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No.	Full Name of the Author	Address	Nationality
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3. Details of the Work			
a.	Title of the Work	Development and Evaluation of Nutrition Education Strategies for Improving Nutritional Outcomes in Pediatrics	
b.	Type of Work	Literary - Ph.D. Thesis	

c.	Description of the Work in detail	Early nutritional screening and education are foundational strategies for promoting optimal growth, fostering sustainable long-term health in children and adolescents. With rapid shifts in dietary habits driven by urbanization and lifestyle changes, children face increased vulnerability to triple burden of malnutrition. Despite national efforts to address nutrition through various programs, gaps remain in identifying children prone to risk of malnutrition before clinical symptoms emerge. Early screening and detection of malnutrition and providing nutrition education individually or in community level can bridge the nutritional gap offering a strong preventive approach to empower children and families in making informed food choices and healthier life-long habits. The study was aimed to (I) develop a comprehensive nutritional risk screening tool for children. (II) Validation of the designed tool through assessment of the nutritional status of representative pediatric population. (III) Nutrition education intervention based on the evaluated nutritional status and nutrition related KAP of the Children. The study was conducted in five phases in children aged between 6-18 years - (I) Preliminary phase- Nutritional assessment using existing standard tools (N=360). (II) Development Phase: Designing of non-invasive, score based nutritional assessment tool “4-Dimesional Pediatric Nutritional Assessment Scale (4D-PNAS)” with nutritional risk scores, incorporating – Anthropometry, Clinical signs & symptoms, Dietay, HFSS intake pattern, Physical activity levels and lifestyle behavior. (III) Validation phase: Systematic validation of new tool was validated by experts a (IV) Large-scale assessment using 4D-PNAS: Cross sectional survey in total of n=1200 children stratified by age and gender to categorise nutritional risk levels. (V) Intervention phase (n=200): Assessing the impact of nutrition education strategies through pre and post nutrition related Knowledge, Attitude and Practice (KAP) evaluation. Preliminary study showed that Children aged between 6-10 years were more prone to under nutrition (38%), & adolescents aged between 11-16 years show a higher prevalence of both under nutrition and overweight (10%) with significantly high frequency of HFSS food consumption in both the age group($P \leq 0.05$). Based on the observations from preliminary study, that while various standard community-based tools exist, they often lack comprehensiveness, and the ability to classify children based on the level of nutritional risk. To fill this gap, a new, non-invasive tool was developed
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		with four main domains- including Anthropometric, Clinical signs, Dietary intake. The new tool was developed using existing standard tools for IAP growth charts to assess anthropometry measurement, and nutritional deficiency Clinical Signs and Symptoms chart from ICMR to identify clinical signs of nutritional deficiency. In new element added in the work is addition of High Fat, Sugar and Salt foods intake pattern, Physical activity & Lifestyle parameters, and assigning scores ranging from for each domain from -3 to +3. The total scores for each domain ranged from 0 to 3, which clearly indicates Risk of Malnutrition status such as 0 – Normal, 1-Low, 2-Moderate, and 3-High. Validation of the new tool “4D-PNAS” developed was done systematically following standard protocol and providing clinical evidence of nutritional status assessment of the tool in school children. The validation of the tool indicated strong content validity (CVI= 0.98, good internal consistency (Ω)=0.86, and ICC= 0.86. Large-scale application enabled risk classification. Pearson’s correlation revealed significant association among tool domains ($p<0.001$) and hemoglobin was negatively correlated with clinical symptoms ($r= -0.296$, $p<0.001$), supporting tool validity and risk prediction strength. Logistic regression showed higher odds of malnutrition in moderate (OR=2.8) & high-risk (OR=3.2) group with increasing risk percentages compared to normal. The study also developed Nutrition education intervention strategies and materials, administrated among n=200 children through structured phases. Strategies significantly improved nutrition knowledge & attitudes ($p=0.05$). The improvement in nutritional status of children was established using newly developed non-invasive “4D-PNAS” tool before and after intervention. The study presents a novel, non-invasive, Four-Dimensional Pediatric Nutritional Assessment Scale (4D-PNAS), validated for children aged 6-18 years, enabling early screening of nutritional risk levels. It effectively identifies malnutrition risk levels using non-invasive, score based 4D-PNAS tool and Nutrition education intervention strategies. This integrated five phase approach provides a feasible and impactful strategy for school health & public health initiatives aimed at combating childhood malnutrition and promoting long-term health & wellbeing among children and adolescents.
d.	Date of Creation:	April 2022
4. Authorship Details		

A	Are their multiple authors? If yes, provide details for each author.	Yes
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b.	If the work is a collaboration, specify the contributions of each author.	NA
5. Previous Publications		
a.	Has the work been previously published?	Not yet published
b.	If yes, provide details of the previous publications.	NA