

Review Article

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Nutrition communication - Rhetoric & reality

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Given the context that undernutrition in India co-exists with the problems of overweight/obesity and associated non-communicable diseases as well as micronutrient deficiencies, integrating nutritional concerns in developmental policies and governance is gaining significance. There are many schemes implemented to tackle malnutrition in India, but creating synergy and linking these schemes with each other to achieve a common goal are lacking. Nutrition communication can be an important component to create the synergy required to change malnourished India to malnutrition-free India. Although nutrition education/communication is recognized as a necessary component in various national nutrition programmes, there is not much evidence of distinct evaluation of these components. Only a minor proportion of community nutrition research has been devoted to nutrition education and communication. Although there are scattered efforts in experimenting with newer communication approaches and media for promoting nutrition, there is a dearth of published literature. In this review an attempt was made to critically examine the nutrition education and communication research and practice with special focus on India. This review provides a historical perspective of evolution of nutrition education and communication with an overview of communication approaches, media, methods and technologies used in various research studies and programmes as well as the lessons learnt.

Key words Advocacy - information and communication technologies - ICE - nutrition communication - nutrition education - social marketing

Introduction

Health of the population is central to a country's development and it is threatened by deficiencies of macro/micronutrients and over consumption of calories across all age groups globally. Of the seven billion population of the world, 800 million suffer from calorie deficiency, two billion suffer from micronutrient malnutrition and two billion more suffer from overweight/obesity. India ranks 170th among 180 countries for anaemia among women, 114th among

132 for stunting and 120th among 130 for wasting among children below the age of five years¹. Given the context that undernutrition, overweight/obesity and associated non-communicable diseases (NCDs) as well as micronutrient deficiencies co-exist in India, integrating nutritional concerns in developmental policies and governance is gaining important. From the days of launch of the National Nutrition Policy (1993)² and National Plan of Action on Nutrition (1995)³ to the National Nutrition Strategy (NNS)

proposed by NITI Aayog, the premier planning body in India, in 2017⁴, there is a shift from ‘coordinated’ efforts to ‘integrated’ and ‘convergent’ approaches. Promoting both integration and convergence among various ministries, organizations, departments and sectors requires communication at multiple levels alongside communicating with the beneficiaries and vulnerable groups. Communication is recognized as a necessary if not a sufficient condition for nutritional well-being of the nation⁵. For instance, the Integrated Child Development Services (ICDS) scheme integrates nutritional and primary healthcare services with nutrition education for pregnant and lactating women and also pre-school children. The three most important public health nutrition programmes *viz.* (i) National Nutrition Anaemia Control Programme, (ii) National Prophylaxis Programme for Prevention of Blindness due to Vitamin A Deficiency, and (iii) National Iodine Deficiency Disorders Control Programme also owe a part of their success to the community education and communication activities^{2,3}. Despite the short-term (supplementation), medium-term (fortification) and long-term (diet diversification) strategies implemented at national level, the problem of the triple burden of malnutrition still persists. To ensure adequate nutrition of pregnant women and lactating mothers and holistic development of children, a multi-ministerial convergence mission named ‘Prime Minister’s Overarching Scheme for Holistic Nourishment (POSHAN) *Abhiyaan*’ was started in 2018 by the Government, with a vision to attain malnutrition-free India by 2022⁶. Though there are many schemes to tackle malnutrition in India, creating synergy to link the schemes with each other to achieve the common goal is lacking. Nutrition communication is an important component which can create the synergy and connect the missing link. Some programme evaluation reports have highlighted the need for additional attention on nutrition education/communication components. Although studies have been attempted by non-government organizations (NGOs), university departments and students, there is still a dearth of published literature^{5,7}. With this background, an attempt was made to critically examine the nutrition education and communication research and praxis with special focus on India.

Nutrition education or communication

The implementation of nutrition education/communication involves an effort to improve nutritional well-being of the population by providing

information or other types of educational/behavioural interventions in the given social milieu of the audience^{5,8}. While nutrition education activities usually focus on informing the individuals about healthy eating habits and lifestyles, communication recognizes that nutrition-related behaviour of an individual is the product of his/her continuous interaction with the environment. Information is designed in a unilateral manner in the education activities, whereas communication is a two-way process involving a sender and a receiver and allows a wider perspective with a feedback mechanism. The process of communication also understands that ‘people’ are individuals in communities, and they do not operate in vacuum and that an individual’s food habits are influenced by his/her social, cultural and economic milieu. An individual cannot be viewed outside the context of family, peers, social structure, community, culture and physical environment. Since the contexts differ, there are hardly any universal communication solutions. Communication has to be dynamic and should pro-actively change as per the context. It does not simply end with producing a brochure, a poster or a social drama. It is a process that seeks to reduce uncertainty. Communication occurs over time⁸.

