63% respectively indicating a positive effect of the capacity building program. The capacity building program was appraised and appreciated from the perspectives of construction professionals. Capacity building of construction professionals plays a pivotal role in accelerating green building movement and achieving sustainable development. This research provides a way forward for developing green buildings in the country by strengthening knowledge and skills of construction professionals to adopt and deliver effective green building projects leading to create a healthy, sustainable and environment-friendly world.

Contents

1. Introduction 2. Review of literature 3. Methodology 4. Finding and discussions 5. Summary and conclusion. References and annexure (Green buildings manual in Hindi and English).

04. GUPTA (Nidhi)
Developing Green Laundry Practices in India.
Supervisor : Dr. Seema Sekhri
Th 24003

Abstract (Verified)

Domestic washing of clothes is a ubiquitous activity performed in every household across the globe. The process of laundry involves excessive consumption of resources like water, energy and detergent. Thus, may pose a significant threat to the environment by the generation of wastewater and increasing the greenhouse gas emissions. The present research study, "Developing green laundry practices in India", was undertaken with prime objective of formulating green ways of washing laundry in India. The focus of the study was on domestic clothes washing using a washing machine. The methodology used combined an extensive review of the literature, field surveys, laboratory based experiments, and quantitative analyses, to find practical and effective methods to reduce the environmental impact of domestic laundering. The analyses of data indicated that the awareness level of consumers regarding the environmental impact of their laundry behaviour was still low. There was also a complete absence of environmentally friendly laundry products in the Indian market. The detergent labels were observed to carry information which was blatantly deceptive. Also, the user manuals and labels on the washing machines did not provide the definite energy and water consumption by them. The laundry wastewater was also found to be overloaded with chemicals. Under the development phase of the study, laboratory based experiments were conducted for developing green ways of doing laundry at domestic level. The results indicated that sufficient gains in the consumption of energy, water and detergent can be made by altering the consumer behaviour through awareness generation, promotion of environmentally friendly laundry detergents and washing machines, improved information channels and revision of existing laundry detergent and washing machine standards. The results obtained were developed as 'green laundry tips' for all the stakeholders. Finally, the

scientific implications obtained were disseminated to the consumers through various means of communication.

Contents

1. Introduction 2. Review of literature 3. Methodology 4. Results and discussions 5. Summary and conclusions. Bibliography and appendices.

05. HANSPRIA
Neonatal Health Practices in Haryana Villages : An Evaluation of Neonatal Health Campaign in Faridabad District, Haryana.
Supervisors : Dr. Archana Kumar and Dr. Anand Krishnan
Th 24253

Abstract
(Not Verified)

Social and behavior change communication strategies have the potential to influence neonatal survival. The current study aims at exploring the knowledge and practices of lactating women related to new born care, evaluating campaign's impact and determinants of adoption of practices. Campaign evaluated was a collaborative venture between AIIMS (Delhi), UNICEF and Ministry of Health and Family welfare, Haryana. It was implemented in two PHCs in Ballabgarh block of Faridabad district, Haryana with an intervention and control arm. Campaign used multi-pronged strategy targeting three aspects: health-system strengthening; home-based-new born-care; and community mobilization. A case control, mixed method study design was used for the study. Study sample included lactating mothers, their family members and health/grass root functionaries. Mothers were interviewed at home through semi-structured questionnaire for knowledge and practices related to cord care, breastfeeding, thermal care, baby handling, danger signs, healthcare seeking, and free ambulance services. Qualitative insights on determinants of adoption were drawn from women, their family members and health/grass root functionaries who attended intervention activities using in-depth interviews and FGDs. Chi square/Fischer exact test and logistic regression were used for calculating significance and association respectively in quantitative data while thematic analysis was done for qualitative data. Baseline findings highlighted no significant difference in intervention and control area for most of the practices at baseline. End-line regression analysis showed significantly higher KP score for mothers: visited by ASHA; in end-line intervention area; preterm delivery; and caesarean delivery. Positive aspects that triggered change; campaign based on behavior-change theories; ASHAs frequent home visits and whole family approach; and complementarity of mass mediums. Barriers of adoption: poor quality of health services and attitude of providers, ASHA's low motivation, lack of participatory approach in project cycle, poor community ownership and inadequate implementation of campaign. Participatory and norm based behaviour change approaches are essential for modifying new born care practices.

