

Project Report

BOSCH-TDU pilot program towards building an innovative 4th non-institution, community driven tier in the National Health System

“ನನ್ನ ಉಸಿರು, ನನ್ನ ಸ್ವಾಸ್ಥ್ಯ”

“My Breath, My Health”

Submitted by
The University of Trans-Disciplinary Health Sciences and Technology (TDU)

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<https://tdu.edu.in/bosch-tdu-swasthya/>

BOSCH-TDU Program on Integrative Health

ನನ್ನ ಉಸಿರು, ನನ್ನ ಸ್ವಾಸ್ಥ್ಯ (My Breath, My Health)

Project PO Number:

Bosch Limited Bangalore Plant: 0082026113 - P47

Project Period:

October 2020 to November 2021

Project Area:

Five villages in Bidadi, Ramanagara district, Karnataka, India

Project/Study Protocol Approved by:

- Institutional Ethics Committee (IEC): TDU/IEC/12/2020/PR42
- Scientific Advisory Sub-Committee (SASC), TDU
- Clinical Trial Registration No.: CTRI/2021/02/031235
(<http://ctri.nic.in/Clinicaltrials/showallp.php?mid1=51516&EncHid=&userName=Wellness>)

Project webpage:

<https://tdu.edu.in/bosch-tdu-swasthya/>

Project implemented by:

The University of Trans-Disciplinary Health Sciences and Technology (TDU) in collaboration with The Institute of Ayurveda and Integrative Medicine (I-AIM), Bangalore, India.

About TDU

The University of Trans-Disciplinary Health Sciences and Technology (TDU) (www.tdu.edu.in) is a Karnataka State Private University (Karnataka Gazettee act No: 35 of 2013) established in 2013 (also registered under 2f UGC; No.F.8-8/2015(CPP-1/PU). TDU was established as an innovation centered university focused on designing and delivering research, outreach and education focused on social transformation aligned to emerging and futuristic needs.

TDU's goal is to provide affordable, accessible and scalable solutions for unmet social needs and generate original knowledge contributions arising from the interface of Indian knowledge

systems and modern science. Both TDU and I-AIM are the products of three decades of service in traditional health and medicinal plant conservation pioneered by the Foundation for Revitalisation of Local Health Traditions (FRLHT), Bangalore, India.

About I-AIM

Institute of Ayurveda and Integrative Medicine (I-AIM) (www.iaimhealthcare.com) is the TDU research hospital. It is a NABH accredited 100 bed hospital which is being developed as an innovative model of integrative healthcare for the 21st Century. This model combines the systemic and holistic outcomes of Ayurveda with the structural and quantitative parameters of modern bio-medicine to demonstrate evidence-based Ayurveda practice.

With a vision of healthcare for home, communities and institutions, I-AIM is committed to offer the best possible patient care through a management scheme that integrates Ayurveda and judiciously with need-based physiotherapy, yoga, acupuncture, modern medicine. It undertakes systematic clinical documentation based Ayurvedic qualitative parameters as well as diagnostic and monitoring tools of modern biomedicine.

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A Villager's Testimony



Participant, Chowkahalli

"I frequently suffered from fever. I have consulted many doctors and taken medicine but there was no cure. Even if I do little household work, like cleaning, I have to take rest. After participating in this program I visited the I-IAM hospital. They gave me tablets, kashaya, taila for massage, and now I am completely alright. Almost 60 to 70 members from my village visited the I-AIM hospital and we all benefited from this program. Hearty thanks to BOSCH company. I am using all three products, by using kavala taila, kapha <phlegm> in my mouth was cleansed... snoring while sleeping <is> reduced after using nasya taila. Fever, body pain, swelling in the arms were all reduced."

(Transcribed and edited from a video testimonial).

1) Program Objectives

1. To execute a pilot program designed by TDU-IAIM for improvement of respiratory health and wellness parameters of 250 villagers from Bidadi using Ayurveda and Yoga based interventions.
2. To collect and analyze scientific data to evaluate the efficacy of the program in enhancing wellness parameters and respiratory health
3. To design a “touch cum tech” community-based ecosystem to demonstrate reliable Ayurveda and Yoga interventions including development of tools for larger scale deployment
4. To establish a core team at TDU with capability to implement /guide similar health programs on scale.

