Indian Council of Medical Research (ICMR)

Deptartment of Health Research

(Ministry of Health and Family Welfare)

Investigator-Initiated Research Proposals

Date of submission: 12-Mar-2024 12:17:27 PM

Proposal Id: IIRPSG-2024-01-02907, **Version Id:** F1,
Proposal Title: Developing a prediction equation for estimating height using segmental length for use to monitor growth and nutrition in Indian children with physical disabilities

Personal details of Principle Investigator (PI)

Name of PI (IN BLOCK LETTERS), Designation, Email, Contact No., Gender, DOB, Date of Superannuation	DR KALYANI PILLAI, Professor, pillaiskpillai@yahoo.co.in,9447834079, Female, 24-03-1966, 31-03-2036
Nature of Employment	Permanent
Institute	Amala Institute of Medical Sciences , Private academic institutions with valid UGC/AICTE/PCI or NMC approved Medical colleges ,

Proposal Details PART-A

Are you currently under regular employment in Medical Institutes, Research Institutes, Universities, Colleges, recognized Research & Development laboratories, Government and semi-government organizations, and NGOs?	Yes
Advertisement	Call for Investigator-Initiated Research Proposals for small extramural grants - 2024

Summary (up to 250 words): A structured summary should contain the following subheadings: Rationale/ gaps in existing knowledge, Novelty, Objectives, Methods, and Expected outcome.
Rationale: Height is essential for assessing growth and nutrition in children. In physically disabled children direct height measurement is very difficult. The purpose of this study was to develop a valid and reliable method for estimating height by deriving an equation using segmental length, in non-disabled, healthy Indian children and thus monitor growth and nutrition in disabled children. Novelty: There is no study from India to assess height in disabled children using predictive equations. The goal was to cover a larger age group range than those previously published and to be simple enough for daily clinical use in disabled Indian children. Objective: We aim to develop prediction equations to calculate estimated height using segmental length measurement for use in Indian children with disabilities. Methodology: A cross-sectional study that collects data from healthy children from 2 to 18 years of age in the community. They will be divided into 4 groups of both sexes based on age groups (2-5 years, 6-10 years, 11-14 years, 15-18 years). The Height, UA (Upper Arm length), KH (Knee Heel length), and T (Tibial length) measurements will be taken using portable anthropometric measurement tools by a trained team. Expected outcome: We propose to develop several prediction algorithms and test the algorithm in a test sample that is naive to the algorithms. The performance of different algorithms will be assessed, and the best one chosen for recommendation. The development of anthropometric protocols, that emerged from such research, would benefit the follow-up of children with severe psychomotor disabilities

Priority Area/Priority Area diseases	Reproductive, Maternal and Child Health, Nutrition / Childhood Malnutrition, Breastfeeding and complementary Feeding
Keywords Six keywords separated by comma which best describe your project may be provided.	Segmental length, height, height prediction, disability, children, India
Abbreviations Only standard abbreviations should be used in the text. List of abbreviations maximum of ten may be given as a list.	WHO World Health Organization BMI body mass index CP cerebral palsy UA upper arm length KH knee heel length T tibial length

Problem Statement (up to 500 words): State the currently available information to present the problem adequately.
Anthropometric measurements provide simple, non-invasive methods to assess the nutritional status of children Monitoring linear growth and nutritional status is critical for diagnosis of malnutrition in children. Even though there are certain challenges such as ethnic variation, assessment in normal children is generally straightforward using standardized growth charts. For children with cerebral palsy (CP) and similar neurodevelopmental disabilities and children with physical disabilities who are more likely to be malnourished compared to normal children, assessing their growth and nutritional status is challenging. There are no growth curves made specially for them and it is difficult to collect anthropometric data in such children. Given the importance of accuracy in height measures to evaluate growth and nutritional status in children, it is crucial to carry out research to establish an equation to predict height for use in children with physical disabilities in whom both growth and nutritional status are likely to be affected. The development of anthropometric protocols, that emerged from such research, would benefit the follow-up of children with severe psychomotor disabilities and facilitate the accurate assessment of nutritional status in field studies.

Rationale of the study (up to 250 words) Mention how the research question addresses the critical barrier(s) in scientific knowledge, technical capability, and/or programmatic/ clinical/lab practice and its relevance to local, national and international context with relevant bibliography.

