

Exploring Perspectives on Public Health Nutrition in India: A Qualitative Analysis

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ABSTRACT

BACKGROUND: India has a diverse portfolio of programmes and policies which can potentially play an important role in reducing maternal and child nutrition, and yet, the levels of malnutrition continue to remain unacceptably high. Research on malnutrition within India has tried to explain this gap from multiple perspectives but so far less work has focused on how the importance of nutrition is perceived in the country from a public health perspective. The objective of this paper is to identify the current capacity and scope of Public Health Nutrition (PHN) in India and to ascertain the future course of action with respect to effective workforce development.

METHODS: A qualitative study using in-depth interviews was carried out among a purposively selected sample of twenty five advanced-level public health and nutrition professionals working in academic, research and practice settings in India. The two major criteria for this purposive selection were to select those: a) having a minimum 10 years of professional experience in research, teaching and practice in public health and/or nutrition; b) having significant contributions in the field of nutrition research assessed through their publications, awards, affiliations and recognition (as per publicly available information).

RESULTS: All the respondents acknowledged the potential role that PHN could play in addressing nutritional challenges faced by India today. There was overwhelming consensus among the experts regarding the weak positioning of PHN, both in terms of policy and academic initiatives. There is a shortage of professionals trained in PHN at public policy-making level, resulting in lack of due focus on nutrition interventions. There are gaps existing in academic initiatives with respect to research skills, practical training, and inter-disciplinary focus in curricula.

CONCLUSIONS: The burden of under nutrition and food insecurity coupled with the rising epidemic of non-communicable diseases in India calls for an urgent attention to the field of public health and nutrition. The findings of this study highlight the missing identity of a unique and critical field of PHN within the overall nutrition discipline. An urgent need for leadership and robust vision for PHN was articulated by experts.

KEY WORDS: Public health nutrition, Capacity building, Leadership perspectives, Qualitative study, India

Introduction

Malnutrition and poor dietary intake have been regarded as the number-one driver of the global burden of disease. Asia and Africa have suffered

annual GDP losses of 11% on an average which has resulted from low weight, poor child growth, and micronutrient deficiencies (1). From 1990 to 2015, on the one hand where the percentage of stunted children under 5 has declined from 39.6 to 29.2 with absolute values still remaining high, on the other hand, percentage of over-weight children under 5 years has increased from 4.8 to

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6.2 (2). India, alone, accounts for more than 3 out of every 10 stunted children in the world and there is also a rapidly increasing burden of overweight-obese children (obesity about 5-10% in school going age group) in the country. These facets of malnutrition combine with multiple micronutrient deficiencies throughout multiple age groups. For instance, the findings revealed that anaemia is prevalent in India among children aged 6-35 months (79.2%) followed by adolescents girls (56.2%) and pregnant women (57.9%) (3,4).

Sufficient evidence points to potential benefits of a concerted effort to resolve malnutrition and related problems. A growing literature is demonstrating how population gains in nutritional status can be achieved within a wider 'enabling environment for nutrition'. Three domains are important in translating evidence to policy commitment to wide scale implementation: knowledge and evidence; politics and governance, capacity and financial and health system resources (5). Capacity and resources to plan the programme strategically and effectively and to translate this into effective action on the ground requires a trained and competent workforce and effective leadership at all levels (6, 7). The concept of capacity or capacity development has gained much importance in the field of public health in recent years (8-11). Within the field of public health nutrition (PHN), capacity has been defined as the ability of individuals, groups, organizations, workforce, systems and the state to perform effectively, efficiently and in a sustainable manner to achieve improved nutrition outcomes (12). A review of relevant literature on capacity building in public health/public health nutrition (13) identifies six core domains of capacities: resources, organizational structures, workforce, partnerships, leadership and governance, knowledge and development.

