

“Potential health gain by developing a physical activity session in rural settings”



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Introduction

Non-communicable diseases (NCDs), known as “lifestyle diseases”, contribute nearly half of all deaths, significant morbidity and disability in India and. Every year, roughly 5.8 million Indians die from heart and lung diseases, stroke, cancer and diabetes. 1 in 4 Indians risks dying from an NCD before they reach the age of 70. **Insufficient physical activity (IPA)** contributes to 3.2 million deaths and 69.3 million DALYs (Disability-Adjusted life year) each year as reported by WHO.

Key facts

IPA, key risk factor for NCDs and 4th leading cause of death worldwide. Physical Activity (PA) has significant health benefits and contributes to prevent NCDs. Globally, 1 in 4 adults is not active enough and more than 80% of the world's adolescent population is IPA. Policies to address IPA are operational in 56% of WHO Member States and WHO Member States have agreed to reduce IPA by 10% by 2025.

At the Fifty-third World Health Assembly (May 2000) **PA** was affirmed as a key risk factor in prevention and control, and a resolution (WHA53.17) was adopted encouraging the WHO to provide leadership in combating physical inactivity (PI) and associated risk factors .

Physical Exercise (PE): what does it mean??

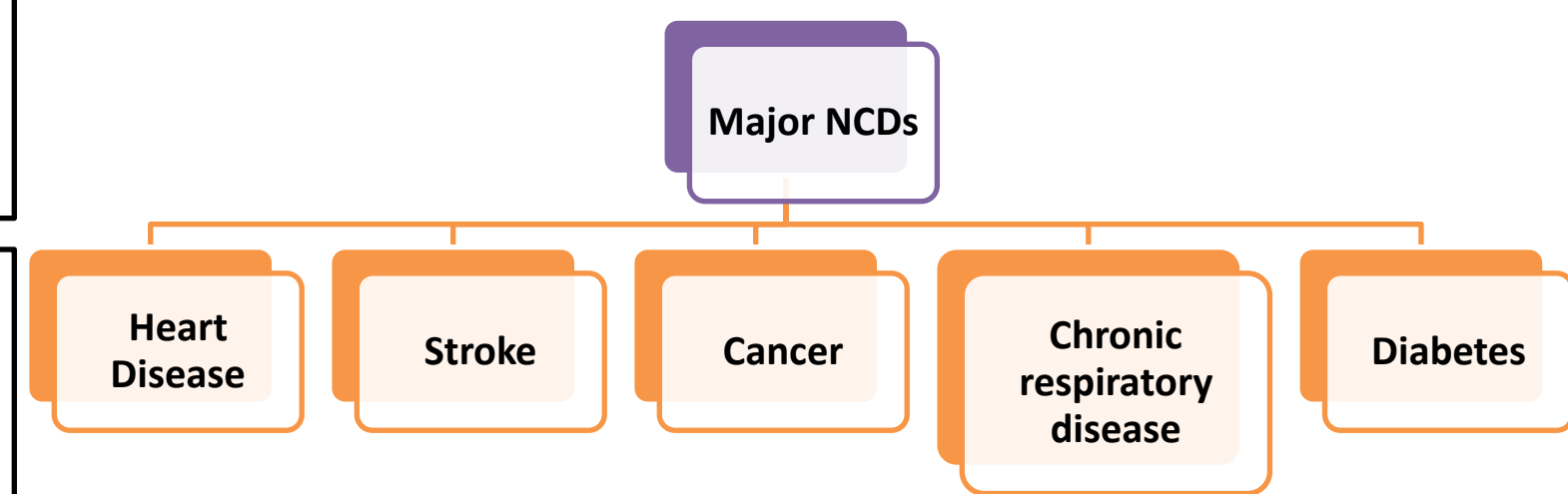
The "physical activity" should not be mistaken with "exercise". Exercise, a subcategory of physical activity is planned, structured, repetitive, and purposeful for the improvement and maintenance of physical fitness. It includes exercise as well as other activities which involve bodily movement and are done as part of playing, working, active transportation, house chores and recreational activities.

Myths about PA

Being physically active is too expensive, requires equipment, special shoes and clothes...and sometimes have to pay to use sports facilities. It takes too much time!; There's no need to spend time or energy for teaching children about PA as they are already so active; PA is for people in the "prime of life". At my age, I don't need to be concerned with it...

“Physical inactivity is a societal, not just an individual problem. Therefore it demands a population-based, multi-sectoral, multi-disciplinary, and culturally relevant approach”. PA is one of the important determinants of healthy living. But such an important health-protecting behavior is not commonly seen in rural population. This study was undertaken to assess the behavior modification of rural people, ensuring the availability of physical activity session in rural settings; otherwise it was not practiced in the existing culture of health. The evidence based outcome of a physical activity session can overcome the preexisting mind set of rural folk.

