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## Research Article

### WHAT LESSON INDIA MUST LEARN FROM PHYSICAL ACTIVITY (PA) PROMOTION MODELS? : AN INTEGRATIVE REVIEW OF 2 SUCCESSFUL MODELS

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#### ABSTRACT

To prevent pandemics of non communicable diseases (NCDs) there is a need to scale up population level physical activity. And to increase the population level physical activity, a national physical activity plan (NPAP) is imperative. India has a physical activity guideline (PAG) but it lacks a NPAP. Our aim in this review is to analyze the contents of "Agita Sao Polo" model and "Exercise is medicine" solution model to help policy planning.

To engage the population in physical activity, multiple sectors need to come together from social justice to sports. Their first goal should be to increase awareness of beneficial effects of physical activities done on regular basis, so as to effectively engage the whole population in physical activities. All community based & individualized physical activity intervention styles should be grounded on evidence base. NPAP should be a living document which should be always amenable to up gradations. Scope of surveillance and "how success would look like" are two most essential parts which must not be missed in NPAP document.

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#### INTRODUCTION

To prevent pandemics of non communicable diseases (NCDs) there is a need to scale up population level physical activity (1,2). And to increase the population level physical activity, a national physical activity plan (NPAP) is imperative. The 57<sup>th</sup> World Health Assembly held in year 2004, recommended member countries to form their respective NPAP and policies to scale up physical activity level in their respective populations (3). On the contrary, many low and middle-income countries could not come up with their NPAPs till date. Due to this there is a risk of falling behind meeting global NCD prevention targets (4). Realizing this precarious situation WHO has put forward a global recommendation in 2010. This document stipulate dimensions (frequency, intensity, duration

& type) of physical activity and total duration of physical activity (PA) needed for NCDs (5). For policy maker working towards formulation of NPAP of any country, this document can be the first pick up point. The second point on which a policy maker may worry about is about a practical issue i.e. what is the best way to engage the community in participating in physical activities? Similarly, the third point is also about a practical issue i.e. how to create effective PA service delivery system that would help the community to achieve "recommended physical activity"? Further, this means that the service delivery must be able to link community and primary care. The answers to second and the third questions are obtained from 2 popular models for PA promotion i.e. "Agita Sao Polo" model and "Exercise is medicine" solution model respectively. India has a physical activity guideline (PAG) but

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it lacks a NPAP(6,7). Our aim in this review is to analyze the contents of “Agita Sao Polo” model and “Exercise is medicine” solution model to help policy planning. Before getting into those two models we have presented a brief review of history of NPAP development in different countries and phases of development of NPAPs in those countries.

## METHODOLOGY

A search for published national physical activity policies of different countries was carried out from four different databases i.e. Pubmed, Google Scholar, Science direct, Cochrane review. Similarly, available review papers on content analysis of national physical activity policies of different countries were further searched from the same data bases. The two most popular models on physical activity promotions available along with that of the content analysis of national physical activity policies of different countries are synthesized.

## DISCUSSION

### *History of Development of NPAPs of different countries*

Netherland, United Kingdom, Finland are the first countries to lunch their national PA plan(8) much before WHO lunched Global strategy for diet, physical activity and health in the year 2004(9). Scotland is first and only country to have documented and published a formal review of it’s national PA plan(10). This document provides insights & analysis of what has been achieved by Scottish national plan and what is yet to be achieved, what are the challenges, gaps in implementation & road map to meet them. It also shows emerging evidences & best practices. However, we don’t have many such documents to compare among PA plans of different countries.

Many countries in Europe (except Netherland, United Kingdom, Finland) had their national PA plans between year 2000-2005. The first NPAP of USA was released on 2010 and recently in 2016, USA released it’s updated plan. Hence it indicates that the emergence of national policy documents on physical activity has a recent history. In this regards Brazil set up an unique example of starting a PA promotion plan in 1996 named “Agita Sao Polo”. However “Agita Sao Polo” is not the national PA plan of Brazil. It started as a regional PA plan of “Sao Polo” state of Brazil to address PA needs of it’s 34 million residents. “Agita Sao Polo” is a multi level, community wide intervention to promote physical activity which is now accepted as a replicable model for PA promotion by WHO (12).

As physical inactivity is a societal not an individual challenge, there are variety of possible ways to develop national PA plans. Different social sectors can take lead role in developing national PA plan of a country. For example for Canada the health ministry, for Australia it is the sports ministry, for Finland it is a non-governmental health institute and for UK it is a government affiliated health education authority took lead role of developing their respective national PA plans(13). However CELAFISCS, Brazil, a research organization, developed “Agita Sao Polo” which is an intervention program for the provincial region of “Sao Polo” (12).