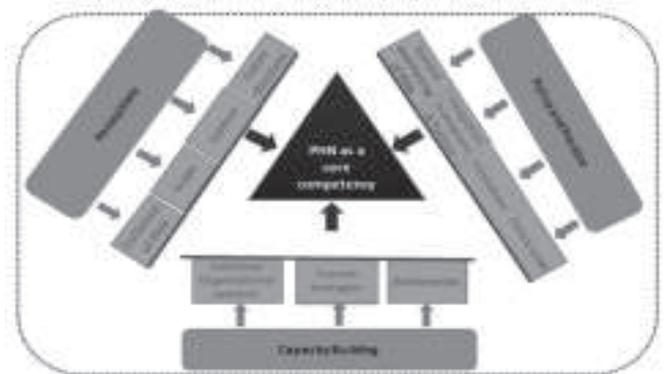
Figure 1. A conceptual framework mapped to depict different domains of public health nutrition capacity



Source : adopted from aluttis *et al.* (2014)

Figure 1 depicts a conceptual framework that illustrates the determinants of capacity building. In order to further synthesise the literature into a framework suitable for interviews and detailed qualitative analysis, the following analytical framework was developed to anchor this study and serve as a starting point for holistic reflection on the empirical material (Figure 2).

Figure 2: Analytical framework mapped to research domains for sustained PHN outcomes in India**



**The represent three main identified themes in the context of PHN framework around which

the questions were framed and data were collected. The green boxes are sub areas under each pillar which represent categories used to collect responses from interviewees. All the boxes may collectively influence PHN development as a core competency.

It draws on three main themes highlighted in the literature as helpful in understanding the positioning of PHN in policy and practice: Building Workforce Capacity; Policy and Practice; and Knowledge and Perceptions. These are closely related to the framework outlined in figure 1, but shaped here to focus on systemic capacity issues relevant to India (5).

The aim of this study was to investigate the attitudes, opinions and perceptions of academicians and experienced public health professionals regarding the present positioning of PHN in India. The specific objectives of this study are: to understand the common perceptions about PHN and the role PHN can play in addressing the health challenges in the country; and to map the present strategic positioning of PHN and identify the strategies for its capacity building in India, both as an academic discipline as well as a key public health strategy.

Methods

Sampling and Recruitment

A qualitative study using in-depth interviews was carried out among a purposively selected sample of public health professionals, leading nutrition researchers, development practitioners, subject matter experts and leaders.

Using published literature, internet (websites of nutrition and public health research and academic institutes in India, Indian ministry websites, participants of key health and nutrition meetings, advisory boards, committee experts and

authors of published reports) and public domain knowledge of advisory committees on PHN, a list of the known experts from India in the related fields was generated. These potential interviewees were asked to refer other well-known experts in PHN and those names were added to the list akin snowball technique[14]. Since PHN in India is a nascent field, this initial selection led to a list of about 41 experts. A final subset of 30 respondents was selected purposively for the interviews from this wider population. The two major criteria for this purposive selection were having: a) minimum 10 years of professional experience in research, teaching and practice in public health and/or nutrition; b) significant contributions in the field of nutrition research assessed through their publications, awards, affiliations and recognition (as per publicly available information). Efforts were made to address geographic representation to account for regional variations by selecting experts from academic institutions located across all parts of India.

Data Collection

Introductory emails were sent to these thirty potential participants explaining the study prior to contacting them by telephone to seek their participation. Those who consented were interviewed (n=25). Of these, five were face-to-face interviews conducted in New Delhi while others were either using video chats or telephones. Two members of the research team conducted hour-long interviews between August 2013 and January 2015. All the interviews were audio recorded and transcribed. Notes were also taken down where possible to keep a record of non-verbal cues. The interview process was iterative, with the interviewer following up on points of interests with key responses from one interview informing the next. All interviews were conducted in English.

The interview guide had specific themes and subthemes pertaining to respondents' experiences in leadership, their perceptions about institutional capacity of the universities, PHN curricula as well as present positioning of PHN in India (Figure 2).

