

**BKL Walawalkar Rural Medical College & Hospital**

# **Dervan cohort Project**

**Funded by Rama Purushottam Foundation Pune**

*Quarterly report April-June 2025*

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## Summary

The Dervan Cohort Study follows adolescent girls from their adolescent age through important life stages like before pregnancy (preconception), during pregnancy, childbirth, and after delivery. We are trying to understand how their health and nutrition in adolescence affects their future and their babies' health.

Between April and June 2025, the adolescent girls from the Dervan cohort were actively monitored and supported through a series of structured health follow-ups and interventions. This quarter focused on providing timely care, addressing common health issues among girls.

A total of 124 follow-up visits were conducted—9 first, 37 second, 59 third, and 19 fourth follow-ups. These regular touchpoints helped in tracking the health status of each girl and providing continuity of care.

In terms of reproductive and maternal health, 5 marriages were recorded, and 4 girls received preconception counselling. There were 6 pregnancy follow-ups and 4 deliveries, followed by 17 baby follow-ups and 2 post-delivery follow-up visits, ensuring care for both mother and child.

Girls reported a range of health complaints including irregular menstrual cycles, PCOD, skin issues, eye problems, joint pain, dental concerns, and general fatigue. Based on these issues, 134 referrals were made to specialists like gynecologists, dermatologists, ophthalmologists, dentists, orthopedics, and physiotherapists. Accordingly, 114 girls were given medicines, which included tablets for menstrual problems, eye drops, skin creams, antibiotics, pain relievers, and iron and vitamin supplements.

Family participation also increased, with 2 husbands and 5 parents attending consultations, reflecting improved awareness and involvement in adolescent health.

This ongoing support has not only improved the physical health of the girls but also encouraged early intervention, better compliance with treatment, and greater confidence among the girls and their families. The program highlights the importance of regular follow-ups, timely referrals, and care for adolescent girls, especially in rural settings.

## Reproductive and Health Follow-Up Data

Category/event	April-2025	May-2025	June 2025	Total
First follow up	02	03	04	09
Second follow up	12	15	10	37
Third follow up	34	16	09	59
Fourth follow up	05	11	03	19
No. of marriages	03	01	01	05
Preconception	02	02	00	04
Pregnancy follow up	02	03	01	06
Delivery	02	00	02	04
Baby follow up	01	08	08	17
Post-delivery follow up	00	01	01	02
Husband of the adolescent girls	02	01	00	03
Parents of the adolescent girls	00	02	03	05
#Girl's reference	49	44	41	134
Medicine given to girls	38	37	39	114
<b>Total</b>	<b>114</b>	<b>107</b>	<b>83</b>	<b>304</b>

#: Girls are followed up for various health complaints such as irregular periods, PCOD, eye problems, skin issues, surgeries, joint or bone pain, dental problems, general check-ups, and physiotherapy treatment.

Medicines are given to girls based on their specific health problems, such as tablets or syrups for irregular periods and PCOD, eye drops for eye issues, creams for skin problems, painkillers for joint pain, antibiotics for infections, and supplements like iron and vitamins.

## Investigations

### Investigations carried out at each visit

Investigations for all participants	1 <sup>st</sup> Follow up (n=09)	2 <sup>nd</sup> Follow up (n=37)	3 <sup>rd</sup> Follow up (n=59)	4 <sup>th</sup> Follow up (n=19)	Preconception (n=04)	Husband (n=03)	Pregnancy (n=06)	Delivery (n=04)	Post delivery (n=02)	Paediatric Follow up (n=17)
Anthropometry (height, weight, head circ., mid arm circ., waist circ., hip circ. Biceps, triceps, subscapular, Spurailiac)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓ (Only anthropometry)
Body composition (bio-impedance) (body fat %, percent muscle mass, fat mass)	✓	✓	✓	✓	✓	✓	✓	✓	✓	-
Nutritional and physical activity assessments (24 hr recall, Food frequency questionnaire)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓ (Diet consultation)
Abdominal and pelvis ultrasonography	✓	✓	✓	✓	✓	✓	✓	-	-	-
General examination (Blood pressure, Dental, Ophthalmology, Dermatology)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Laboratory investigations:</b>										
Hemogram (hb,	✓	✓	✓	✓	✓	✓	✓	-	✓	-
Fasting glucose (mg/dl)	✓	✓	✓	✓	✓	✓ (fasting/random)	✓	-	✓	-
Fasting Insulin (μU/ml)	✓	✓	✓	✓	✓	-	✓	-	✓	-
HbA1c (%)	✓	✓	✓	✓	✓	-	✓	-	-	-
Fasting C-peptide (ng/ml)	✓	✓	✓	✓	-	-	-	-	-	-
HOMA indices (beta cell function, insulin sensitivity, insulin resistance)	✓	✓	✓	✓	✓	-	✓	-	✓	-
30-min Glucose (mg/dl)	-	-	-	-	✓	-	-	-	-	-
30-min insulin (μU/ml)	-	-	-	-	✓	-	-	-	-	-
1-hour glucose (mg/dl)	-	-	-	-	-	-	✓	-	-	-
1-hour insulin (μU/ml)	-	-	-	-	-	-	✓	-	-	-
2-hour glucose (mg/dl)	✓	✓	✓	✓	✓	-	✓	-	-	-
2-hour insulin (μU/ml)	✓	✓	✓	✓	✓	-	✓	-	-	-
<b>Lipid Profile</b>										
Cholesterol (mg/dl)	✓	✓	✓	✓	✓	-	✓	-	-	-
HDL (mg/dl)	✓	✓	✓	✓	✓	-	✓	-	-	-
LDL (mg/dl)	✓	✓	✓	✓	✓	-	✓	-	-	-
TG (mg/dl)	✓	✓	✓	✓	✓	-	✓	-	-	-
VLDL	✓	✓	✓	✓	✓	-	✓	-	-	-
Vitamins B12 (pg/ml)	-	-	-	-	✓	-	-	-	-	-
Vitamin D (ng/ml)	-	-	-	-	✓	-	-	-	-	-
Folate (ng/mL)	-	-	-	-	✓	-	-	-	-	-
Homocysteine (μmol/l)	-	-	-	-	✓	-	-	-	-	-