According to the State of the Education Report for India 2019 by UNESCO, India is home to 8 million children with disabilities. (1) In the 2011 census, around 7.62 percent of India's total population with a disability was children. (2) The World Health Organization's (WHO) growth curves provide health professionals with a valuable tool for monitoring the growth of children and adolescents. However, these charts for weight, length, height, and body mass index (BMI) according to gender and age were created based on healthy subjects. (3) As such, they do not include children with physical disabilities both psychomotor and orthopedic, in which measuring recumbent length and height is unreliable if a child has contracture, high tone, scoliosis, or poor cooperation interfering with the optimal positioning. ICMR has in December 2023, called for expression of interest for applications to participate in data collection for a multi-growth reference research initiative to generate growth references for Indian children with no constraints to growth. This is the ideal time to think about the disadvantaged population of children, those with disabilities. In children with motor limitations, as in the case of cerebral palsy (CP), height measurement is currently performed by segmental measurements, as proposed by Stevenson in 1995. (4) According to the author, height can be estimated by using the equations he proposes with each measured segment: upper arm length (UA), knee heel length (KH), and tibial length (T). These equations are available for Caucasians, Latin Americans, Africans, Australians, and certain Asian populations. (4,5,6,7,8,9,10) No such equation has been derived for our Indian population by Indian researchers. (11) A systematic review by Lamounier JA et al (3) highlights the limitations of various studies. Most studies lack age group stratification. Of the measurement techniques employed, only some of the studies did use a suitable instrument. Because these were all cross-sectional studies, there was no follow-up of the populations studied. In addition, the samples evaluated in these studies were mostly small. However, there are not many articles on the topic addressed in the review of literature. Thus, given the importance of the accuracy of height measurements to assess child health, further research is needed to establish height predictive equations from segmental length. The estimated stature may be plotted on standard growth charts to monitor growth and nutritional status in Indian children with disabilities. This may help in the early pickup of malnutrition in this traditionally disadvantaged population of children

Hypothesis/ Research question (up to 100 words) : Using a normative sample of non-disabled healthy Indian children to derive predictive equations, can segmental length be used to estimate height in physically disabled Indian children to monitor growth and nutritional status

Methodology

Include objective-wise work plan under the following sub-headings:

Study Objective No. 1

Study Objective : 1) To determine the anthropometric measurements (height and segmental length) in a normative sample of non-disabled healthy Indian children. 2) To develop and assess the performance of prediction algorithms for estimating height using different segmental lengths. 3) To recommend the best one as a height-predictive equation using segmental length.

Study Design : cross-sectional study

Study Area : The community and schools in a panchayath in a semi-urban district in a state in South India, India

Sample Size : Subjects will be enrolled by consecutive sampling The study involves children aged 2-18 years. They will be divided into 4 groups (2-5 years, 6-10 years, 11-14 years, 15-18 years) respectively. The predictors involved in the study are age, gender, Height, UA (Upper Arm length), KH (Knee Heel length), and T (Tibial length). Considering that there are 5 predictors, we propose to take 20 children per predictor accounting for a total of 100 children per stratum, (i.e., 400 children in the training set) to develop the prediction algorithm. Further, we will recruit an additional 25 children in each stratum, a total of 125 children, to be included in the test set to validate the algorithm developed. The total sample size, therefore, will be 500, with 125 children in each of the 4 age groups selected

Project Implementation Plan : Healthy children from 2 to 18 years of age and both sexes coming to the outpatient clinic on a routine visit or from school visits in the panchayath will be included in the study. Children with an amputated limb(s), inability to move, and chronic disease that could affect or have affected their growth, who were unable to cooperate for measurements will be excluded. Anthropometric measurements of interest -Height and UA, KH, and T as segmental length measurements will be taken during a routine outpatient clinic visit or school visit. Study tools used are portable anthropometric measurement tools include Portable Stadiometer Shor knee height measuring caliper Harpenden Anthropometer to measure standing height and arm length flexible steel tapes. The same team of trained health workers will perform the measurements during the course of the study. To assess repeatability, all the measurements will be done in triplicate on a subset of subjects by the same examiner, and with repeated measurements separated by equal time to lessen recall bias. All unilateral measurements will be taken on the left side of the body. All measurements will be recorded to the nearest 0.01 cm. Informed consent will be obtained from parents, and assent will be given by children where possible. Operational definitions for various anthropometric measurements will be defined using standard references. (12)

Design of Statistical analysis : The study aims to develop a prediction algorithm for estimating height using segmental length. In our exercise, we propose to develop several prediction algorithms in an adequate sample with a minimum sample size of 20 for each predictor variable and test the algorithm in a test sample that is naive to the algorithms. Then the performance of different algorithms will be assessed using statistical principles of error reduction, and the best one chosen for recommendation.