The generic version of the guide was adapted to the interviewees' specific area of expertise, and the questions in the interview were structured by guidance from an in-house qualitative research expert.

Table 1. Profile of Key Informant Experts

Key Attributes	Details		N*
Location	North India	New Delhi	18
		Chandigarh	1
		Total	19 (76.0)
	South India	Chennai	1
		Bangalore	1
		Hyderabad	1
		Total	3 (12.0)
	West India	Pune	2
		Vadodara	1
		Total	3 (12.0)
Gender	Male	12 (48.0)	
	Female	13 (52.0)	
Education	Medicine	Pediatricians	4
		Endocrinologist	2
		Community medicine	3
		Obstetrics and Gynecology	1
		Cardiology	1
		Pathology	1
		Others	2
	Medicine (Total)	14(56.0)	
Social and life sciences	11(44.0)		
Additional trainings	On-job and professional courses		4(16.0)
	Post graduate diploma courses (health and family welfare management, public health nutrition, community development)		2(8.0)
	Workshops and seminars on nutrition and research methodologies		2(8.0)
Profession	Research institutes		8 (32.0)
	Academics		6 (24.0)
	International agencies, Non Governmental Organizations		7 (28.0)
	Hospitals/ Medical institutions		4 (16.0)

*Figures in parentheses denote percentages

Ethics

This study was approved by the Ethics Committee of the Public Health Foundation of India (TRC-IEC-179/13). For the current study, verbal and/or email permissions were sought and duly procured prior to commencing the interviews. The names of the interviewees were not disclosed in the transcribed text and no identifiers were used anywhere to maintain confidentiality.

Data Analysis

Transcribed drafts were manually analyzed to identify themes. This meant reading and re-reading the transcripts with the analysts familiarizing themselves with the data, noting initial ideas and discussing these with the rest of the research team. During analysis, specific data on predetermined themes were coded in an excel sheet (MS Excel 2013). At the same time, those that emerged from the data were also incorporated in the coding framework. For each code and sub-code the data were analyzed across the cases and were categorized into major emerging themes. Once the themes, codes and sub-codes had been determined, data within these were then summarized and integrated with quotations.

Results

Profile of the Experts and Leadership Experience

Table 1 presents the profile of the respondents in terms of their location, academic and professional backgrounds.

Most of the experts were not formally trained in nutrition but were intricately related to the present nutrition field in India through their contributions in teaching and policy practice. Only three respondents mentioned choosing nutrition as a

career. Others gradually moved into the field of nutrition over the course of their career due to sustained interest in the subject. Only five experts had direct focus on working in PHN while others were associated with nutrition through community medicine, immunization, diabetes and epidemiology, dietetics, breastfeeding programme, medical practice, communicable diseases, etc.

Findings

a. Perceptions about Public Health Nutrition

Subject experts were asked to define PHN based on their perceptions about the scope of the discipline. Most of them perceived PHN as an applied discipline which promotes using knowledge about diet and nutrition principles for addressing health challenges of the community. They suggested that PHN identifies with issues which impact communities' beliefs and practices around nutritional practices such as breastfeeding, supplementation programs, intake of fruits and vegetables, etc. According to them, the thrust of PHN must expand from clinical nutrition and incorporate multidimensional perspectives including knowledge of basic medical sciences such as physiology, microbiology, other social and behavioural sciences such as economics, anthropology, sociology etc., and programmatic interventions and expertise. A few experts opined that PHN is a subset of public health and is an expansion of clinical nutrition knowledge to the actual field ("*taking knowledge from laboratory to real land*").