Contents

1. Introduction 2. Review of literature 3. Methodology 4. Finding and discussion 5. Summary conclusion and recommendations 6. References, list of publications and annexures.

06. KONWAR (Dipjyoti)
Study on Impact of Cash Transfers on Adolescent Girls in India.
Supervisors : Dr. Vinita Bhargava and Dr. Bhanumathi Sharma
Th 23989

Abstract
(Verified)

An attempt was made to understand the impact of select cash transfer (CT) schemes on adolescent girls in two states of India: Assam and Delhi. Their overall wellbeing, academic achievement, employment, labour and marriage were studied. Three types of CT schemes were chosen for study. The schemes included "Ladli/Majoni", Merit scholarships and Caste/minority scholarships. Purposive sampling methods were used. An aggregate of 180 participants comprised the sample. They included officials from the state system, grassroots level workers, adolescent girls, mothers and teachers. A total of 120 adolescent girls 15-19 years old were selected to assess the impact of the schemes using a quasi-experimental design. Two interview schedules and the "Subjective Well Being Inventory" (SUBI) by Sell & Nagpal (1993) were used. RTI was also used to collect information from government agencies. Findings revealed whereas substantial funds were allocated for social development, the implementations of the schemes were poor. Case studies of adolescents showed positive results due to CT. Perceptions of hope, income security and accomplishment comprised the psychosocial impact. The scores on SUBI, academic achievement, health and nutrition indicators and their association with receipt of CT were not evident. The case and control groups in both states were not significantly different on these indices. To conclude, cash scholarships were reported to be spent according to three different beliefs about its goal: to help the family in distress; to cover some educational expenses and as incentive for good academic performance. The greater the familial disadvantage, more the usefulness of the cash reported. It is in the effective convergence and consistency of delivery of services and facilities including that of cash transfer, that the Government of the day can claim its true commitment to the one of the most vulnerable sections of the population.

Contents

1. Introduction 2. Method 3. Results 4. Discussion 5. References and appendices
07. LAMBA (Joshita)
Investigation of Probiotic Nature of Conventional Indian Fermented Foods.
Supervisor : Dr. Sangeeta Goomer
Th 24001

Abstract
(Not Verified)

The Indian diet is rich in all the essential nutrients required for the well-being of human life. Probiotics have always been part of our traditional diet but microbiota of traditional fermented foods has not been explored. Fermented indigenous products like kanji, vegetable pickles, idli, dhokla, mattha and curd were prepared under controlled conditions by simulating the traditional method of preparations and stored at ambient temperatures for shelf life studies. During the shelf life study pH, titratable Acidity (TA) and Lactic acid bacteria (LAB) count were estimated. The criterion fixed for shelf life study is that, the LAB count should not be less than 10 cfu/g in the final product. LAB counts ranged between 10 to 10 cfu/g in all the products, reflective of the probiotic nature of the products, except in stuffed green chilli pickle, idli and dhokla. In mix vegetable pickle the maximum LAB content was 7.690 log cfu/g and shelf life was 36 days. While in raw papaya pickle the maximum LAB count was 8.35 log cfu/g and shelf life of 44 days. In mix raw mango pickle the maximum count was 7.782 log cfu/g and shelf life of 68 days. Maximum LAB count in kanji was 7.898 log cfu/ml and shelf life of 28 days. 16SrRNA based sequencing technique was used for the identification of probiotic organisms present in the

product. *Enterococcus lactis*, *Enterococcus durans*, *Enterococcus faecium*, *Bacillus subtilis*, *Lactobacillus plantarum* were detected in the products. These observations emphasize the need to undertake in-depth analysis of the viability of LAB in these fermented Indian foods for improving their nutritional properties. A need exists to explore and popularize more indigenous fermented products as probiotics.