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Thyroid function	✓	✓	✓	✓	-	-	✓	-	-	-
Genetics, Epigenetics, microRNA	✓	✓	✓	✓	✓	-	✓	-	✓	-
Anthropometry of offspring	-	-	-	-	-	-	-	✓	-	-
<b>Cord blood for glycaemic parameters</b>										
Glucose (mg/dl)	-	-	-	-	-	-	-	✓	-	-
Insulin (μU/ml)	-	-	-	-	-	-	-	✓	-	-
Cholesterol (mg/dl)	-	-	-	-	-	-	-	✓	-	-
Triglycerides (mg/dl)	-	-	-	-	-	-	-	✓	-	-
HDL (mg/dl)	-	-	-	-	-	-	-	✓	-	-
Placental tissue	-	-	-	-	-	-	-	✓	-	-
Additional tests if diagnosed with risks										

## Travel and communication

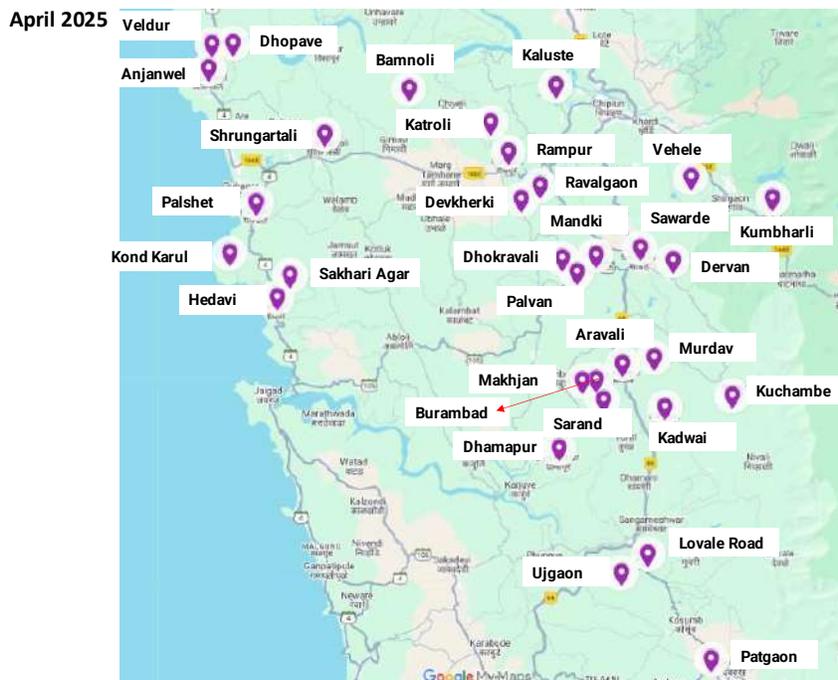
A total of 1520 adolescent girls were recruited at baseline.