Respondents felt that given the present challenging morbidity conditions in India, PHN can potentially help in addressing these

challenges at the individual/community as well as policy making. Given the multi-sectoral nature of PHN, the action areas highlighted by the experts perhaps reiterate the need to emphasize the importance of PHN in addressing the health related challenges in India. Overall the experts believed that PHN is an applied multi-sectoral approach which integrates natural, social and behavioral sciences. PHN was believed by all experts to offer solutions or skills to reflect on pathways/processes relevant to improve the contemporary health and nutrition challenges in the country.

b. Public Health Nutrition Policy and Practice

There was overwhelming consensus among the interviewed subject experts regarding the weak positioning of PHN, both in terms of policy and academic initiatives. At the policy level, seven experts mentioned frail coordination among the various ministries and government departments dealing with nutrition and health which reflects the lack of political will to accord nutrition its due importance in India's public health agenda.

Nutrition falls where- you tell me? Is it only under WCD or health ministry? I don't think so...there are so many more stakeholders. There has to be some collective ownership and accountability which is currently very weak or almost absent.

A gender bias in nutrition training was mentioned whereby nutrition is essentially considered as appropriate for young women because it is mostly offered under the domain of Home Science. Drawing on their personal experiences, few experts highlighted that lack of proper counseling and information

among the students resulted in inadequate orientation among them with respect to focused career objectives in nutrition. Further, the paucity of well-paying jobs within nutrition was acting as a deterrent in attracting good professionals.

The question on nature of demand of PHN in the job market generated a mixed response. Some of the experts felt that there are not enough job opportunities available for nutrition professionals while others maintained that there is a large demand for them in hospitals and public services because the Government depends on a large manpower to roll out its wide array of programmes and schemes. Given the rather weak understanding and recognition of PHN field in India, subject experts affirmed the need for capacity building in PHN with respect to policy interventions. Also emphasized was the need to strengthen proper implementation of Government programmes and health promotion. The experts expressed concerns in the current policy making process. The ideal situation would be that trained candidates garner experience and aid in development of policies informed by a strong evidence base and without any conflict of interest. The policy process, they lamented, was devoid of transparency and even if advice was sought from experts, it was hardly ever put in practice or even debated.

The formulation of comprehensive and transparent nutrition strategy and nutrition policy ensuring "calorically adequate and nutritionally appropriate diet" is the urgent expectation from policy makers.

Experts also highlighted the need to train the

Government functionaries in order to capacitate them to become more nutrition sensitive. They substantiated this by giving examples from field implementation where prior qualitative work suggested that many frontline workers and their reporting authorities were not even aware of linkages between sanitation and nutrition, education and better compliance with vaccinations, etc.

Research tells you that malnutrition is not only because of less food but also unhygienic practices which make you sick and thus undernourished. This understanding has to be propagated especially to those who are involved in national programs and do this work every day.

A few experts also emphasized the need to consolidate all nutrition related public departments under one ministry and facilitate coordination between different ministries dealing with nutrition related interventions.

c. Capacity building - strengthening non-academic and academic initiatives in Public Health Nutrition

The experts recommended due efforts to be put in place for the nutrition sector to work collaboratively and facilitate effective capacity building within the communities and populations. According to them, PHN professionals must see them selves as an integral part of the system. As individuals, they should place their emphasis on understanding the roles, functions and scope of the system and see how it compares to the work of the broader health system so that they are aware of how to be most effective. Then they must step out, identify and assess community, regional and provincial environments that influence nutrition and

healthy eating behaviors. This will help build an understanding and awareness among professionals about how programs and policies may be used to create conducive environments for health promotion and better nutritional status.

Meaningful impacts from thoughtfully conceived policies will register once collective efforts at individual, organizational and community levels interplay in tandem.

Besides gaps in nutrition policy and practice, experts also emphasized the inadequacy of academic training as a significant drawback in the positioning of PHN in India, which in turn affects the availability of competent cadre in the country.

...I don't think we should look to them as any deficient. They are only there as recipients of what the curriculum dictates.

A critical lacuna identified by many experts in the nutrition curriculum was the poor attention to research methodologies as well as lack of exposure to practical field applications and programmatic experiences. They explained that the current curricula lacked a multi-sectoral focus and that this mitigated the capability to address nutrition challenges from a holistic perspective. Some respondents also pointed to the poor quality of mentors and academic staff in terms of teaching and interdisciplinary research.