Contents

1. Introduction 2. Review of literature 3. Material and methods 4. Result and discussions 5. Summary and conclusion. Bibliography, publication and annexures.

08. MALIK (Richa)

Double Burden of Malnutrition among Mother-Child Dyads in Urban Poor Settings of Delhi : A Cross Sectional Study.

Supervisor : Dr. Seema puri

Th 23997

*Abstract
(Verified)*

Under-and over-nutrition co-existence called Double Burden of Malnutrition (DBM), is merging as a challenge in transitional countries like India especially among urban poor. his cross sectional study was conducted among mother-child dyads (child aged 3-5 years) residing in urban poor setting in West Delhi to determine the prevalence of DBM among mother-child dyads within the same households; comparing different forms of malnutrition and identifying the socioeconomic, demographic, and nutrition-related factors influencing DBM. Anthropometric profile of the 400 enrolled mother-child dyads was assessed and interview schedule was used. Based on BAZ and HAZ scores of the child and BMI of the mothers, the prevalence for Double Burden (DB) was 41.3%; Single burden (SB) was 44.3% and No Burden (NB) was 14 %. Maternal and child anthropometric profile revealed significant differences among all three in the categorized households ($p < 0.05$). The significant predictors of malnutrition in the child in any household included higher birth order; lower age at marriage and at first child birth; female child; mothers' short stature (< 145 cm); being migrant; education of father; lower caste; having computer in the house; having bank account. The predictors associated with DBM existence included mothers' weight, height, age at marriage; child HAZ & WHZ score; possession of sofa, having bank account reflecting improved socio-economic status with greater leisure opportunities. The other predictors were day time sleep among children, spending more time in eating & leisure activities by mothers showing greater sedentary profile ($p = 0.00$) and initiation of complementary feeding before 6 months by mothers in the case of the index child enrolled for the study. Programs need to be redirected to help understand the pathways and to tackle this challenge of DBM.

Contents

1. Introduction 2. Review of literature 3. Methodology 4. Results and discussion 5. Summary and conclusion .Bibliography and annexure.

09. REETU CHANDRA

Enhancing Quality of School Readiness Program in MCD Pre-primary Classes : An Empirical Study in Delhi.

Supervisors : Dr. Renu Gulati and Prof. Adarsh Sharma

Th 24206

Abstract
(Verified)

Indian pre-primary education system is diverse; hence, ensuring its quality is a challenge. The majority of children when entering grade 1, have no exposure to the school readiness and even if they have, it may not be of desired quality. This situation leads to low retention and high dropout rates in early grades. Realizing this, an experiment was conducted to develop and implement a School Readiness Intervention Package (SRIP) and record its effectiveness. The sample comprised of 8 pre-primary classes of Municipal Corporation of Delhi schools, 8 principals, 8 teachers, 176 children, and parents. The data was collected using 'Assessment of ECE centre/ Anganwadi Centre Schedule', 'Teacher Performance Checklist', 'School Readiness Instrument' and 'Physical-motor and Socio-emotional Readiness Rating Scale'. On pre-test, gaps in the performance of teachers and the level of school readiness of children were identified. To address the gaps, SRIP was developed and a 5 days training to the experimental group teachers was given. The SRIP was implemented in experimental group classes for 8 weeks, followed by post-test. The results revealed that after training the performance of experimental group improved and better than the performance of control group. In case of experimental group children, a gap of 38.8% in their level of readiness on pre-test reduced to 8.8% on the post-test while, 41.3% to only 34.5% of control group. Comparison of pre and post-test of both the groups showed intervention effect size of 0.907 with a p-value of 0.000 level of significance. No significant correlation found between the performance teachers and children. None of the correlated independent variables was significantly correlated to the pre and post-test performance of children. Therefore, it is concluded that SRIP has potential to provide a workable solution to improve the quality of the school readiness program, thus, ensure better school readiness of children.