Community awareness on metabolic health and the benefits of regular PE in 8 villages of Birbhum district.



Impact of NCDs: The burden of NCDs has an impact not only on the quality of life of affected individuals and their families, but also on the country's socioeconomic structure.

Projected loss of National income attributable to heart disease, stroke, and diabetes, selected countries, 2005-2015 (billions of constant 1998 international dollars) (World Health Organization / World Economic Forum 2008).

Table 1

Country	Estimated income loss in 2005	Estimated income loss in 2015	Accumulated loss in 2005 value
Brazil	2.7	9.3	49.2
Canada	0.5	1.5	8.5
China	18.3	131.8	557.7
India	8.7	54	236.6
Nigeria	0.4	1.5	7.6
Pakistan	1.2	6.7	30.7
Russian Federation	11.1	66.4	303.2
United Kingdom	1.6	6.4	32.8
United Republic of Tanzania	0.1	0.5	2.5

The Real Facts of PA

Regular PE reduces abdominal adiposity. It improves insulin action, HDL-c levels, and reduces the risk of type 2 diabetes even without weight reduction. “A focus on ‘fitness’ rather than ‘fatness’ is an important message for both healthcare professionals and people with MetSy”. So, regular physical exercise should perform beyond daily activities for healthy life.

Why PE in rural settings?

India is a country of diversity and inequality. Inequality prevails as in the metro cities with the mushrooming of fitness centers which are comparatively less in the district levels and merely present in rural India. Hence the practice of regular PE among urban population is more abundant than that in the rural settings.

The social stigma and pre-conceived notions of rural people impose a great effect that leads to a culture where regular exercise is not a part of daily life!

Aims and Objectives

LFWB undertook the venture to introduce a **regular physical activity session** and make it accessible to the rural people so that a behavior modification could be achieved. Evidence based outcome assessment to establish the necessity of PA once again.