In terms of capacity building in academic initiatives, most of the experts emphasized the need to strengthen PHN training in India with a focus on developing a separate curriculum for PHN. They emphasized the need to incorporate courses on research methods and multidisciplinary social and behavioural sciences as well as basic sciences. A strong focus on field

work and internship was repeatedly emphasized by experts.

When experts were explored about the skills that research scholars must develop for productive contribution in the field of PHN, they stressed passion and aptitude for research along with commendable interdisciplinary knowledge related to nutrition, and good communication skills. The need to focus on “competitive research rather than repetitive research”, knowledge about latest trends, programmes and policies and a disposition towards learning were also pointed out. In fact, these were also the characteristics that were cited as essential criteria for recruitment by the employers.

Besides outlining some of the capacity constraints in academic teaching and research, the experts were also able to make a number of positive suggestions as to how capacity might be strengthened. These included: building up a common database of country and region specific issues that can be drawn upon for policy framing and programme design within PHN. This could avoid duplication of projects and save a lot of resources.

We need to share our ideas, results and make it a part of national repository. There can be an initial quality check which will help filter out the best research outputs from our country and help motivate the younger cadre to learn from this pool of wisdom and use resources judiciously and more meaningfully.

Most of the experts endorsed standardization of curriculum in PHN across different institutions. They also suggested that Continuing Professional Development be implemented so that faculty are motivated and updated with the latest research findings, inculcating a need to remain apprised of developments in their domain.

Senior teachers can be paired with new faculty. This will help to strengthen both of them.

The experts urged that the chances of real world exposures to both faculty and students need to be maximized for them to absorb PHN better. This could be via trainings, seminars, invited lectures, workshops, mentoring sessions, journal clubs among other online modes.

Discussion

Our qualitative interviews with public health nutrition experts highlight the felt need [of experts] to strongly and strategically position and lead the field of PHN in India. Examination of the expert perceptions reveals a strong ‘internal frame’ (15) guiding thought and action amongst the PHN community in which the multiple dimensions of PHN are recognized, albeit perhaps still leaning towards the dietetic / food intake determinants of nutritional status. With increasing awareness of the need for better connections to both agriculture (16) and sanitation (17) in addressing the disconnect between India’s growth and high levels of undernutrition, there appears space here to enhance multi-sectoral awareness (18). At the same time, however, experts also noted the need for the sector’s strategic positioning and preparedness to deal with growing future health problems related to PHN, in particular the growing prevalence of obesity and NCDs.

Expert assessment of policy and practice constraints indicates structural problems familiar to many policy process studies of PHN which stem from low political prioritization and commitment (19, 20). This in turn feeds the low priorities and resources given to building the workforce; or towards helping shed its ‘gendered’ association with traditional Home Science courses

offered only to women. PHN experts raised astutely, therefore, the need for capacity building of non PHN trained policy and decision makers to sensitize them to the wider costs and benefits of action on PHN.

Finally, expert perceptions on [academic and research] capacity reveal a somewhat depressing picture of a number of outdated academic institutions and curricula; with little mentoring for future leaders and experts; poor training in rigorous research methods and little exposure to the field. On the positive side, the recognition of this room for improvement by a large number of the experts and a number of suggestions of how [academic and research] capacity might be further built potentially bode well for the sector of PHN in India in future. It is important to bring to light the existing and more recently being recognized positive initiatives which intend to enhance the nutrition research methods short courses by Indian organizations independently as well as in collaboration with globally acclaimed universities (21). Such initiatives also contribute to building and strengthening our in-house nutrition capacity which in turn can be gainfully tapped or seen as catalysts for bringing about the desired change in this domain.

Strengths and Limitations

Our findings are nevertheless important especially in a developing country setting as they highlight lacunae in our understanding and implementation pathways to strengthen the PHN infrastructure and human resource. The insights from the interviews can serve to inform capacity building initiatives in PHN.