Contents

1. Introduction 2. Review of Literature 3. Methodology 4. Results and discussion 5. Summary and conclusion 6. References 7. Appindices.

10. SACHDEVA (Preeti Kaur)
Study of Extraction and Application of Sugarcane (S. Officinarum) Fibres in Textiles.
Supervisors : Dr. Bhawana Chanana and Dr. M. S. Parmar
Th23988

Abstract
(Not Verified)

Searching alternative sources of the conventional natural textile fibers is the most stressed upon research area these days. Scientific efforts and government policies are concentrating primarily towards such explorations due to the several limitations associated with the availability, cost, and environmental implication of the conventional textile fibers. Agricultural practices generate huge quantities of agro residues, fiber rich resource available in plenty leading to menace of solid waste. Unlike for cotton, linen and jute crops, land is not being used primarily for cultivation of these agricultural crops for textile industry raw material production. The major

breakthrough of using such agricultural residues is in the conservation of land and other tangible resources by producing food and textile fiber from the same host plant. Sugarcane residue left after juice extraction is one such agricultural process residue, which India produces abundantly, almost throughout the year. Present research work was an effort made with the vision to utilize the sugarcane agro- process residue (bagasse) for textile and handicraft applications. Cellulosic fibres were extracted from sugarcane bagasse by step wise extraction process using sodium hydroxide and lacasseenzyme, extracted fibres were bleached and softened. fibres were dyed with vat and reactive dyes. extracted fibres were ring spun into yarn, fabric made and prototypes were developed. non-woven sanitary napkins were also made of the extracted fibres and compared with three low cost branded napkins.

Contents

1. Introduction 2. Review of literature 3. Material and methods 4. Result and discussions 5. Summary and conclusion. Bibliography and appendices.

11. SETHI (Ridhi)

Child Care Arrangements of Parents in the I.T. Sector.

Supervisors : Dr. Bhanumati Shamra and Dr. Asha Singh
Th 23991

Abstract *(Not Verified)*

The study documents the child care arrangements of mothers (n=25) and fathers (n=25) working in the I.T. Sector. Mapping the experiences of children (n=118) aged 3- 10 years in diverse child care arrangements was also an objective. H.R. Managers (n=12) from the I.T. industry were also met with, to understand their policies of making family- friendly workplaces. Besides this, three offsite and one onsite programmes of child care were also studied. Seven 'elite' change makers were interviewed to bring experience and information of innovative interventions to the research. Semi structured interviews for mothers, fathers, and H.R. managers, and the 'elite interview' for the change makers were the methods used. Child care programmes were assessed using the Infant/ Toddler Environment Rating Scales-Revised (ITERS-R) and Early Childhood Environment Rating Scale – Revised (ECERS-R). Drawing – as- dialogue and picture reading were used to gather children's perception of their own care. The data points towards a rise in the use of institutional care setting by dual income families. The reliance on the natal family continues, with grandparents stepping in as caregivers for the children. Fathers shared the child care load and contributed to child care activities. H.R. Managers validated the I.T. Sector providing a range of opportunities such as work from home, day care tie ups, flexi time and strong return to programmes for new mothers. Children understood that they were in care arrangements since their parents worked and through dialogues about their drawings expressed their notions of care. The onsite programme received higher score than the offsite programmes. All the four programmes had safe and print rich indoor environment but lacked in outdoor space. The change makers contributed to the field by creating ecosystems which supported women empowerment and be part of strong networks for the cause of women and work.