Historical perspective

Jean Anthelme Brillat-Savarin, the famed French epicure, gastronome, pioneer of gastronomic essays and politician over two centuries ago said, ‘the destiny of nations is determined by what and how they eat’⁹. In modern times, as nutrition science evolved into an independent discipline of study, dissemination activities to provide evidence-based information to the public had started at the turn of the 20th century¹⁰. In the modern history of nutrition science, the credit for evolving a scientific methodological process to develop and disseminate dietary guidelines for improving health and nutritional status of the population goes to Dr Wilbur Olin Atwater, the first Director of United States Department of Agriculture (USDA). The importance of variety, proportionality and moderation of foods as the keys for healthful eating was highlighted in a Farmers’ Bulletin published by the USDA in 1902¹¹. McKenzie and Mumford¹² evaluated nutrition programmes between 1930s and 1960s and concluded that only a limited number of studies were conducted objectively. A review conducted in 1973, of the studies covering the preceding 70 years, revealed that nutrition education was focussed merely on propagating or disseminating nutrition information than improving dietary

practices or habits¹³. Such an approach was effective in increasing knowledge, but not in changing dietary behaviours. In 1985, a meta-analysis¹⁴ of 303 studies reported observations on the impact of nutrition education on the most commonly measured variables, *viz.* knowledge, attitudes and behaviour. The analysis reported that nutrition education resulted mostly in the improvement of knowledge (33%) than attitude (14%) and dietary practices (19%). It was also observed that a broad spectrum of instructional procedures was employed, and in some studies, the participants were involved in planning menus and preparing/tasting foods but not in designing communication methods. Since about 80 per cent of the studies used more than one educational method, the relative effectiveness of the educational methods could not be determined.

Research suggests that behaviour change could be a slow and difficult process that requires reiteration and reinforcement of messages over a long span of time^{7,14,15}. Exposure to new information or services may result in mere knowledge acquisition and not necessarily lead to a change in attitudes or dietary behaviours. Such information is usually what the policymakers, programme planners and other implementers perceive as important for the community to know. Nutrition communication should be phased over a period as people move through multiple stages of behaviour adoption (uninformed, aware, contemplation, intent, motivated-to-change, practice, maintenance and sustained behaviour change)¹⁵.

Nutrition education & communication - Indian scenario

Community nutrition education was included as one of the activities of the nutrition research in India in the 1900s by Sir Robert McCarrison, the first Director of Nutrition Research Labs [now National Institute of Nutrition (NIN)]. To this end, he prepared popular books and pamphlets. Providing textual materials was continued by his successor, Dr Wallace R. Aykroyd. There were many scattered efforts on the similar lines but hardly any concerted strategy for community nutrition education^{16,17}. In the early 1960s, studies carried out at the NIN emphasized on nutrition education for schoolchildren. These studies examined the idea of providing school-based nutrition education by integrating nutrition into the syllabi¹⁸⁻²⁰. Use of effective media came into action only in the 1970s²¹. Nutrition counselling was also studied for use as a tool to disseminate nutrition information²². Berg²³ wrote that Indians approached nutrition education

more as a communication problem and not so much as a nutrition problem. Some studies in the 1980s assessed the relative effectiveness of mass media for disseminating nutrition messages^{24,25}. Studies conducted at the NIN demonstrated the usefulness of folk art forms as effective media for nutrition education^{26,27}.