Expected outcome/ Deliverables aligned with research question (up to 100 words): a) To develop several prediction algorithms using different segmental lengths for different age groups and both sexes to predict estimated height. b) The performance of different algorithms will be assessed, and the best one chosen for recommendation. The development of anthropometric protocols, that emerged from such research, would benefit the follow-up of the growth and nutritional status of children with severe psychomotor disabilities.

Immediate next steps following the end of the project(up to 100 words): Clinical application of segmental lengths to populations in whom it is difficult to measure anthropometric data. Specialized growth charts have been developed for many other conditions, including Down syndrome,18 Prader-Willi syndrome, Turner syndrome, De Lange syndrome, and even meningomyelocele. There is a great need for diagnosis-specific reference data. Future research may lead to a specialized growth chart for CP.

Whether the study is going to generate new intellectual property: We will be developing several prediction algorithms for estimated height using 3 segmental measures in 4 age groups in both sexes for an Indian population. The performance of different algorithms will be assessed, and the best one chosen for recommendation in each age group. No such equation has been derived for our Indian population by Indian researchers.

Timelines with achievable targets	Download

Proposal Details (PART-B)

Preliminary work done by the PI including the source of funding (up to 250 words): Preliminary review of literature and sourcing of equipment needed done

Skill and experience of the research team (Highlight only salient points (along with 5 relevant publications) that provides confidence to reviewers that team can implement the project with quality.) **:** • PRINCIPAL INVESTIGATOR Dr Kalyani Pillai MD(Paediatrics) , Professor Department of Pediatrics Amala Institute Of Medical Sciences, Thrissur Kerala Email : pillaiskpillaiyahoo.co.in • ACADEMIC QUALIFICATION EDUCATIONAL QUALIFICATIONS Degree College University Year of passing MBBS Seth G S Medical CollegeKEM Hospital,Mumbai Mumbai University 1987 M D Paediatrics Seth G S Medical CollegeKEM Hospital, Mumbai Mumbai University 1992 TEACHING EXPERIENCE (Post MD) University College Date Manipal University K M C Manipal 17.02.1993 to 10.07.1994 Calicut University and KUHS Amala Institute of Medical Sciences, Thrissur 02.06.2003 date I am at present working as Professor, Department of Pediatrics, Amala Institute of Medical Sciences, Thrissur, Kerala.I am a permanent employee of this institution. LIST OF PROJECTS IN LAST 3 YEARS 1) 2021 A study on the metabolic derangements after using 0.9 %normal saline as maintenance IV fluid in children attending tertiary care centre in Kerala 2) 2022-A study on anemia as a risk factor for acute lower respiratory tract infections in children aged 3 months to 5 years of age attending a tertiary care centre in Kerala 3) 2023 -A study on the seroprevalence of Hepatitis A virus antibody and its determinants in pediatric age group in a tertiary care centre in Kerala AWARDS 1 State IAP President's Special Award – at State Pedicon 2006 for Organizing Secretary 2nd Annual State IAP Kerala Adolescent Chapter Meet 2006 2 Best paper (Poster) award at State Neonatology conference conducted by NNF Kerala branch, Feb. 2007 3 Best paper(poster) award in teaching staff category at South Zone Pediatric conference in October 2008 4 Best paper (free paper) State IAP conference November 2010 5 Best paper 2 nd Prize for (free paper) State IAP conference November 2012 6 "Manampurath Oommen John Memorial Award" for the best original research paper published in 2019 member of Indian Academy of Pediatrics ,Kerala State 7 Best Guide for MD/DNB thesis for oral presentation year 2023 by IJP KC Choudary foundation at AIIMS New Delhi. Examiner for MBBS MD Paediatrics at Kerala University of