Contents

1. Introduction 2. Method 3. Result and discussion 4. Conclusion 5. References and appendices.

12. SHARMA (Anu)
Double Cloth of Napasar (Rajasthan) : An Intervention .
Supervisor : Dr. Simmi Bhagat and Dr. Mona Suri
Th 23998

Abstract
(Verified)

The study was conducted in a small village Napasar in Bikaner district of Rajasthan State, India. This village had a traditional handloom craft of spinning and weaving a double layered camel hair fabric, used as a floor rug or a *charaborin* earlier years. However, with the passage of time and with no demand of camel hair fabric, the craft of double cloth weaving and usage of camel hair was lost. The study hence focussed on reviving the craft of weaving double cloth fabric on handloom with the weavers of Napasar, involving spinners in spinning camel yarn and fashioning some interesting textile products as per the trends and forecast of 2018. The camel hair of *Camelus Dromedary* belonging to this semi-arid area with single hump was collected from Nagaur district of Rajasthan. The hair of this camel is staple in length and is harsh in feel, hence it was blended with locally available merino wool at the fiber stage. The fibers were handspun on charkha by spinners of Napasar and double layered fabrics with cotton in back and camel merino blended face layer was woven by weavers of Napasar on frame looms. The developed fabric was tested and compared for its physical properties from 100% traditional camel hair fabric using AATCC, ASTM and BIS standards. The fabric was also treated with softeners from natural to chemical in nature like reetha, ezee, silicone softeners, cationic softeners and Protease enzyme to improve its handle property. The research concluded with product prototype development wherein two-layered fabric was used in developing on loom cushion covers and floor rugs and three-layered was used in developing throws with camel merino blended layer sandwiched between two cotton layers. The study concluded with a proposed business model for sustainable livelihood of Napasar cluster.

Contents

1. Introduction 2. Review of literature 3. Material and methods 4. Result and discussions 5. Summary and conclusion .Bibliography and appendices.

13. SHARMA (Smriti)
Effect of Symbiotic Yogurt on Coronary Heart Disease Risk Profile of Hypercholesterolemic Adults.
Supervisors : Dr. Seema Puri and Dr. Anura V Kurpad
Th 24002

Abstract
(Verified)

The present study assessed the anthropometric, biochemical, clinical and nutritional profile of adult men and women suffering from hypercholesterolemia. It also studied the effect of synbiotics and lifestyle modification on the biochemical, clinical, anthropometric and nutritional profile of adult hypercholesterolemics. The study was completed in two phases; Phase I focused on assessing the anthropometric, biochemical, clinical, nutritional and lifestyle profile of adult hypercholesterolemics while Phase II assessed the effects of synbiotic yogurt supplementation as against conventional yogurt for a period of 8 weeks along with lifestyle modification on biochemical, clinical, anthropometric and nutritional profile of the hypercholesterolemics. Both the phases were conducted at Preventive Health Centres (PHC), Central Government Health Scheme (CGHS) viz. Janak Puri and R K Puram, New Delhi. Information was gathered regarding socio-demographic profile, CHD risk profile, dietary and

lifestyle profile, stress profile, anthropometric parameters, clinical and biochemical profile. Four hundred (232 males and 168 females) hypercholesterolemic subjects meeting the inclusion and exclusion criteria were enrolled in Phase I. Over 54% women had higher systolic blood pressure levels while men had higher diastolic blood pressure levels (50.5%). 71% men and 67.3% women had borderline high serum TC, 49.1% and 50.6% men and women had borderline high LDL-c, 38% and 14.3% of men and women had low HDL-c levels respectively. For Phase II, data at baseline matched for except for waist circumference and diastolic blood pressure which was adjusted at endline. Synbiotic yogurt intervention had significant impact on improving the serum TC ($p=0.01$), triglycerides ($p=0.02$) and VLDL-cholesterol ($p=0.01$) levels when compared with the group consuming conventional yogurt. A trend towards reduction was observed in SBP and DBP levels among subjects consuming synbiotic yogurt. Carbohydrate ($p=0.01$) and dietary fibre ($p=0.00$) levels were also revealed to be significantly different when compared with the control group.

Contents

1. Introduction 2. Review of literature 3. Methodology 4. Results and discussion 5. Summary and conclusion .Bibliography and annexures.