In the 1980s, Tamil Nadu Integrated Nutrition Program (TINP) was initiated and its implementation had several lessons to offer. TINP's integrated health and nutrition interventions comprised nutrition education/communication activities as a major constituent²⁸. Seemingly based on normative theoretical approaches, the communication strategy of TINP segmented audience into primary and secondary targets and had carefully planned strategies for both. A two-pronged communication approach was used for the primary target group, and one-way communication was used for the secondary audience. The primary targets were mothers, mothers-in-law and fathers; and the media used were counselling supported by flip charts and flashcards. The secondary target audience consisted of the rest of the population in the villages. Films incorporating filmstrips, slides and popular film-music tunes were used as the media for communication. Pamphlets were distributed to the literates along with *villupattu*, the popular folk form that was used to reach out to both literates and illiterates. Although the impact of the communication component was not assessed separately, it was well accepted that the communication efforts were largely instrumental in creating demand for the services by increasing in awareness. TINP also demonstrated that communication interventions should be adequately supported by providing services to make the recipients of the messages modify their practices and behaviours²⁸. The usefulness of social-marketing techniques for imparting nutrition education and promoting consumption of certain micronutrient-rich foods has also been demonstrated²⁹. In studies conducted over the next decade, not only computer-mediated education tools and techniques but also internationally accepted school-based education modules coupled with small media, such as skits, plays and folk media, were demonstrated to be useful tools for nutrition communication^{7,30-32}. Although many efforts have been made to impart nutrition education to the community to improve health and nutritional status of vulnerable population, the efforts have been scattered and varied⁸.

Multiple approaches to nutrition communication

Currently, nutrition communication is regarded as an umbrella term used for a wide array of education and other programmes that aim to influence nutritional status of individuals³³. Some of the approaches developed, adapted and implemented over the years include the following:

Social marketing

It employs principles of product marketing for advancing a social cause or concept³⁴ and for expanding the acceptability of a social idea or practice by one or more groups of target adopters³⁵. In other words, the principles of marketing that are used to vend products to consumers could be used to 'sell' ideas, attitudes and behaviours to the people. The strategy adopts the four 'P's of marketing - product (here, behaviour change or a shift in attitude), price (the cost, in terms of time and effort, of changing behaviours), place (making available the enabling environment conducive to behaviour change) and promotion (reaching audience through suitable media and reinforcing the message). This approach was successfully used in Thailand for promoting vitamin A-rich foods in the 1990s³³ and it was also shown to have increased the production and consumption of vitamin A-rich foods in rural areas of Andhra Pradesh in India²⁹.

Advocacy

It is a strong strategic effort involving a continuous and adaptive process of organizing the available scientific evidence and information to formulate convincing arguments for communicating to decision-makers (often policy elites) through various interpersonal channels and media with a view to influence their decision towards raising resources or political and social leadership to steer public opinion, adopt necessary policy changes and allocate resources for a cause (here nutrition)³⁶. In India, voluntary organizations, research groups and international organizations such as WHO and UNICEF have been spearheading many advocacy efforts. These efforts involve communicating with stakeholders from different government departments to help them envisage their role in executing the country's food security plans and nutrition policies. In an endeavour to enhance inter-ministerial, inter-departmental and inter-sectoral collaborations for promoting nutrition, WHO-FAO sponsored workshops were held at the NIN for representatives from seven Southeast Asian countries including India^{37,38}. Other efforts involved

depicting the functional and economic consequences of malnutrition as convincing arguments for mobilizing the support of policymakers. WHO prepared advocacy material based on PROFILES programme developed by the Academy for Education Development, USA, with the support of international organizations³⁹. It was attempted to explicate the benefits of investing in nutrition as against the potential losses that a country could accrue due to less productive malnourished manpower in economic and financial terms^{40,41}.

Information, communication & education (IEC)

These strategies attempt either to change or to reinforce desirable nutrition behaviours among a target audience in a predefined period and have been used in Indian scenario⁸. However, these initiatives are usually grounded in the concepts of preventive or curative health care and are largely related to individual behaviour change, message reinforcement and public health education. Although IEC campaigns broadly involve four broad steps - planning, implementation, monitoring and evaluation - the main drawback is that these locate the responsibility of nutrition behaviour with the individual and tend to ignore the societal factors that influence the behaviour. Therefore, IEC is often categorized under behaviour change communication (BCC) and not under social and behaviour change communication (SBCC)⁵.