**Phases in developing NPAP (10,11,13):** NPAP should be a living document which should be always amenable to up gradations(14). Formulation of NPAP is a multi-step process

for example Germany used a 3-step process to formulate it’s NPAP. NPAP contents are synthesized basing upon systematic reviews & setting of quality standards(15). Generally, few components of national PA plans of many countries are direct recommendation of WHO or Center for disease control (CDC). For example UK inducted the multi-sector approaches where as Scotland and Northern Ireland inducted measurement of objectives and Norway inducted sub population specificity in their NPAP either by recommendation of WHO or CDC.

On content analysis of NPAPs of different countries two separate processes can be marked. First is the policy document preparation by broad consultation through involvement of multiple sectors. This prepared document is none other than an actionable draft plan. This document has all key ingredients such as measured objectives (for example determinants of physical activity in a population), population specificity, evidence based community practices etc and this also includes the WHO recommendations. Then draft plan is subjected to public comments before commencement of testing by physical activity task force.

The second part has an implementation plan, implementation process, fixed goal, target groups, time frame, budget and finally evaluation and surveillance. Process of implementation of a PA plan is always preceded by declaration of the legal status and formal publication date of the policy document. At last one of the most important part of the document is about it’s projection “how success would look like”.

“Agita sao polo” and “Exercise is medicine” has good implementation track record. However, neither “Agita sao polo” nor “Exercise is medicine” solution are NPAPs. But they present a comprehensive implementation pathway to move in the direction of success for NPAPs. Following is a brief review of both of them.

**“Agita sao polo” Model:** “Agita Sao Polo” which started as a regional PA promotion plan in Sao Polo, Brazil in 1996 is now recommended by WHO as a PA promotion model for developing countries(16). Following is an overview of Agita Sao Polo.

**Need, origin and nomenclature of “Agita sao polo”:** Blair *et al* found physical inactivity is more perilous in person with no other NCD risk factors than presence of a combination of NCD risk factors in a physically active person (17). In 1990s a survey in Sao Polo metropolitan area, the second largest metropolitan area of world, revealed that among the risk factors of NCDs prevalence of physical inactivity was higher than any other risk factor. To reduce this risk of physical inactivity in Sao Polo state CELAFISCS was recruited which had a research back ground in sports sciences since 1974. There was a two year planning process involving CDC,USA and Health Education Authority, UK etc acting as consultants. After adequate preparation the plan to scale up physical activity in Sao Polo was launched in December 1996 with a brand name “Agita Sao Polo”. The name was decided after a long discussion with professional marketing consultants. “Agita” means desire for physical activity and it also deems mind, social health & citizenship.

**Structure & organizational flow chart of Agita Sao polo:** Structure of “Agita Sao Polo” involved 3 important components: the scientific board (national & international) that

provided intellectual partnership, the executive board (governmental & non-governmental) provided the support of different social sectors and finally empowerment of all existing programs was done. The executive board consisted of more than 150 different organizations from different sectors however a good intrasectoral and intersectoral balance was the key. At the helm of the affairs was the state health secretary coordinating with CELAFISCS. Under them both the boards were placed who influenced the target groups (students, workers and elderly) through Agita programs.

**Basis of recommendation of Agita sao polo:** The design of the program was multimodal. The assessment of preparedness was based on Trans-theoretical model. Progression to next PA level was guided by the "one-step-ahead model". Scientific evidence based theory & practices such as social cognitive theory, community partnership for community & health promotion and social marketing was an integral part of the program.

**Goals & target groups of Agita Sao Polo:** For success of the program in an extreme ethnic, geographical, cultural & economic diversity target group segmentation was a pivotal issue. The program aimed at increasing the level of knowledge of beneficial effects of physical activity on health (physical, psychological and social) by 50% and increase the level of physical activity by 20% over 10 year time in the said population. Essential program component was the dose of PA recommended i.e. "either 30 min continuously or accumulated PA to 30 mins (10 min ×3 or 15 min×2) per day" made it appealing & user friendly for all 3 target group (i.e. students, workers, elderly). Excluding this generic recommendation discussed above Agita Sao polo had specifically designed programs and materials for each of the 3 target groups.