14. SHOKEEN (Deepa)
Effect of Selected Work Environment on Prevalence of Cardio-Metabolic Risk Factors Among Employed Adults in Urban Delhi.
Supervisor : Dr. Bani Tamber Aeri
Th 23999

Abstract (Verified)

The present study was conducted to assess the impact of selected worksite environments on the food choices, dietary behaviour and cardio-metabolic health of apparently healthy employed adults aged 25-55 years, which were enrolled from seven different working environments (No Canteen - NC; With Canteen - WC) from Delhi-NCR (N= 455). Data were collected with the help of a pre-structured questionnaire to gather information on socio-demographic profile, physical activity patterns and dietary habits. Anthropometric measurements, blood pressure, blood glucose and lipid profile were collected to study the cardio-metabolic risk factors among adults. Built and nutrition environment of the worksites was also measured. It was found that NC subjects (67%) were consuming unhealthy 'away-from-home' foods more frequently in comparison to WC subjects (54.9%; $p=0.002$). The intake of most of the macro and micronutrients was significantly high among WC subjects in comparison to NC subjects. Further, findings indicated that WC subjects had comparatively better built and nutrition environment but due to lack of knowledge and poor lifestyle, they had increased level of CMR factors like high BMI ($p=0.07$), high waist circumference ($p=0.32$), high blood pressure ($p=0.09$) and high fasting blood glucose ($p=0.22$). On the other hand, NC subjects were exposed to unhealthy built and nutrition environment which also resulted in high CMR factors like prolonged sitting time ($p=0.03$), high triglycerides ($p=0.06$), low HDL levels ($p=0.000$), high cholesterol ($p=0.55$), high LDL-c ($p=0.003$) and dyslipidemia ($p=0.000$). These factors were collectively responsible for abdominal obesity (54.3%), hypertension (56.6%), hyper-glycemia (27.4%), dyslipidemia (79.3%), metabolic syndrome resulting in high cardiometabolic risk (43.8%) and low to moderate 10-year CVD risk (64.6%) among apparently healthy employed adults of urban Delhi.

Contents

1. Introduction 2. Review of literature 3. Material and methods 4. Result and discussions 5. Summary and conclusion.

15. SINGH (Pratima)
Assessment of Indoor Environmental Quality and Students Performance in Private Schools of Delhi.
Supervisor : Dr. Renu Arora
Th 23996

Abstract
(Verified)

A healthy school environment promotes learning, productivity and good health of students by providing a safe and comfortable place to study. Students' performance gets influenced by a number of Indoor Environmental Quality (IEQ) parameters which need to be comprehensively investigated. Hence, the present research was planned to examine the design features of the classrooms of Air-Conditioned (AC) and Non-Air-Conditioned (NAC) private schools; to monitor and analyze the seasonal variations in the indoor PM and PM₁₀, CO, Temperature, RH and Illuminance during winter and non-winter seasons; to assess students' perceptions, concentration performance (CP) and prevalence of Sick Building Syndrome (SBS) symptoms during classroom occupancy, and their relationship with IEQ parameters. The study was carried in four private schools (two AC and two NAC schools) located in Delhi. Monitoring of IEQ parameters was done in two seasons using standard monitoring instruments. Further, questionnaire responses (consisting of students' perceptions, Concentration Performance and prevalence of SBS symptoms) were taken from a total of 738 students (384 in non-winter season and 354 in winter season). Based on the results it was inferred that the classroom environment needs to be strategized in a way to reduce exposure of students to allergic triggers, keeping students free of sick building syndrome symptoms and thereby, protecting health and well-being of the students. Although, all the IEQ parameters are important and needs considerable amount of attention while designing the classroom spaces, it is extremely essential to take care of illuminance, ventilation and thermal comfort of occupants. Also, as classroom environment plays an important role in the overall performance of the students, it needs to be planned and designed according to the standards and comfort needs of the students.

Contents

1. Introduction 2. Review of literature 3. Material and methods 4. Result and discussions 5. Summary and conclusion. References and appendices.