A Villager's Testimony



Participant, Arlalusandra

“After consuming the products for 5 months, I am not suffering from any kind of fever, cough and cold. I am practicing exercises to improve my health. I have reduced the consumption of non-veg and increased the intake of vegetables. After observing improvement in my health even my neighbors were interested to participate in the program. I wish to continue the health practices in future also. Teleconsultation helped us a lot. I thank the health coach (Dr. Arpitha) for her guidance.”

(Transcribed and edited from a video testimonial).

2) Program Team



A Villager's Testimony



Participant, B. Hosur

“I used to get sour belches, sleepless nights and was feeling tired. Now, after joining this program, it has reduced. I like drinking kashaya. With the use of kavala taila gargling, bad smells in the mouth are reduced and by using nasya, my headache is reduced. The visit of the health coach, health worker and teleconsultation were truly beneficial. I wish to continue kashaya instead of tea and coffee in the future. I hope this program will continue and help a lot of other people like us.

(Transcribed and edited from a video testimonial).

3) Acknowledgements

It is BOSCH-CSR that gave TDU the opportunity to design and execute the project. Without generous funding a project of this complexity would not have been possible. Mr. Suresh BR, Senior Vice President, Country Head-HR, BOSCH-India; Dr. OP Goel, Senior General Manager, Head-BOSCH India Foundation, CSR and Skill Development; Ms. Nabila Kidwai, Senior Officer, CSR; Mr. Ashish Jain, Mr. Chetan, Mr. P. Appuswamy and field team (Dr. Kamath P, Mr. Prashanth KP, Ms. Chaitra) are acknowledged for the support and freedom to TDU.

Several individuals across various domains come together for the implementation of this project. Foremost, we would like to thank the study participants, who volunteered their time and efforts for this project. Health behavior change is a difficult process, and the full support, trust and patience of our participants is gratefully acknowledged. Direct and indirect support, and encouragement provided by the people of five villages involved in this program is also deeply appreciated.

The implementers on the ground, our health workers, Ms. Asha, Mr. Prakash, Ms. Shobha, Ms. Sudha and Ms. Sushila formed the implementation backbone of this program. Their cheerful dedication and excellent work ethic are sincerely appreciated. They formed a vital connection between the clinical team and participants, gave individual attention to all participants and ensured that their needs were communicated in a timely manner. The panchayat members provided every necessary support and helped with introducing our team to the community and motivating participants to volunteer. We also thank the Anganwadi teachers and local resource persons in this regard. Dr. Rajalakshmi, District AYUSH Officer, Ramanagara, Karnataka is acknowledged for her encouragement.

Our communication materials were made possible by Mr. Kumar Chitradurga (Anandamide Media Pvt Ltd) and Ms. Samyuktha Rao, while the video on Dinacharya practice was by Mr. SV Ojas and Mr. Vaishnav Menon. Creating health-related materials during the pandemic and in the local language was a specific challenge, and our partners helped with insights to ensure that our material resonates with the participants. We acknowledge the support of Mr. Murty (Ayurmegha team), Dr. Nirmla Murthy and Mr. Gaurav from the Foundation for Research in Health Systems (FRHS), Bangalore, for their technology support. We thank K.S Varier's Ashtanga Ayurvedics Pvt. Ltd., Trichy for manufacturing and packing of few healthcare products used in this study and Mr. Sujit of 'Spectrum' for the product kit bags.

Customised Yoga regimen for the participants was overseen by the Krishmacharya Yoga Mandiram, Chennai. The support provided for diet assessment of the participants by Prof. Mary Regi, Department of Home Science, Mount Carmel College, Bangalore is gratefully acknowledged.

Thanks are due to Prof. Darshan Shankar, Vice Chancellor, TDU and Prof. AK. Gupta, Registrar, TDU for their encouragement and inputs in program design. Dr. Narendra Pendse, a senior Ayurveda vaidya is recognized for his critical inputs on product and wellness regimen design. We received tremendous cooperation from various staff members at TDU and IAIM for project execution support (HR, Accounts, Admin and canteen teams). The field site was more than 100 km from our hospital and executing participant visits required close coordination from various departments. We also acknowledge the generous support of expertise, manpower and infrastructure from the TDU-Rural India Supporting Trust (RIST) team.

We thank the Institutional Ethics Committee (IEC) and Scientific Advisory Sub-Committee (SASC) of TDU for reviewing the program.

A Villager's Testimony



Participant, B. Hosur

"There are both bodily and mental benefits after participating in this program. My weight is reduced, my digestion has improved and overall, my immunity is strengthened. I use all the products regularly and benefited from this. Initially my neighbors were not interested to participate but after they heard from us about the program they are interested"

(Transcribed and edited from a video testimonial).