Edutainment

It is also called entertainment-education (E-E) and is a form of entertainment designed to educate as well as to amuse. This approach seeks to instruct its audience with the lessons by incorporating in and integrating with some forms of entertainment such as multimedia, television (TV) programmes, radio programmes, podcasts, games, films, music and websites. A review of studies that used E-E approaches for nutrition promotion in the last six decades (1956-2016) concluded that the typical phases of E-E projects formative, process and summative research, were not adequately followed in some⁴². The authors concluded that the appealing E-E models led to nutrition knowledge acquisition in target populations however, did not serve as a standalone approach to bring about behavioural change⁴².

Participatory communication

Participatory approaches engage people and focus relatively on how people view their food environment than how they view themselves to create a local need and demand for change. Participatory

communication methods have been demonstrated to be useful in nutrition communication. Participatory communication methods not only involve audiences (people/communities) in dialogue but also seek their collaboration and engage them in decision making while considering them the most important beneficiaries of the development process⁴³. Participatory methods generally meet the real and perceived needs and requirements of the people to produce results that can be sustained with basic external inputs⁴⁴. ‘Positive deviance’ is defined as an approach to social/behavioural change, which is based on social cognition and observation. In any resource-poor community, there are some people whose distinctive but successful positive behaviours help them to be nutritionally better than their peers despite confronting similar challenges and not having any extra resources. In many resource-poor countries, encouraging people to adopt such uncommon but successful behaviours from their positively deviant peers was demonstrated as an innovative approach in participatory learning⁴⁵. Learning through sharing the experience with such individuals and families as well as incorporating these practices in planning and implementation of some of the nutrition supplementation programmes in India was shown to be beneficial, especially in the northern States of India⁴⁶⁻⁴⁸.

Media & nutrition communication

The trust and confidence the general public have in media as a source of information are enormous. The medium, message and the messenger will affect how it is received. There are many sources of information for people including the traditional media and the new media, and their effectiveness in nutrition communication was assessed in some of the studies. The concern with some of the electronic resources and social media tools is that the technology allows dissemination of information without checks, peer review and fact-checking⁴⁹ and this could lead to fragmentation of public in terms of nutrition-related beliefs, perceptions and behaviours⁵⁰.

Print media

Although classified as traditional media, newspapers play an important role in disseminating information on various aspects of health and nutrition. While newspapers highlight some nutrition research findings disproportionately to draw reader’s attention, these tend to ignore or report conflicting news items on health and nutrition topics. A study conducted at the

NIN examined 214 reports in six newspapers and found that a quarter of these were not based on authentic nutrition research, a few were contrary to the original research findings and one-fifth had not mentioned the source⁵¹. Another study observed that coverage of nutrition information was irregular, and there was a need to prioritize health and nutrition messages as page one reported and concluded that there was a need to incorporate special pages for children with engaging content to encourage them to read newspapers with nutrition content⁵². Apart from the newspapers, other print materials used by research organizations, government and international organizations as well as voluntary organizations for nutrition communication are flip charts, flashcards, pamphlets, posters, booklets, manuals, charts and leaflets⁵. These print media have been used with an intention that they would help reinforce other forms of nutrition communication, especially interpersonal methods⁷.

Folk art forms

Folk media are culturally contextual and easily adaptable in formats with potential to provide flexibility for adoption by nutrition communicators. Although NIN’s studies in the 1990s have established the effectiveness of folk media for nutrition communication in some contexts, their potential has not been exploited fully in other geographic locations²⁷. In a study by the NIN scientists in the previous decade, a video recorded version of a local folk art form was successfully used to enhance the nutrition knowledge of university students⁵³. The study concluded that the intervention based on folk dance had significant positive increment in nutrition knowledge due to the impactful presentation and attention holding nature of the art form. A study that assessed the relative efficacy of folk media in promoting vitamin A-rich foods in Bangladesh⁵⁴ concluded that despite interpersonal communication approaches being the most resorted to and effective forms of message dissemination in the developing world, edutainment-like methods using folk media could aid in reaching out to a wider audience at a time⁵⁴.