16. SINGHAL (Anshul)
An Appraisal of Conditional Cash Transfer Scheme 'Ladli' of Delhi.
Supervisor : Dr. Sarita Anand
Th 24000

Abstract
(Verified)

India has consistently recorded sex ratios in favour of males reflecting the societal attitude toward girl child. The advocacy efforts led to launch of special schemes for girl children. Delhi state government launched a Conditional Cash Transfer (CCT) scheme called 'Ladli' to reverse the distorted sex ratio at birth and promote education of girl children, through provision of staggered cash incentives amounting to Rs one lakh at maturity and to be claimed when the girl child is 18 years of age and completes at least class X or XII. The study aimed to appraise the ease of accessing, enrolling and receiving the maturity claim by the beneficiary girls. Using mix method approach, in-depth interviews were conducted with all stakeholders responsible for implementing the scheme which included personnel from Department of Women and Child Development, State Bank of India Life Insurance and Directorate of Education. To gain insights into the beneficiary perspective, 360 girls studying in government schools and enrolled under

the scheme and 180 parents were interviewed. The study revealed lack of synergy among the implementing partners adversely affecting the scheme. Teachers working as Ladli coordinators emerged to be the pivot for enhancing enrolments by providing information and assistance along with district officers appointed in ten districts of the state. Lack of knowledge among beneficiary girls and their parents highlighted the urgent need to disseminate complete information about the scheme. The study findings point out a strong desire to have at least one son in the family among parents and differential treatment experienced by girls. Some of the girls possessed high educational and career aspirations and were hopeful of using the maturity claim for the same. Findings indicate that financial incentive did play an enabling role for promoting girls' education.

Contents

1. Introduction 2. Review of literature 3. Methodology 4. Finding and discussions 5. Summary, conclusion& recommendations .Bibliography and annexures.

17. Tanushree

Study on Extraction and Application of Water Hyacinth Fibres in Textiles.

Supervisors : Dr. Bhawana Chanana and Dr. Sabina Sethi

Th 23993

Abstract (Not Verified)

Water hyacinth is an aquatic weed which creates many problems. Utilizing the Water hyacinth as a resource will put new sense in nuisance. Keeping in view the above, this study was taken up with the view the aim of the study was to extract fibres from Water hyacinth, determination of composition, assessment of various physicochemical properties and morphology of extracted fibres. The dyeing behaviour of Water hyacinth was also studied. Water hyacinth petioles were collected, cleaned, dried and stored in a well ventilated room. The alkali treatment was optimised with respect to alkali concentration, temperature and treatment time. Alkali treated Water hyacinth fibres were bleached using hydrogen peroxide. A softening treatment was given to impart a smooth handle to the fibres. The extracted Water hyacinth fibres were analysed for their composition and physico-chemical properties using standard test methods. Fibre morphology was studied using scanning electron microscopy and X-ray diffraction. the fibres were dyed and tested. Finally, the Water hyacinth fibres were blended with different fibres to make various products. The Water hyacinth fibres were blended with cotton to make yarns and fabrics. They were blended with the wood pulp for use as absorbent layer in sanitary napkins. The Fibre Reinforcement Polymer (FRP) composites were also developed with Water hyacinth fibres. Water hyacinth fibres could not be spun into yarn alone hence they were blended with cotton in different proportions. Due to very high water retention, they were used in absorbent layer of sanitary napkins along with wood pulp in different proportions. The fibres which were not finely disintegrated and were not useful for yarn manufacturing were explored with a broader view and FRP was developed. Water Hyacinth can be successfully explored further for textile usages for woven, non-woven and composite materials and end uses.

Contents

1. Introduction 2. Review of literature 3. Material and methods 4.Result and discussion 5. Summary and conclusion .Bibliography of appendices.

18. TYAGI (Sarika)
Nutritional Status of Pregnant Women, its Relations with Birth Weight and Growth of Infants During First Year of Life in an Urban Slum Population of Delhi.