4) Executive Summary

Context

Out of pocket health expenditure claims the largest share of unplanned household income in rural India. With increases in chronic metabolic diseases and more recently, with the COVID-19 pandemic, this expenditure has only grown. One way individuals can address health needs is to empower themselves with the knowledge and practices to not only manage their disease (curative), but also to stay healthy (preventive). Ayurveda has a sophisticated concept and assessment framework for this holistic wellness contained in the term *Swasthya*. In simple terms, *Swasthya* is a state of harmony at multiple biological levels, of both body and mind. **Hence the name of this project, “Nanna Usiru, Nanna Swasthya” (Kannada) or “My breath, my health”.** The Ayurveda framework for *Swasthya* integrates *ahaara*, *vihaara* and *aushadha* - individualized diet and lifestyle guidelines, supplemented by wellness formulations and need-based detoxification therapies.

Focus

This pilot project aimed to execute a wellness and respiratory health program developed & designed by TDU-IAIM on the Ayurveda *Swasthya* framework and collect multi-dimensional health datasets to evaluate the efficacy of the program in meeting its objectives of improving respiratory health & general wellness.

Key Operational Features

The program was operationalized by providing three products for daily use, personalised dietary guidance, and yoga practices. The three products were designed based on guidelines in classical texts and contain herbs and oils. A daily decoction was to be drunk (*kashaya*), while an oil for mouth gargling (*kavala*) and oil for nasal application (*nasya*), along with instructions for use, were provided (Fig.1). Dietary and lifestyle guidelines were personalized and prescribed based on the individual’s *Prakruti* (an Ayurveda system of classifying phenotypes) and current health status. The program included Yoga practices, which complement the Ayurveda framework. Yoga practices were also prescribed based on individual need assessments.

Touch and Tech

To achieve compliance and monitor progress, an ecosystem of “touch” and “tech” was created. Elements of the “touch” components included recruitment and training of local residents as health workers, who constantly monitored participants in their respective villages. The next

level of “touch” was a health coach, an Ayurveda doctor in each village, to create a trusting health ecosystem. “Touch” further included regular consultations with IAIM physicians, both physically and digitally (tele-consultation). “Tech” was utilized to capture multiple levels of data to implement, track and evaluate the program.

Data Collection

Several outputs were collated to evaluate the effectiveness of this program. These outputs were designed to capture both qualitative and quantitative parameters associated with an individuals’ sense of wellbeing. Qualitative assessments included the globally accepted WHO-Quality of Life survey and self-reporting questionnaires. Quantitative assessments included a novel Ayurveda-based questionnaire to indicate wellness, clinical tests to capture respiratory health status and laboratory-based investigations such as blood and urine tests.

Ethical Approvals

Formal approval was obtained from the Scientific and Institutional Ethics Committee. > 4,000 participants were screened and of the participants who consented, 278 were recruited based on inclusion and exclusion criteria as shown in the program process diagram (Fig. 2). Of these, 250 participated for the full duration of the program.

Field Experience

The Ayurveda interventions were well accepted by the participants which was reflected in the weekly monitoring records. Among 278 enrolled participants, about 87%, 82% and 70% of participants followed Ayurveda *Kashaya*, *Nasya* and *Kavala* practices respectively with high compliance (i.e., for more than 70% of the days during the project duration). By the end of the program 73% of participants reported practicing yoga regularly.

Outcomes

As a primary indicator, there was statistically **significant improvement in the wellness** score of participants with over 70% of the participants showing a positive outcome. This was corroborated by participants’, with ~50% reporting a positive change in health status from having “minor health issues” to “being healthy”. **WHO QoL-BREF questionnaire showed significant improvement** in two domains: 70% participants reported improvement in physical health and 64% participants reported improvement in psychological wellbeing. **60%** showed an improvement in **BOLT** (Body Oxygen Level Test), while **62%** of the participants displayed an improvement in walking capacity assessed through a **6 minutes’ walk test**. Amongst the

participants with respiratory health issues at the baseline of the program, **84%** found an improvement by the end of the study.

The above results, drawn from analysis of scientifically collected data at the beginning and end of study as baseline and end line measurements, indicate that the primary goal of “*Nanna usiru, nanna Swasthya*”, “My breath, my health” program to improve an individual’s health through contemporary application of traditional medicine has been met.