Television (TV)

Since introduced in the late 1950s, TV has been the avenue for food advertisements. Despite being a dominant avenue for food advertising, more often, TV is seen as a vital source of health and nutrition information. With this in view, in 2012, the Ministry of Women and Child Development, Government of India

in collaboration with UNICEF, launched 'Kuposhan Bhagao' (Malnutrition, Quit India) campaign to address discrimination against girl children in providing foods in families, promoting care of pregnant mothers and children (≤ 2 yr), importance of breastfeeding, infant feeding and balanced nutrition⁵⁵. The campaign was run on TV and radio channels for over 34 wk, but the detailed impact of the campaign was hardly assessed⁵⁶. Such national campaigns can be successful if at ground level, adequate infrastructure and access to facilities are made available to prompt the anticipated behaviour change among those individuals exposed to the campaign. However, such campaigns may suffer on the count that these have to compete with the multinational food companies whose advertisement spends for publicizing their products are manifold higher than those of a Government department⁵⁵. Exposure to televised food marketing is a key factor among others influencing people's diets, eating preferences and health outcomes^{57,58}. The role of celebrities in promoting healthy eating habits and physical activity of teenagers was studied⁵⁹. This study reported that commercial food and beverage products endorsed by celebrities were consumed by majority of teenagers. Even brief exposure to advertising can influence food preferences and embedded commercials in popular cartoons have been shown to influence children's food preferences⁵⁹⁻⁶¹.

New media/information communication technologies (ICTs)

An advancing communication strategy using information communication technologies (ICTs) can act as a transforming agent of social and behaviour modification by integrating technology with edutainment. The role of ICT mediated education programmes focussing on observed first-order changes such as shifts in knowledge, attitudes and practices was investigated. While studies elsewhere demonstrated that computer-based nutritional teaching methods in school settings could be useful in providing additional and modern support to conventional teaching methods^{31,50}, a NIN study showed that the CD-ROM-based education did not add anything over and above what the adolescents learnt about nutrition in the classroom through conventional teaching method³². With the ever-changing scenario, education through personalized entertainment is being seen as a potential tool for improving not only nutrition knowledge but also behaviours. Development of a pertinent health and nutrition content and formulation of an effective

interventional tool needs more evidence or establishing whether or not ICTs could be used as a standalone tools for nutrition education⁴². New media-based approaches are being viewed as the key components in POSHAN *Abhiyaan*, wherein ICT-based real-time monitoring system has been initiated and *anganwadi* workers are being incentivized for using these tools, and similarly, a wide resource of online education tools are also being made available for different stakeholders⁶. These ICTs are supported by complementary media materials such as flip charts, flashcards, pamphlets, posters, booklets, manuals, charts and leaflets.

Smartphone-based mobile applications (apps) are also the tools available for the users for providing interactive nutrition education, calorie counting and activity tracking. One such app is *Nutrify India Now* developed by the NIN in 2018 (https://play.google.com/store/apps/details?id=com.ionicframework.myapp863035&hl=en_IN) and it acts as a nutri-guide that helps users assess their nutrient intake from food and also keep track of energy balance. The usability is extended to majority of the Indian States as all food names are provided in 17 Indian languages. A study analyzed the quality of some popular apps and assessed their effectiveness in modifying lifestyles among the users. Although considered by the users as beneficial, the apps had only led to slight increase in intentional physical activity, but their suboptimal quality and inconsistent usage led to limited/no changes in their anthropometric and dietary patterns of the study participants⁶². The study concluded that mobile apps might not be useful as standalone tools for lifestyle and nutrition promotion in their study context.

Food labels as a medium of nutrition communication

One of the potentially powerful tools of communication to promote public health nutrition, but is often not considered when traditional channels are discussed is food labels⁶³. The nutrition-label panel provides much information to the public to make healthier choices. However, the question is, how useful is the nutrition information provided on the pack if the individual is not able to understand the significance of numbers/symbols printed on the pack. Studies conducted in India reported that literate consumers were more plausible to read the information on label for food choice^{38,64-66}. The studies concluded that the purpose of promoting healthy and informed food choices through use of food label information is not

thoroughly met. There is a need to promote nutrition literacy first and take up consumer education activities alongside experimenting newer symbol-based forms of labelling for easy comprehension.