Results & Discussion

Figure 1

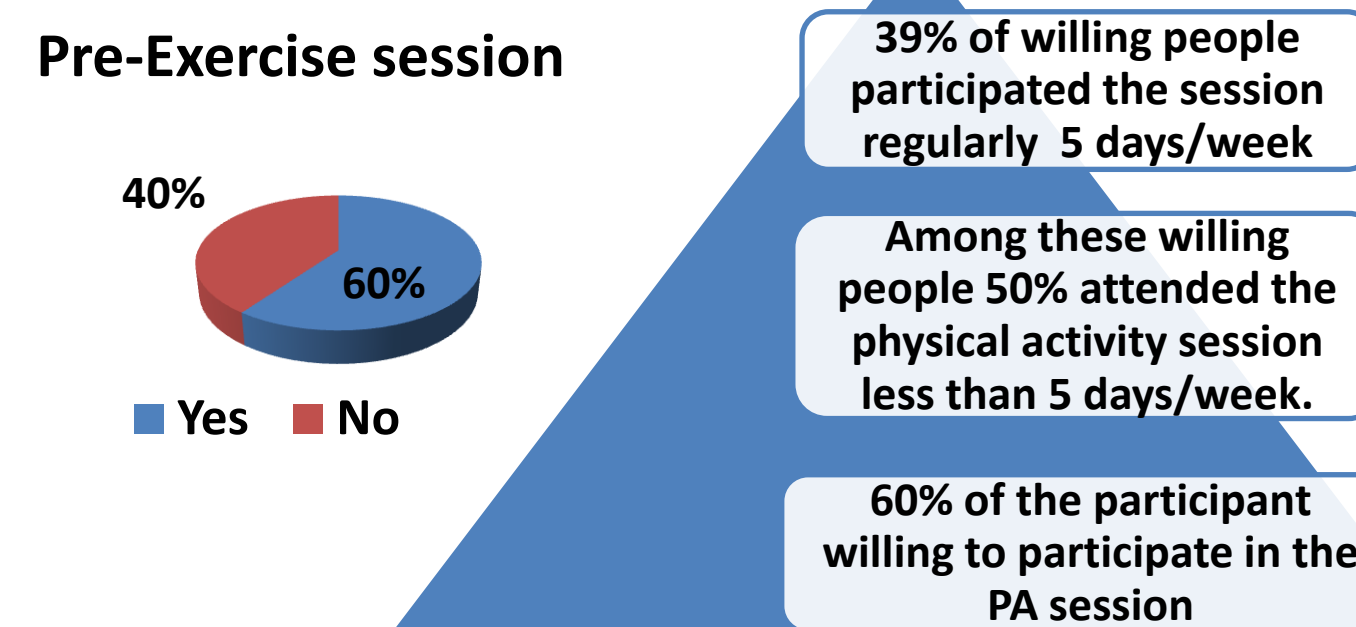
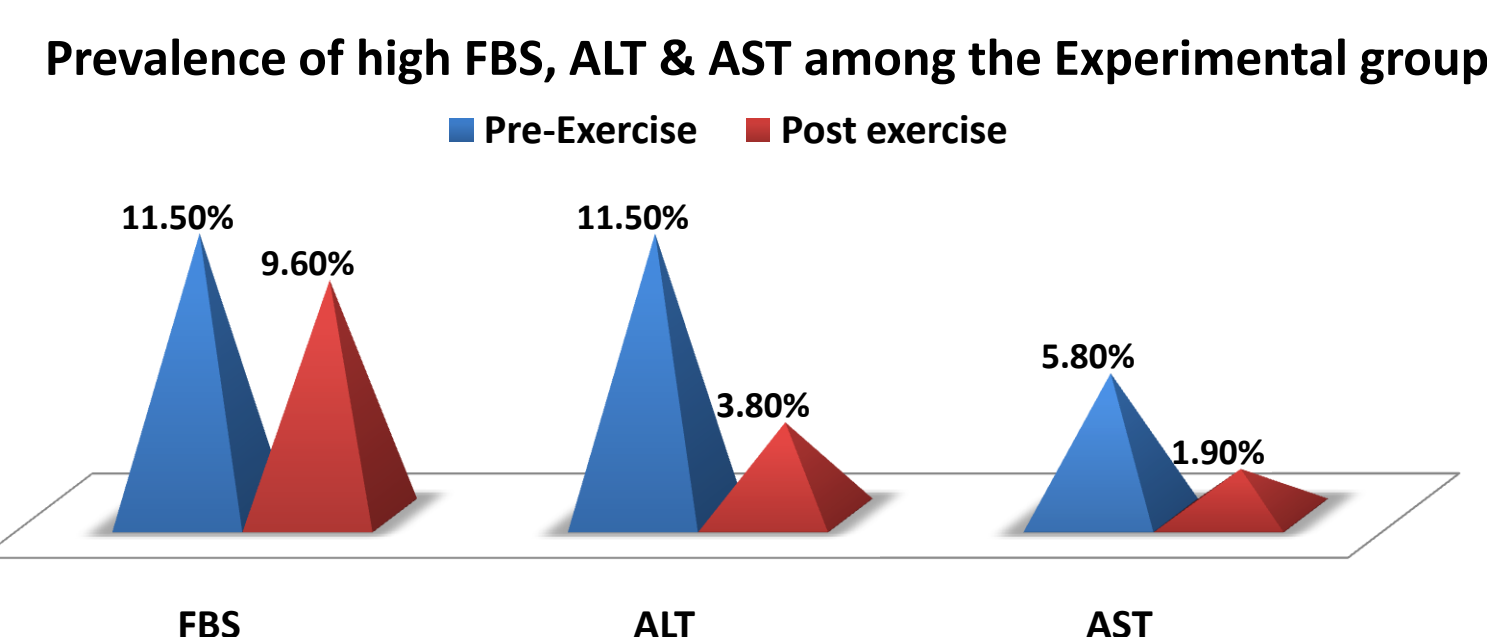


Figure 2



Metabolic health awareness programs emphasizing health benefits of physical exercise were organized which motivated 60% of total 449 participants in the physical activity session. During the one year PA session, drop out was 11%.

Histogram shows the comparison between pre and post intervention prevalence of high FBS, ALT and AST levels. Prevalence of high FBS, ALT and AST levels were decreased to 9.6% from 11.50%, 11.50% to 3.8% and 5.8% to 1.9% respectively after one year regular PA session.

Parameters	Pre Exercise	Post Exercise
FBS (mg/dl)	187.0	147.0
ALT (IU/L)	47.0	41.0
AST (IU/L)	53.0	48.0

Regular physical activity has a key role to control the blood sugar level and liver function. It makes people active which leads cells more sensitive to insulin so it can work more effectively. Thus, cell can remove excess blood glucose. PA also helps to remove excess fat deposition from liver and keeps ALT and AST level normal. Thus PA maintains normal liver function .