Health Sciences, Rajiv Gandhi University, MGR University Tamil Nadu, MAHE University, Yenapoya University Jipmer. Publications – 17 publications in indexed National International Journals. LAST 10 RECENT PUBLICATIONS orcid id: 0000-0002-3310-5912 Sl. No. Title Year Citation URL Category 1 Kidney Injury Molecule-1 as a Urinary Biomarker for Aminoglycoside Induced Acute Kidney Injury, among Non-Critically Ill Children 2023 0nline George, M., Pillai, K. Suseela, K.V. Kidney Injury Molecule-1 as a Urinary Biomarker for Aminoglycoside Induced Acute Kidney Injury, among Non-Critically Ill Children. Indian J Pediatr (2023). https://doi.org/10.1007/s12098-023-04987-x https://rdcu.be/dtPrl Scientific letter in PubMed Indexed Journal 2 Non-invasive assessment of volume status of children with edema due to steroid sensitive nephrotic syndrome using urinary indices and inferior venacava ultrasonography. 2023 Kalyani Pillai, Jalaludeen J, Vadakoot Krishnan Parvathy. Asian J Med Sci . 2023 Jan 1.14(1):217-21. DOI:10.3126/ajms.v14i1.48586 https://www.nepjol.info/index.php/AJMS/article/view/48586 Original research article in DOAJ/Scopus indexed journal 3 Effect of Second-hand smoke exposure on Pulmonary Function Test and predictors of abnormal PFT, in children attending a tertiary care center in a semiurban area in South India", 2022 Kalyani Pillai , Mohamed Rabeeh International Journal of Science Engineering Development Research (www.ijsdr.org), ISSN:2455-2631, Vol.7, Issue 9, page no.100 - 104, September-2022 http://doi.one/10.1729/Journal.31832 Original research article in DOAJ indexed journal 4 Serum zinc levels and predictors of severity of acute lower respiratory tract infections in children under five years of age 2021 Shisira Philip1, Jessie Jose2, Kalyani Pillai3, Vadakkoottu Krishnan Parvathy4 Sri Lanka Journal of Child Health, 2021 50(4):630-636 htpp://doi.org//10.4038/sljch.v504.9852 Original research article in Scopus indexed journal 5 Non-operatively corrected congenital knee dislocation: A rare disorder 2020 Dr. Tharun C Vasrghese, Dr. Kalyani Pillai and Dr. S Ramaraj, IJOS 2020 6(4): 668-669 © 2020 IJOS https://doi.org/10.22271/ortho.2020.v6.i4j.2400 Case Report in Indexed Journal 6 Diagnosis And Assessment Of Severity of Paediatric Pneumonia Using The Respiratory Index Of Severity (Risc) Scoring System 2021 Kalyani Pillai, Edwin Ros Sartho, Lekshmi T P, Parvathy V K Diagnosis And Assessment of Severity of Paediatric Pneumonia Using The Respiratory Index Of Severity (Risc) Scoring System.Indian Pediatr.2021 Nov1558(11):1052-1053 PMID:34837366 https://pubmed.ncbi.nlm.nih.gov/34837366/ Original research article in PubMed Indexed Journal 7 "Use of online survey tools to conduct online medical examination during lockdown time" 2020 Varghese T.C., Pillai K., Ramaraj S., Use of online survey tools to conduct online medical examination during lockdown time. Int.J.Med.Sci.Educ 20207(4):18-22 www.ijmse.com Original research article in PubMed Indexed Journal 8 Platelet Indices as an Acute Phase Reactant 2019 Pillai K, Premarajan S,Parvathy VK. Platelet Indices as an Acute Phase Reactant. J Pediatr Crit Care 20196(2): 15-17. https://www.researchgate.net/publication/332920090JOURNALOFPEDIATRICCRITICALCARE Original research article in PubMed Indexed Journal 9 Asthma inchildren with Atopic Dermatitis 2010 Kalyani Pillai ,Sandhya Acharya, Indian Journal Of Pediatric Dermatology 2010 vol12 no 1 :6-9 http://www.ijpd.in/ Original research article in PubMed Indexed Journal 10 Kasabach merritt syndrome: Management with interferon 2010 Acharya S, Pillai K, Francis A, Criton S, Parvathi V K, Indian Journal of Dermatology 2010:55(3):281-3 http://www.e-ijd.org/text.asp2 010/55/3/281/70705 Case Report in PubMed Indexed Journal COPRINCIPAL INVESTIGATOR Dr V Ramankutty MD(Paed),Mphil MPH Research Director Amala Centre for Research Promotion and Amala Cancer Research Centre Society , Thrissur Kerala 680555 Email: rdamalacrcs.org Over 60 peer reviewed publications •