Reviews of nutrition communication studies - Loopholes & facilitators identified

Historically, top-down communication approaches dominated the health and nutrition programmes with centralized planners choosing the media channels and designing the material without contemplating the differences that exist within the populations^{22,67}. A review of nutrition education/communication interventions to encourage micronutrient intake and status across various age groups in India⁶⁸ considered 1250 published research papers, but only 19 studies met the inclusion criterion. The review identified the factors that led to the success of a few interventions, which included (i) conducting formative research before designing the intervention using qualitative and quantitative methods for situation analysis, gathering information on locally available micronutrient-rich foods; understanding the knowledge, taboos and dietary practices of target population; (ii) identification of clinical signs of deficiency and faulty practices prevalent among the study population before designing targeted interventions; (iii) use of multiple channels of communication and experimenting with new methods; (iv) simple yet effective kitchen gardening tips and live demonstration of cooking methods to prevent vitamin loss and creating the enabling environment; (v) targeting of interventions to population segments - beneficiaries, opinion leaders and community leaders, and (vi) involving key members of the community such as local leaders, health functionaries and NGOs and seeking their active participation in the process of communication.

Communication - Translational challenge

The 0.6 per cent gross domestic product expanded on research and development activities in India will be of minimal or no use, if the research from laboratories is not translated to general public⁶⁹. The increasing gulf between the 'health status we have' and the 'health status we could have' is either due to inability in sharing the knowledge effectively or due to inability in translating it into action. Effective but single-time communication is no solution for various intractable health challenges. Knowledge and skills in communicating effectively are fundamentals to bridge the gap between what we know, what we understand, what we vocalize and what we deliver in health policies and programmes⁷⁰.

Most of the nutrition communication interventions promote consumption of a diversified diet and especially that of fruits and vegetables. One of the reasons for failure of these interventions, to convert knowledge into practice, could be the terminology used. It is therefore, important for the communicators to develop tools that enable general public visualize the variety and the quantity of food they need to consume. My plate, developed by the USDA, is such an initiative which attempts to bring the rhetoric communication to reality⁷¹. Same goes with the term 'calorie balance', which is a key recommendation to prevent overweight/obesity. Consumer insights therefore, become critical to understand how these concepts are perceived so that effective communication strategies could be created⁷².

Food-risk communication in media

Alongside food and nutrition security, food safety is an essential pillar for nutritional well-being of the nation. Food safety issues or food-borne illnesses are rarely addressed in nutrition interventions. The changes brought about by technological advances in food production, processing, storage and distribution have been bringing to the fore new food safety issues, which may not be matching with the public perceptions of food safety. Studies explored the connect and the disconnect between the media portrayals of food safety issues and the popular perceptions of the consumers *vis-à-vis* the scientists' views on food risks^{73,74}. The findings suggested that the risks perceived by the consumers often did not tally with the actual risks. On the other hand, media were found to be biased against positive news on food safety issues and have focussed on negative stories. The reportage related to food safety issues dealt mainly with negative stories on food adulteration, hormonal injections to cattle, and pesticide residues in foods. Despite wide-ranging media debates on genetically modified foods, majority of the respondents were not even aware of these. It was also found that disproportionate public responses to food/health scares were triggered for a short while due to media reports though they were against the real risks posited by the scientists⁷⁵. The authors stressed on the need for all stakeholders including researchers, regulators, manufacturers and media to work in collaboration for communicating with the consumers to improve their baseline knowledge on food safety that would let them (consumers) assess food safety information received from different media sources critically⁷³⁻⁷⁵.

Will partnership of communication agencies work better?

A critical examination of how organizations from different sectors engrossed in nutrition communication in India perceive, develop and implement nutrition communication programmes concluded that the programmes taken up by most organizations across the government, voluntary and research sectors are mostly top-down and expert-driven. Often, these lack proper planning, critical evaluation or adequate financial allocation⁵. Not only people's perceptions but also perceptions, motivation levels and personal biases of the key communicators affect the nutrition communication programme implementation. The study also identified that the framework for nutrition communication for government and government-funded research organizations is structured by the centres of authority (such as state, UN agencies or funding agencies), which generally define the nutrition priorities and also the target outcomes⁵. The communicative processes in community nutrition education programmes of the NGOs are not always based on the articulations emerging from within the context of audiences, but these are also likely to be funding agency driven. It is suggested that communication should be a fundamental component and not an optional line in health and nutrition programmes with suitable/pertinent budgetary allocations and a strong established evaluation method. If there is a common narrative on nutrition from the communicators across the sectors, it would be reiterative and complementary and thus enhance multisectoral partnerships⁷⁶. The winning formula of multisectoral partnerships is the capability to appropriately and adequately target actions at the grass-root level. The 'Ensemble Prévenons l'Obésité Des Enfants' (Together Let's Prevent Childhood Obesity) - European Network Project is an example in this direction⁴⁹. A few highlights of the project that have evidenced success in dropping childhood obesity in France were (i) developing a sound scientific basis for programmes and evaluations, (ii) creating the necessary political connections at each level of society, (iii) mobilizing resources for social marketing, and (iv) coordinating multi-stakeholder approached.