Months	No. of field visits	Total distance covered (km)	No. of Phone calls to the girls
April-2025	42	3162	0647
May-2025	48	4573	0581
June-2025	35	3243	0811
<b>Total</b>	<b>125</b>	<b>10978</b>	<b>2039</b>

*\*Field visit details attached*

**Name of the village and distance covered from April 2025 to June 2025**

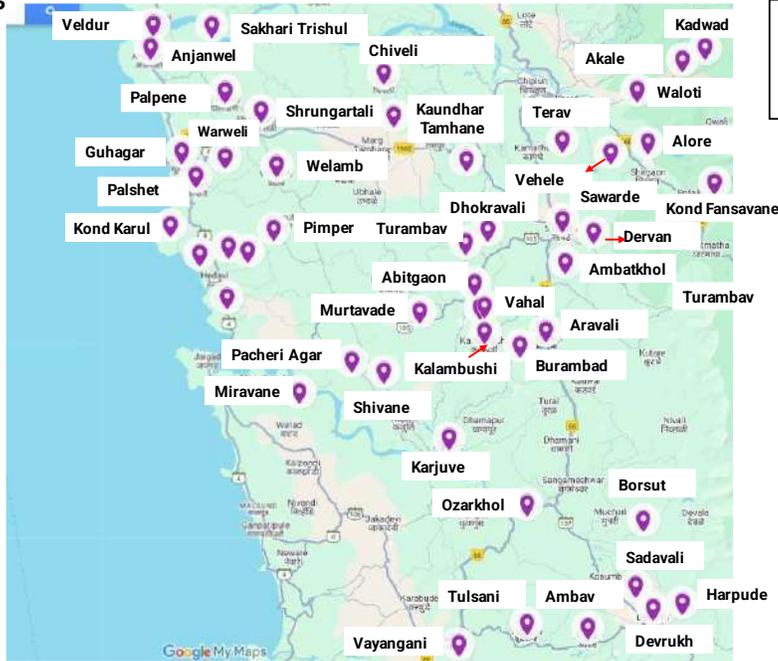
### 1. April 2025



<p>Total no. of visits= 42</p> <p>Total distance covered (km)=3162</p>
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## 2. May 2025

May 2025



Total no. of visits= 48

Total distance covered (km)=4573

## 3. June 2025

June 2025



Total no. of visits=35

Total distance covered (km)=3243

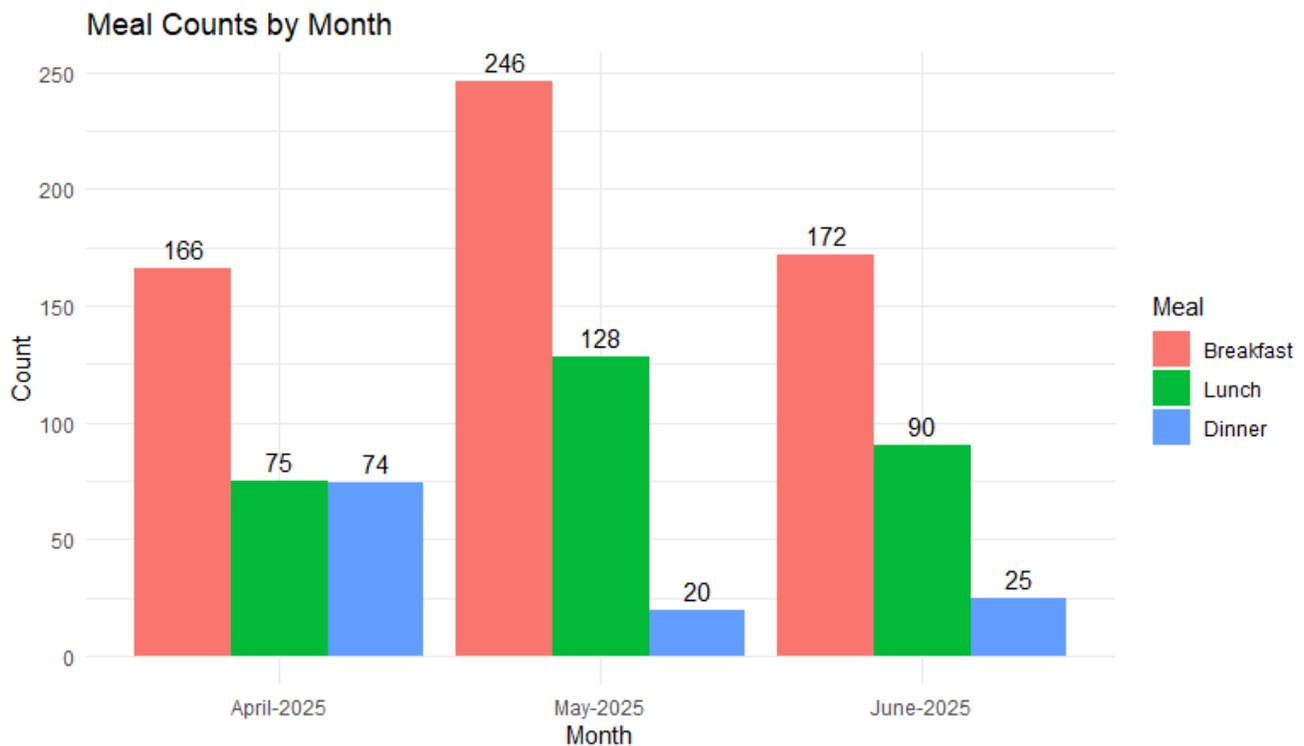
## Dietary and nutritional support

Over the three-month period, a total of 584 breakfasts, 293 lunches, and 119 dinners were provided to adolescent girls in the Dervan cohort. This nutritional support ensured the girls received regular and balanced meals, with a strong focus on providing healthy breakfasts to support their daily activities, growth, and overall well-being.