Supervisors : Dr. Neena Bhatia and Dr. G. S. Toteja
Th 23990

*Abstract
(Verified)*

This longitudinal study was conducted with the objective to understand the influence of maternal nutritional status during pregnancy on birth outcome and growth during infancy in urban slum population of West Delhi. A total of 178 pregnant women were recruited and their infants were followed up to one year of age. Nutritional assessment of pregnant women indicated that 19.4% pregnant women had height <145 cm, 19.4% had weight less than 45 kg and 50.3% had MUAC <23 cm. Prevalence of anemia, ferritin deficiency and B12 deficiency was 71.5%, 65.8% and 68.5% respectively. Overall 30.9% pregnant women had deficient levels for serum retinol and 36.4% had zinc deficiency. The median urinary iodine concentration was 132.5µg/L. Median nutrient intake was found lower than RDA. Prevalence of low birth weight (<2500g) was 25.6% and mean birth weight was 2708g +420.5. Mean anthropometric measurements of infants were lower than WHO standards throughout infancy. Prevalence of stunting, wasting and underweight of infants was 15%, 24.8% and 19.5% at birth and 20.2%, 26.6% and 30.9% respectively at one year of age. Growth velocity was lower and gross motor milestones were achieved at later age as compared to WHO standards. Early initiation of breast feeding was observed among 49.3% infants and exclusive breastfeeding at 6 months was 46%. Only 31.4% infants were introduced to complementary foods at 6 months. Minimum dietary diversity, minimum meal frequency and minimum acceptable diet were met only by 28.7%, 60.6% and 24.4% of infants at 12 months. Maternal anthropometric measurements (weight, height and MUAC) were found significantly correlated with birth weight (p<0.01). Weight of infants at 12 months correlated with maternal weight (p<0.05). Maternal weight <45 kg and height <145 cm during pregnancy was found significantly associated with higher prevalence of under nutrition among infants at birth and 12 months of age.

Contents

1. Introduction and objectives 2. Review of literature 3. Methodology 4. Result and discussion 5. Summary and conclusion. Bibliography, publication and annexure.

19. YADAV (Heena)
Assessment of Food Hygiene and Food Safety in Catering Establishments Across Delhi.

Supervisors : Dr. Ranjana Mahna and Dr. Tejmeet K. Rekhi
Th 23992

*Abstract
(Not Verified)*

The present study assessed the food hygiene and food safety of catering establishments across Delhi. The study was conducted in 44 catering establishments including 14 Quick Service Restaurants (QSRs) and 30 Full Service Restaurants (FSRs) in two phases. In the first phase, perception and knowledge of employees regarding food safety was evaluated. In the second phase, microbial quality of food served was assessed. General profile showed that majority of QSRs had more number of customers, had attained FSSAI license, got regular pest control done and conducted regular trainings as compared to FSRs. To assess knowledge, a

questionnaire-cum-interview schedule was administered to 69 managers and 387 operational level employees of the two types of establishments. The responses were scored and categorized from good to poor. The findings revealed that majority of the managers from QSRs had better knowledge than those in FSRs. Majority of the operational level employees scored in average category. QSRs fared better than FSRs. Food safety practices were assessed by using an observational checklist on three occasions for every practice. A score of 1 was given to a correct practice and 0 to incorrect on every occasion; composite scores ranging from 0 to 3 were color-coded. Gaps were observed in adequate receiving, storing, preparation and serving of food in terms of temperature monitoring and maintenance, segregation of potentially high risk foods, waste disposal and personal hygiene. Microbial quality of 11 samples (5 food, 2 water, 1 hand, 1, uniform, 1 equipment and 1 swab) from 10 catering establishments was assessed. Majority of the food and swab samples were found unsatisfactory as *Bacillus cereus*, *Staphylococcus aureus*, *Salmonella spp.* and *E.coli* were found to be present. A large number of water samples also confirmed presence of *E.coli*. Catering establishments have a long way to ensure food hygiene and food safety.

Contents

1. Introduction 2. Review of literature 3. Methodology 4. Results and discussion 5. Summary and conclusions .Bibliography and annexures.