**PA promotion methodology of Agita:** The older version of inclusion message like "sports & fitness" was replaced by "Agita" or "Active living" and this message was spread widely across all target groups. "One-step-ahead model" taken from the Trans-theoretical model was another inclusion process. Targeted message was delivered to the sedentary to become active at least by one step. Cultural links are emphasized and specific mascots were designed for the fun loving Brazilian society for all target groups. Agita endorsed 3 settings for PA intervention i.e. home, transport & leisure time. Everyday home activities were the most reinforced and walking was given the utmost importance in it. Educational materials on health benefits enumerating both short term & long term gains was published to be distributed among the mass. Medical community was sensitized in a new way. A new name "Agitol" was given for "active living" that sounds like a pharmaceutical formulation. Like any other pharmaceutical prescription different dose of "Agitol" was prescribed for example 10 min, 15 min or 30 min. TV watching among the young and the adolescent is a prime factor for sedentarism in this crucial group. A special educational material was developed which was a physical activity pyramid. This pyramid showed TV watching is the least desired behavior. Agita conducted 3 mega events on a specific calendar day of the year for each of the target group. Agita Galera Day was targeted for the school setting and the younger mass, active Worker Day for the work setting & for the workers and Active Elderly Day on the International Elderly Day on 2<sup>nd</sup> September. Elderly are given

the message to remain active for maintaining functional independence. Walking and active leisure activities are promoted in elderly. Agita developed joint efforts with nutritional advocacy group. In printed materials displayed both the food & physical activity pyramids.

**Use of mass media and other special methods for PA promotion Agita Sao Polo:** Agita followed "no paid media" approach that means Agita did not spend money for media exposure thus saving million of dollars. Due to massive scale of the programs it drew media attention automatically. Further Agita had recruited a media surveillance cell to monitor media coverage both in electronic & print media. Agita also did some special promotional activities for example during the samba-school parade special mascots are displayed, displaying Agita message in large foot ball stadiums & metro stations, printing Agita message in electric bills and by inserting Agita message through radio programs.

**Outcomes of Agita Sao polo:** Agita program was evaluated by both internal & external bodies that included the physical activity levels, physical activity knowledge, knowledge about Agita program, barriers etc. Significant increase in exercise frequency, involvement in MVPA (Moderate to vigorous physical activity) and walking duration noted was attributed due to Agita message. A change in eating behavior in terms of reduced fat intake was also noted among women. Marked increase in time spent in vigorous physical activity among adolescents was noted. Longitudinal data over 4 years suggested significant population level decline in physical inactivity. With walking included, 54.8% of total population reached the recommended level of physical activity. Brazil after experiencing a successful PA plan in the form Agita Sao Polo planned Agita Brazil for the whole country. Further Agita model is considered to be a highly successful & replicable model by WHO especially in developing countries. Suo moto many countries including USA have expressed to share the knowledge & experience of Agita Sao Polo.

**Lessons learned from Agita Sao Polo:** according to Matsudo *et al*(12), 12 important key factors for successful multi-level community wide interventions are "1. Sound principles for inclusions 2. Appropriate and strategic intellectual & Institutional partnerships 3. Partnership balance (Both within & between sectors involved) 4. Empowerment of partner institutes 5. Diversified actions 6. Scientific soundness 7. Non paid media approach 8. Clear, simple and feasible message 9. Cultural adaptation 10. One step ahead model 11. Links with other risk factor advocacy groups 12. Surveillance"

#### **"Exercise is Medicine" Solution Model (18,19)**

American college of sports medicine (ACSM) is an organizational partner of USA NPAP. It took part in the formation of the 1<sup>st</sup> NPAP of USA in 2010 and in the updated NPAP launched in 2016. However in 2007 ACSM launched a PA promotion campaign by the name called "Exercise is medicine" shunning the traditional jargons of PA promotion "exercise & fitness", "sports & fitness" etc. This EIM (Exercise is Medicine) campaign is arguably a global health initiative based on the model called "EIM solution". EIM solution links community to primary health care. The overarching goal of EIM solution is to make PA as a part of routine medical prescription in order to prevent and treat NCDs. EIM

campaigns for two basic areas. First is PA as a vital sign (PAVS) which it advocates to be considered by all health care professionals during their patient evaluation at all patient visits and this PAVS data is to be stored in electronic medical records (EMRs). Second key area is to evolve a network of evidence based community PA promotion program & resource which is available nationwide. EIM proposes to link the two areas mentioned above. In order to achieve it, EIM advocates its solutions in 3 different modules comprising of 5 steps. The modules are clinical module, community module and active health technology module. The clinical module is a 3 step process. The activities in the 3 steps are PA assessment, PA prescription & behavioral counseling and physical activity self management or referral. 4<sup>th</sup> step is the community module. The activity in this module is development and training of a community based PA referral network. 5<sup>th</sup> and the final step is the active health technology module. The activity in this module is clinical and community integration and utilization of active health technology and objective PA assessment.