Study Design

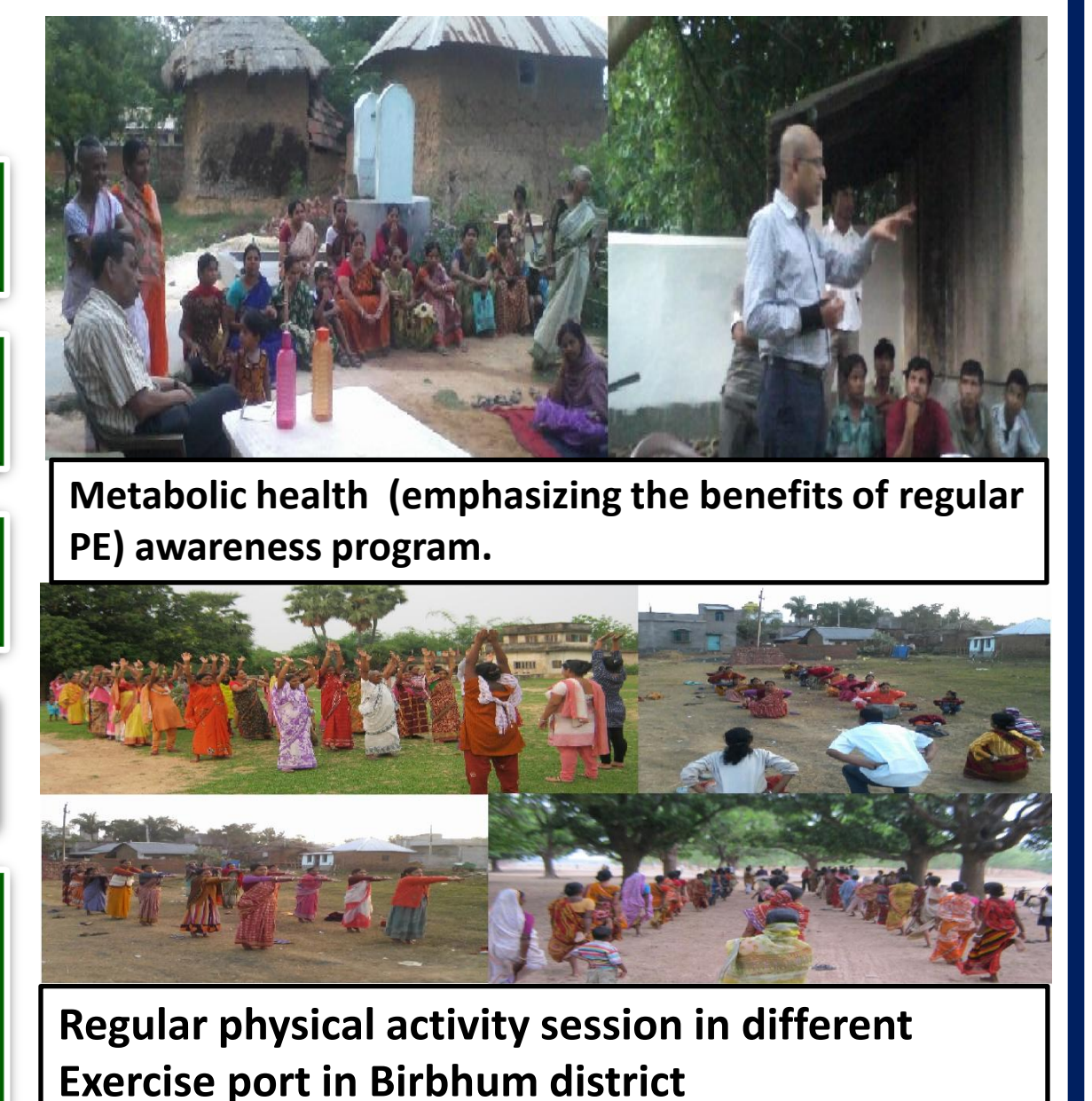
Community awareness on metabolic health and the benefits of regular PE in 8 villages of Birbhum district.

Identification of willing persons for one year PA session. They were treated as case and were advised to attend the session at least 5 days in a week.

Unwilling persons were treated as control and were advised not to participate in the PA session strictly during the study period

Exercise protocol for the experimental group was developed and the PA session were conducted under supervision of trained instructor.

The participants who attended the session 5 days in a week and were not under any medical treatment before, were considered for metabolic markers monitoring. Pre and post intervention high FBS, ALT and AST level of the participants were compared.



Conclusion

The results unveiled the myth that was formed by the backdrop of the rural health culture. Access to physical activity session can attract to rural people even, evidence of improved outcomes can motivate further to behavior modification.

Acknowledgement

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Table shows the mean values of Fasting Blood Sugar (FBS), Alanine transaminase and aspartate transaminase (AST) of Experimental group before and after PA session. (FBS> 110 mg/dl; ALT& AST > 40 IU/L considered as high value.)