Institutional Support/ Facilities: Amala Institute of Medical Sciences is a tertiary care medical college with 100 seats for MBBS, 45 postgraduate seats for broad specialties, and super specialty DM, DNB, and MCh courses. Amala Cancer Research Centre Society is in the same campus and has been recognized by the Department of Scientific and Industrial Research (DSIR). The institute has state-of-the-art infrastructure and well-equipped laboratories. There is an Amala Centre for Research Promotion at the institute that will help us in designing the study and data analysis. We are looking at a collaboration with the Amala Centre for Research Promotion and Department of Community Medicine which will help us in training health workers, data collection, securing permissions in school and community, and data analysis

Laboratory facilities (in-vitro/ in-silico) Institutional resources such as instruments/ equipment and other physical resources available for use in the project proposed animal house etc.
not applicable

Conflict of Interest declaration (if any) nil

Duration (in Months)	33 Months

Investigator Details

#	Name	Institute	Designation	Email	Contact No.	Role in Proposal
1	Dr KALYANI PILLAI	Amala Institute of Medical Sciences	Professor	pillaiskpillai@yahoo.co.in	9447834079	PI

Investigator Details

#	Name	Institute	Designation	Email	Contact No.	Role in Proposal
2	Prof Saju Cherumadathil	Amala Institute of Medical Sciences	Professor	drsajucr@gmail.com	9495315986	Co-PI
3	Prof V RAMAN KUTTY	Amala Cancer Research Centre	Professor	kuttyr@gmail.com	9847060199	Co-PI

Documents consideration

#	Document Name	Is Applicable?	Uploaded Document	Remarks
1	Additional supplementary information including figures tables flow diagrams etc can be shared as PDF	Yes	View	equipment that needs to be imported for the study
2	Declaration & Attestation Form(duly signed by Head of Department/ Director)	Yes	View	declaration form

Proposed Budget Details

Institute	Budget Year	Manpower Budget (Rs.)	Contingency	Consumables	Equipment	Travel	Overhead	Total(Rs)
Amala Cancer Research Centre	1	0	0	0	0	0	0	0
Amala Institute of Medical Sciences	1	69600.00	25000.00	55500.00	1247700.00	174000.00	6	1571806
Amala Cancer Research Centre	2	0	0	0	0	0	0	0
Amala Institute of Medical Sciences	2	734400.00	25000.00	25000.00	0	0	3	784403
Amala Cancer Research Centre	3	0	0	0	0	0	0	0
Amala Institute of Medical Sciences	3	1667040.00	150000.00	0	0	0	0	1817040
Total in (Rs.):		**2471040**	**200000**	**80500**	**1247700**	**174000**	**9**	**4,173,249.00**

Budget Breakup Details (Staff/Manpower)

#	Budget Year	Institute	Designation	No. of Person(nos)	Require Month(nos)	Cost Per Person(Rs.)	Overhead(Rs.)	Total Cost(Rs.)
1	**Year: 1**	Amala Institute of Medical Sciences	Project Nurse - II	3	1	23,200	3.00	69,600.00
Justification : For data collection								
2	**Year: 2**	Amala Institute of Medical Sciences	Senior Project Assistant	2	12	30,600	0.00	734,400.00
Justification : For project management and team coordination								
3	**Year: 3**	Amala Institute of Medical Sciences	Project Reseach Scientist - II (Non Medical)	1	12	77,720	0.00	932,640.00
Justification : For research								

Total Cost (Rs.) **2,471,043.00**

including overhead

Budget Breakup Details (Staff/Manpower)

4	**Year: 3**	Amala Institute of Medical Sciences	Senior Project Assistant	2	12	30,600	0.00	734,400.00

Justification : For project management and team coordination

Total Cost (Rs.) **2,471,043.00**
including overhead

Contingency budget breakup details

#	Budget Year	Institute	Overhead Charges (Rs.)	Total Cost(Rs.)
1	**Year: 1**	Amala Institute of Medical Sciences	0.00	25,000.00

Contingency Name :initial costs

Justification :initial costs

2	**Year: 2**	Amala Institute of Medical Sciences	0.00	25,000.00

Contingency Name :contingency for research

Justification :for research

3	**Year: 3**	Amala Institute of Medical Sciences	0.00	150,000.00

Contingency Name :for publication and seminar

Justification :to disperse knowledge regarding the study

Total Cost (Rs.) **200,000.00**
including overhead

Consumables Budget Breakup Details

#	Budget Year	Institute	Consumables Name	Overhead	Total Cost(Rs.)
1	**Year: 1**	Amala Institute of Medical Sciences	1 Office Stationery 25000.00 25000.00 50000.00 2 Course material for training 3000.00 3000.00 3 Refreshments for training 2500.00 2500.00 4 Refreshments for participants 500 x 50 25000.00	3.00	55,500.00