Most girls received breakfast and lunch while attending health check-ups or workshops.

Breakfast was given the most as it helps boost energy and keeps them active throughout the day.

Dinners were fewer, as many girls had their evening meals at home.



## Education and empowerment

### 1. Traditional Ganesh Festival Decoration Workshop

A traditional handicraft training workshop focused on eco-friendly Ganesh festival decorations was conducted from 24th to 26th May 2025 at the SVJCT Skill Development Center, Dervan. A total of 24 girls from Chiplun, Sangameshwar, and Guhagar talukas enthusiastically participated. The workshop was conducted by renowned arts and crafts trainer Ms. Chandrika Kamat (Mumbai), known for her demo sessions on various TV channels (DD, Zee Marathi, Me Marathi, E Marathi, SAAM Marathi), and for conducting celebrity workshops for television actors and fashion designers in Mumbai and Delhi.

During the workshop, the participants learned to create pleated flowers, sunflowers, fan folds, jumbo flowers, and colorful peacocks using eco-friendly materials. Each participant was provided with materials and guided through hands-on practice. Ms. Kamat's patient mentoring helped boost the confidence of even the shyest participants, encouraging their creativity. Many girls expressed interest in turning this art into a source of income by taking decoration orders during festive seasons.



The initiative successfully enhanced the girls' creativity and confidence and received appreciation from all quarters for promoting traditional festive arts.



## 2. Kantha Work Embroidery Workshop

A two-day Kantha Work Embroidery Training was conducted from 22nd to 23rd May 2025 at the SVJCT Skill Development Center for girls from the Dervan Cohort Project. The training was led by Ms. Mrunmayee Avachat, founder of Nikai Fashion Studio, a fashion designer and social entrepreneur. She has served as a faculty member at Pearl Academy and completed an Executive Program in Fashion Designing in London.

Participants were introduced to traditional Kantha work, a form of hand embroidery now popularly used in modern textiles. The training included basic motifs using running stitch, mirror work, Sindhi stitch, slip stitch, and hemming techniques. Girls also learned the finishing techniques for table runners and other embroidered items.

The workshop emphasized clean and intricate stitching, enabling participants to beautify fabric without complexity. The training aimed to create livelihood opportunities through skill development. Some participants have already started earning by taking embroidery orders, showcasing the program's effectiveness in promoting self-reliance.



### 3. Food Processing Workshop

A three-day food processing workshop was held at S.V.J.C.T., Dervan, with great enthusiasm. Trainers from AARANA Solutions, a well-known entrepreneurship center in Dadar, guided the sessions. AARANA has trained over 20,000 entrepreneurs so far.

Girls from the Dervan cohort, as well as nearby areas like Terev, Chiplun, and Hadkani, participated actively.

Amruta Mahajan taught how to dehydrate fruits and vegetables and turn them into powder, which helps preserve food longer. Anagha Palav demonstrated how to make healthy snacks like ragi and besan laddoos, nan khatai, and coconut biscuits in simple ways.

There were also live demos of ready-to-make foods like instant misal, sabudana vada, and restaurant-style gravies.

The girls learned how to turn their cooking skills into small businesses. Sudesh Desai explained how government schemes like Udyam Registration, FSSAI, PMEGP, CMEGP, and PMFME can support women in starting businesses with low investment.

They also received guidance on product costing, marketing, and business growth strategies.

This workshop not only taught food processing but also inspired local girls to start small-scale businesses using local fruits, vegetables, and herbs. It was a strong step toward empowering women in the Konkan region.



## Publications

1. Suvarna Patil et. al. Cross sectional associations between plasma Copper, Zinc and prediabetes among rural Indian adolescent girl. Baseline data from DERVAN cohort (DERVAN-8) submitted to Journal of Biosciences (*Under review*)
2. Suvarna Patil et. al. Determinants of hyperhomocystinemia in Indian adolescent girls from semi-urban, tribal and coastal divisions of Ratnagiri district, India. Findings from DERVAN cohort (DERVAN-10) submitted to Journal of Public Health Research. (*Under review*)
3. Suvarna Patil et. al. Heterogeneity of type 2 diabetes in rural India submitted to Frontiers in endocrinology (*review finalized*)
4. Leptin Adiponectin in adolescent girls (*In preparation*)