**The global outlook of EIM solution model:** According to EIM solution, to implement PA promotion at the basic level most countries require “system change approach” in their healthcare systems. Barriers impeding PA promotion at the clinic-community linkages are to be overcome through system changes. To bring about the system changes EIM solution model depends on national task forces of different countries. Currently EIM national task forces (NTF) are formed for more than 50 different countries by the EIM global center at ACSM’s head quarters at Indianapolis, USA. National task forces of each country is represented by the local health ministry, national primary care associations, other healthcare and medical associations (including nursing, nutrition/dietetics and physiotherapy ) and national public health institute from that country. EIM asks for close collaboration of NTF with media and industry partners for appropriate public messaging which it considers very crucial. Within the EIM solution model there is enough scope to tailor a flexible working model for application of diverse healthcare system at local, regional and national levels. The most important part is EIM solution evaluation framework which has 3 different indicators. First is the foundation indicator which for example assesses readiness (political and institutional) for uptake of EIM. Second is the process indicator which assesses the implementation of EIM solution. Third is the primary indicator that assesses the efficacy and effectiveness of EIM solution model.

In addition to the national task forces at more than 50 countries, EIM has established 7 regional centers all over the world. These regional centers are at North America, Latin America, Europe, Africa, South East Asia, China, Russia and Australasia. EIM global health initiative support and guide EIM regional centers & NTFs regarding focused implementation and evaluation of EIM solution. Now EIM solution model is emphasizing EIM implementation in low-to middle income countries where 80 percent of deaths are caused by NCDs but there exists a large gap in research and PA implementation strategies.

**Scope of education within the EIM solution model:** In the EIM solution model the healthcare provider has the scope to provide to assess PA, prescribe PA and counsel the patient regarding PA (40 different customized PA prescriptions are

made available by EIM solution to tackle NCDs including mental health). Either the patient opts for a self-management or he/she may opt to get referred to an EIM certified program or EIM certified professional.

The real challenge of PA promotion and implementation at individual and community level starts with the health care provider’s referral for PA interventions. Patients of varying risk levels are referred for exposure to physical activity/exercises. To meet with this challenge for providing reliable and credible professionals, EIM has 3 levels of credentialing and certification program. At level 1 the certified, professional is allowed to handle clients tagged as “low to moderate risk patients cleared for independent exercise”. At level 2 one can handle “high risk patient cleared for independent exercise” similarly at level 3 he can handle “individuals at high risk who require clinical supervision”. The education & credentialing process helps in providing homogenous & appropriately trained professionals for safe and evidence based PA interventions at individual and community level.

## CONCLUSION

As already mentioned being a living document the NPAP should be always amenable to up gradations. It should show a clear pathway to achieve whole population level (not just a sub-population level) increase in physical activity. To engage the population in physical activity multiple sectors need to come together from social justice to sports. Their first goal should be to increase awareness of beneficial effects of physical activities done on regular basis, so as to effectively engage the whole population in physical activities. Hence, the policy document should have an overarching agenda to bring out maximum number of sectors under single umbrella working for a unified goal of increasing the physical activity. During policy preparation comprehensive reviews should be done about components & elements those brought about successful changes elsewhere. Components such as yoga must not be neglected as yoga is a successful indigenous physical activity promotion tool in India. A list of such components & elements should help synthesizing the main body of the document. After formulation of the body of the document, pathway for targeted policy implementation should be enumerated. The focus should be on a robust sustainable system of service delivery for physical activity. This should include funding, infrastructure, manpower development and education and research. However, this system should also have sufficient scope for honouring individualized supervised physical activity sessions as and when referred by medical professionals. For example an elderly person may require assistance and supervision for his or her daily physical activity session. All community based & individualized physical activity intervention styles should be grounded on evidence base. Scope of surveillance and “how success would look like” are two most essential parts which must not be missed in NPAP document.

## Future Prospects

The PAL (physical activity level) of Indian population is unknown. Similarly like many other medium income countries, Indian NPAP has not been formed yet. However this piece of review can lead the policy makers to lay a foundation for the same. Like many other countries have done, suggestions from WHO and CDC (USA) can be incorporated in the Indian NPAP

document(20–23). And suggestions from exclusive physical activity consulting global agencies like GAPA (Global Advocacy for Physical Activity) (24) can also help in guiding the formation of NPAP. Further, our own Indian physical activity surveillance system (as a part of our National NCD monitoring system) can be tuned to GoPA (Global observatory for Physical Activity) (25) & WHO global observatory, to monitor and testify changes by NPAP.

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