Justification : necessary material for data entry,data collection and training

2	**Year: 2**	Amala Institute of Medical Sciences	office stationary	3.00	25,000.00

Justification : for data

Total Cost (Rs.) **80,506.00**
including overhead

Equipment Budget Breakup Details

#	Budget Year	Institute	Equipment Name	Equipment Model	Equipment Manufacturer	Equipment Type	Total Cost(Rs.)
1	**Year: 1**	Amala Institute of Medical Sciences	International shipping cost			Domestic	199,200.00

Justification :shipping costs of equipment, For research, accounting for fluctuations in dollar rates

Total (Rs.): **1,247,700.00**

Equipment Budget Breakup Details

Mode of Proposed disposal :no disposal						
2	**Year: 1**	Amala Institute of Medical Sciences	Steel tape		Domestic	1,500.00
Justification :for research ,500 Rs each for 3 tapes						
Mode of Proposed disposal :reusable in clinics						
3	**Year: 1**	Amala Institute of Medical Sciences	Harpenden portable anthropometer for height, UL length	(Holtain Model 601)	Domestic	870,000.00
Justification :3 numbers required for carrying out research , accounting for fluctuations in dollar rates						
Mode of Proposed disposal :can be used in disabled children for anthropometry						
4	**Year: 1**	Amala Institute of Medical Sciences	Shor knee height calliper		Imported	87,000.00
Justification :3 numbers for research , accounting for fluctuations in dollar rates						
Mode of Proposed disposal :can be used in disabled children for anthropometry						
5	**Year: 1**	Amala Institute of Medical Sciences	Printer		Domestic	15,000.00
Justification :for data entry statistics ,research						
Mode of Proposed disposal :not required						
6	**Year: 1**	Amala Institute of Medical Sciences	Laptop / Desktop		Domestic	75,000.00
Justification :for data entry statistics ,research						
Mode of Proposed disposal :not required						
					Total (Rs.):	**1,247,700.00**

Travel Justification

#	Year	Amount(Rs.)
1	**Year: 1**	174000.00

Justification :SL. NO PURPOSE RATE/trip Trips per month No. of months No. of people ALLOWANCE JUSTIFICATION 1 Transport of team to field ? 1,000.00 12.00 12.00 144000.00 6 up and down taxi trip per month, each ?1000 per trip x 12 months 2 Transport allowance for trainers ? 6,000.00 5.00 30000.00

Total: **174,000.00**

Short resume PI/Co-PI

Name of PI/Co-Pi	DOB	Domain Expertise	Number of articles in Pub Med (Past 10 years)	h-index	Fellow of Academics	Role in Proposal

Short resume PI/Co-PI

Prof Saju Cherumadathil	1962-10-23	Community medicine epidemiology	1	6	a) Nodal Officer - AMALA-UNICEF Project on “Facts for Life”, b) Research associate-“Evaluation of Pulse Polio Program” conducted by IndiaCLEN. c) Investigator-“Evaluation of Family Health Awareness Campaign” conducted by IndiaCLEN. d) Project coordinator-WHO project on Hospital Waste Management at the Institute of Maternal and Child Health, Govt. Medical College Calicut. e) UNICEF project on timely achievement of targets related to MDGs and f) UNICEF Project on HIV/AIDS Awareness among adolescence.	Co-PI