What else & who else need to be understood?

In India, the NNS emphasizes the need for synergistic relations and convergence among government and non-government agencies as well as the private sector for ensuring nutrition to all⁴. Similar to this, Scaling Up Nutrition (SUN) programme

initiated in 2009 was a global advocacy effort to mobilize governments, institutions, communities and families to prioritize nutrition as central to national development⁷⁷. In its reports, the key lessons learnt in social mobilization, advocacy and communication to scale up effective nutrition interventions, lack of funding and human resources for social mobilization, communication and advocacy activities at the national, regional and local levels in some countries were also highlighted⁷⁸. The report also identified that a few donors and voluntary organizations in some countries filled the funding gaps, while for other countries, the needs remained unmet. The absence of specific expertise, especially in multimedia communication campaigns, was reported in a few others. Strategies for communication, advocacy and social mobilization could build in funding for strategic planning and evaluation, capacity building and explore opportunities to leverage partnerships with the private sector, media and civil society⁷⁹.

The way forward

In countries like India, there is a wide array of nutritional problems, due to co-existence of undernutrition, diet-related NCDs and micronutrient deficiencies. Directing nutrition communication on specific nutrition issues for precise target groups is therefore, a huge challenge. Nutrition education and communication can broadly be viewed from the perspective of its framework either as a process (a mechanism for interaction and exchange) or as a resource (applying coordinated, multisectoral and interdisciplinary effort) for improving the nutritional status. It is a prerequisite for nutrition communication programmes to be more comprehensive, coordinated to encourage community participation. Learning from the successful programmes helps simplify complexity in a way by helping the identify success factors; however, only a few of these could be programmatic, while most others would be contextual.

Experiences within India and elsewhere clearly indicate that a combination of integrated, multi-component and multi-media approaches is likely to be more successful than single approach. There is an increased need for sensitivity to the inherent problems and the context of the community to design an appropriate communication campaign. Caution should be exercised while attempting to replicate the techniques/approaches that have been successful in certain contexts to the others as these may need to be

customized for the local scenario. Therefore, nutrition communication campaigns which aim to mobilize or sensitize communities may have to adopt different approaches in different circumstances and the choice of approaches should be firmly guided by the contextual needs and media environment.

Given the context that ICTs are being seen as powerful tools in improving efforts in health communication globally, more studies are needed in the Indian context to evaluate their effectiveness. While the new media, social media and social networking platforms are emerging as the new sources of health information, there is a need to understand the people's perceptions on the authenticated and unauthenticated health messages received through these media. Similarly, consumer education and nutrition literacy should be seen as essential components before food labels could emerge as powerful tools in promoting healthy food choices.

This review points to the fact that nutrition communication is a necessary condition (if not a sufficient condition) for achieving nutritional well-being of the people. Emphasis should not only be on mere dissemination of information but also on creating enabling environments for adopting and maintaining positive behaviours. For communication interventions to be effective, these should include a range of activities, multi-faceted, reiterative, reinforcing and engaging. This requires a candid assessment of how well-equipped the communicators are, how many stakeholder groups are engaged, what material and human resources are available, how effective, sustainable and appropriate is the campaign design to the local context. Considering that the content of communication process is largely determined by choice of approach, which, in turn, is determined by the context (both of the individuals and organizations), there is a felt need for expanding the locus of nutrition communication approaches from targeting the individual behaviours to creating conducive social context. No single paradigmatic communication approach is effectively positioned to capture the complexities of the contexts. For a successful nutrition communication, diverse perspectives from multiple levels of communication need to be simultaneously activated, with a concomitant dialogical engagement among the scholars, practitioners, policymakers using different approaches and operating at different communicative levels. For this, the communicators should go beyond their organizational standpoints and individual beliefs while choosing the media,

methods, approaches to harness the multiplicities of communication. Finally, nutrition education and communication should be thought of as an integral part of a country's development plan for making substantial outcomes a reality; else the efforts could just remain rhetorical.

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