Conclusion

The high percentage (89%, n=250) of recruited participants (n=278) that completed the 6-month study based on inclusion-exclusion criteria, indicate that such a program can be embedded in people’s lives and become a habit. This level of participation establishes the efficacy of the pilot program. Furthermore, there were no adverse events during the program which show that interventions are safe. The positive results from the pilot establish a case for taking the program to a 5000 population in a second phase, wherein scalable strategies can be standardized for a mass scale program.



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My breath, my health



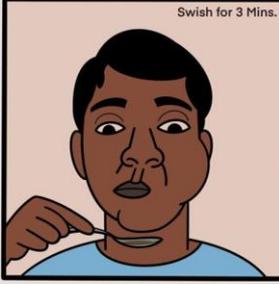
Nasal drop, *Anutaila*



ಮೂಗಿನ ಔಷಧಿ -ಅಣುತೈಲ

Mouth swish, *Sesame Oil*

Swish for 3 Mins.



ಔಷಧಿಯುಕ್ತ ಎಳ್ಳೆಣ್ಣೆಯಿಂದ ಬಾಯಿ ಮುಕ್ಕಳಿಸುವುದು

Decoction, *Kshmatwa Choorna*

Steep for 5 Mins.



ಕ್ಷಮತ್ವ ಚೂರ್ಣದ ಕಷಾಯ

“This CSR project is funded by BOSCH and implemented by TDU”
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Fig 1: Ayurveda interventions followed in the Integrative Wellness Program

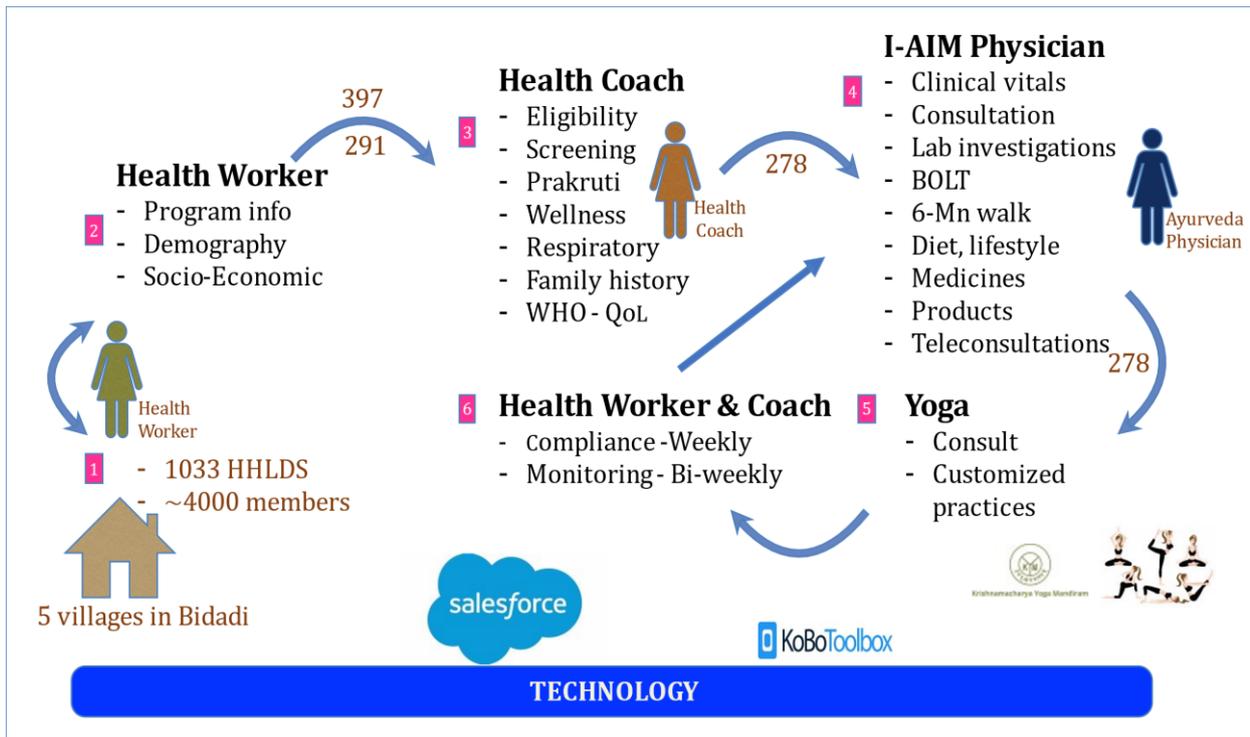


Fig 2: Elements of Ecosystem and Process