Maximum of 10 primary research publications related to the proposal

Publication details in AMA style	Impact factor of journal	Author type (first, corresponding, coauthor)	Name of policy/programme/ protocol document or patent/commercialization of products where cited.
Breast Feeding Practices Among Post Natal Mothers In A Tertiary Care Hospital In Thrissur District, Kerala, India. MV Sruthi, CR Saju, N Catherin, MP Jini, VK Parvathy European Journal of Biomedical 3 (6), 473-477	NA	SECOND	NA
The style of mothering and its determinants: a study among mothers of lower primary school children. M Hasin, CR Saju, JM Mundodan, MP Jini International Journal of Community Medicine and Public Health 6 (2), 808	NA	SECOND	NA
Assessment and comparison of hygiene practices on complementary feeds among mothers in the urban and rural area in Thrissur district, Kerala. BS Kuruvilla, CR Saju, JM Mundodan, MP Jini Indian Journal of Forensic and Community Medicine 6 (2), 66-69	NA	SECOND	NA
A Comparative Study on Complementary Feeding Practices among Mothers in Urban and Rural Areas in Trichur District, Kerala. BS Kuruvilla, CR Saju, JM Mundodan National Journal of Community Medicine 11 (07), 294-298	NA	SECOND	NA
Utility of Broca’s index in assessing body mass: analysis of anthropometric measures from a cross sectional study. JM Mundodan, CR Saju, VM Joshy National Journal of Community Medicine 10 (11), 600-604	NA	SECOND	NA
An assessment of the nutritional status of underfive children in a rural area of Thrissur district, Kerala, India. R Priyanka, V Vincent, MP Jini, CR Saju Int J Community Med Public Health 3 (12), 3479-3486	NA	AUTHOR	NA
Assessing risk factors of Non-Communicable Diseases using STEPS Survey in a rural area of Thrissur District, Kerala Saju CR, Catherin Nisha, Jerry Rachel, Kerline Jerome, Subin Koshy, Vidhu J, International Journal of Medical Science and Current Research 2(40, 241	NA	FIRST	NA

Experience as Investigator

Title of the project	Role	Funding Agency	Amount of Funding	Reference of main publications

Ongoing research projects (funded by ICMR)

Project Id	Title	Grant Amount	Start Date	End Date

Name of PI/Co-Pi	**DOB**	**Domain Expertise**	**Number of articles in Pub Med (Past 10 years)**	**h-index**	**Fellow of Academics**	**Role in Proposal**

Short resume PI/Co-PI

Prof V RAMAN KUTTY	1953-12-21	Epidemiologist, Modernising Government Programme (MGP-a Govt of Kerala initiative): 2004	33	NA	Member, Technical Advisory Committee, Health Technology Assessment India (HTAIn), Department of Health Research, Government of India (continuing) Member, Steering Committee of SHARE- South Asian Hub for Advocacy, Research and Education in Mental Health, a US National Institutes of Health initiative for supporting community mental health research in India, Pakistan, Bangladesh, Sri Lanka, Nepal and Afghanistan Chairman, Technology Development and Adaptation Program, Kerala State Council for Science, Technology and Environment, Government of Kerala Member, Committee for evaluation of proposals for conducting seminars, symposia and workshops, Kerala State Council for Science, Technology and Environment Member, Governing Board, Institute of Health Systems, Hyderabad Chairman, Health Action by People, an NGO working in community based health research in Kerala Member, IDPAD (Indo-Dutch Programme for Alternatives in Development) MEMBERSHIP IN PROFESSIONAL BODIES Member, International Epidemiological Association Fellow, International Academy of Cardiovascular Sciences	Co-PI

Maximum of 10 primary research publications related to the proposal

Publication details in AMA style	Impact factor of journal	Author type (first, corresponding, coauthor)	Name of policy/programme/ protocol document or patent/commercialization of products where cited.
A Rosengren, K Theo, S Rangarajan et al (including VR Kutty). Psychosocial factors and obesity in 17 high-, middle-, and low-income countries: The Prospective Urban Epidemiological (PURE) study. International Journal of Obesity 2015:39,8:1217-23	NA	AUTHOR	NA
Pankajkumar A Kasar, Raghavan Nair Suresh Kumar, Vellappillil Raman Kutty. Somatic growth following congenital heart surgery in economically underprivileged children. Heart Asia 2011:3,1:135-139	NA	AUTHOR	NA
Pinaki Sensarma, Subhasis Bhandari, and V Raman Kutty. Immunisation status and its predictors among children of HIV-infected people in Kolkata. Health and Social Care in the Community 201220,6:645-652	NA	AUTHOR	NA
Joe Varghese, V Raman Kutty and Mala Ramanathan. The interactions of ethical notions and moral values of immediate stakeholders of immunization services in two Indian states: a qualitative study. BMJ Open 20133: e001905. doi:10.1136/ bmjopen-2012-001905	NA	SECOND	NA
Sensarma P, Bhandari S and Kutty VR. Barriers to immunization among children of HIV infected mothers in Kolkota, India: a qualitative study. Asia Pac J Public Health May 201527,2:1362-71	NA	AUTHOR	NA
PR Sreelakshmi,Sanjeev Nair, Biju Soman,Rani Alex, K Vijayakumar, V R Kutty. Maternal and neonatal outcomes of gestational diabetes: a retrospective cohort study from Southern India. Journal of Family Medicine and Primary Care 20154,3:395-8	NA	AUTHOR	NA
Bhandari TR, Sarma PS, Kutty VR. Utilization of maternal health care services in post conflict Nepal. International Journal of Women's Health 2015 7:783-90	NA	AUTHOR	NA
Uma Vadassery Sankar, V Raman Kutty, T N Anand. Measuring childhood socio-economic position in health research: development and validation of childhood socio-economic position questionnaire using mixed method approach. Health Promotion Perspectives 2019 9 (1): 40-49	NA	SECOND	NA

Experience as Investigator

Title of the project	Role	Funding Agency	Amount of Funding	Reference of main publications

Ongoing research projects (funded by ICMR)

Project Id	Title	Grant Amount	Start Date	End Date

Short resume PI/Co-PI

Name of PI/Co-Pi	DOB	Domain Expertise	Number of articles in Pub Med (Past 10 years)	h-index	Fellow of Academics	Role in Proposal
Dr KALYANI PILLAI	1966-03-24	paediatrics	10	nil	nil	PI

Maximum of 10 primary research publications related to the proposal

Publication details in AMA style	Impact factor of journal	Author type (first, corresponding, coauthor)	Name of policy/programme/ protocol document or patent/commercialization of products where cited.
Diagnosis And Assessment Of Severity of Paediatric Pneumonia Using The Respiratory Index Of Severity (Risc) Scoring System 2021 Kalyani Pillai, Edwin Ros Sartho, Lekshmi T P, Parvathy V K Diagnosis And Assessment of Severity of Paediatric Pneumonia Using The Respiratory Index Of Severity (Risc) Scoring System.Indian Pediatr.2021 Nov1558(11):1052-1053 PMID:34837366 https://pubmed.ncbi.nlm.nih.gov/34837366/ Original research article in PubMed Indexed Journal	2.3	FIRST	NA
Serum zinc levels and predictors of severity of acute lower respiratory tract infections in children under five years of age 2021 Shisira Philip1, Jessie Jose2, Kalyani Pillai3, Vadakkoottu Krishnan Parvathy4 Sri Lanka Journal of Child Health, 2021 50(4):630-636 htpp://doi.org//10.4038/sljch.v504.9852 Original research article in Scopus indexed journal	0.132	AUTHOR	NA
Kalyani Pillai , Mohamed Rabeeh International Journal of Science Engineering Development Research (www.ijsdr.org), ISSN:2455-2631, Vol.7, Issue 9, page no.100 - 104, September-2022	NA	FIRST	NA
Kalyani Pillai, Jalaludeen J, Vadakoot Krishnan Parvathy. Asian J Med Sci . 2023 Jan 1.14(1):217-21.	NA	FIRST	NA
George, M., Pillai, K. Suseela, K.V. Kidney Injury Molecule-1 as a Urinary Biomarker for Aminoglycoside Induced Acute Kidney Injury, among Non-Critically Ill Children. Indian J Pediatr (2023).	4.3	CORRESPONDING	NA

Experience as Investigator

Title of the project	Role	Funding Agency	Amount of Funding	Reference of main publications

Ongoing research projects (funded by ICMR)

Project Id	Title	Grant Amount	Start Date	End Date

Declaration

I hereby declare that the entries in this form and the additional particulars, if any, furnished herewith are true to the best of my knowledge and belief. I understand that in the event of my information being found false or incorrect at any stage, my project/proposal shall be liable to cancellation / termination without notice or any compensation in lieu thereof.

I hereby certify that the research proposal I have submitted to ICMR, New Delhi, for potential funding is entirely my original idea and has not been copied or replicated from any other source. Furthermore, I confirm that this proposal has undergone scrutiny using a standard plagiarism detection tool, verifying its originality and confirming that its contents have not been directly taken from any other sources. Additionally, I declare that there have been no established or pending plagiarism charges against me in the last five years.
In the event that the funding agency identifies any form of plagiarism or inconsistencies in the aforementioned proposal, I acknowledge and agree to comply with any actions deemed necessary by ICMR. I take full responsibility for any such discrepancies and will adhere to the consequences as required.