However, the study has some limitations. To start with, since PHN itself has not yet emerged as an established academic discipline, it was difficult to identify experts in the area of PHN in

particular. Hence we interviewed experts in nutrition with some experience in working at the community level. It was also for this reason partly that we chose to interview experienced (minimum 10 years) experts who could not only exercise substantial control over knowledge and evidence and their combined perspectives would be valid for the relevant health and nutrition sectors overall. The non-inclusion of the newer, younger faculty and/or researchers in this domain could be a potential bias but our purpose was to surface the long-standing issues which have contributed the specific field of PHN being bundled up with a lot of other things under the "Home Science" umbrella within India. Secondly, some of the interviews had to be done on video or telephonically. This may have resulted in loss of contextual and nonverbal information and interpretation of responses. A third potential limitation is that despite efforts to include experts from across India, most of them were recruited from North India. The lack of representation from other regions especially the east may induce a bias in our major findings. Since there are only a handful of experts in this field, it was hard to get equal representation from all regions. However, the substantial experience and expertise, of our sample; combined with their likely influence in national discussions on appropriate curricula, training and policy; means that this purposive sample has some relevance for some of the nationwide debates we consider here. We detected no variance (in qualitative analysis) between the views of the Delhi stakeholders and those from elsewhere-but further analysis would be necessary to consider more region specific views and variations in depth.

Conclusion

The importance of trained and efficient public health professionals has been recurrently

highlighted by scholars as imperative to enable communities to address nutrition and public health issues[22]. National level capacity building priorities needs to focus on sensitizing the administrative functionaries about nutrition issues and strengthening academic curricula. Close links need to be developed between the nutrition departments of universities and medical colleges, and practice- with those undergoing training gaining a thorough training in basic knowledge; research methodologies and statistics, but also exposure to field work and the practical applications of knowledge. In a country as diverse as India, a gamut of forces (socio-economic, political, cultural) interact to contribute to the scale and scope and prioritization of PHN capacity building and cadre development. This paper has only begun to touch on these issues and only a wider appreciation of the political economy in which this field is situated will provide a full explanation of why PHN remains *“a rather woeful and under-prioritized discipline in India”*. As others have commented on the global situation, building a generation of well-nourished children cannot but contribute to wider productivity growth and national development, thanks to the demonstrably greater educational and income earning potential of children who have been allowed to develop to their potential. But just as in any significant construction project, this requires a substantial workforce with adequate skills and training and exposure to the real world.

Based on the findings from the expert interviews, salient educational and policy level recommendations are summarized which could contribute to forwarding the PHN agenda in India. This should be viewed as a shared responsibility of multiple stakeholders led by recognized strong and sustained leadership

committed to enhancing public health and nutrition issues.

- Academic and research agenda for PHN- Overall PHN education needs to be well defined and developed into clear and shared curricula. It requires recognition as a distinct identity (from, say, Home Science or Dietetics) in all states and this vitalization of the sector would benefit from being spearheaded by premier public health and/or nutrition institutes in India. Dedicated funds and other resources need to be pumped in to acquire due recognition/affiliations, develop and sustain a trained faculty pool, create demand amongst potential trainees and ensure suitable onward employment opportunities. Mentorship opportunities at institutional level should be strengthened and developed. High quality research opportunities need to be identified and pilot interventions need to be tested rigorously. The integration of core nutrition concepts with other nutrition sensitive areas (e.g. with water, sanitation, hygiene, women’s empowerment, agriculture, etc.) also needs to be a part of the core practical experience to be gained by well-trained PHN professionals.
- Practice and policy portfolio for PHN - An effective PHN cadre building needs political backing, committed resources and sustained motivation and leadership. Evidence building focused on specific programmatic needs, especially for PHN interventions which can influence community health need to be encouraged. Decision makers need to constantly engage with a pool of such experts while devising health and nutrition policies.

We have summarized the views of 25 experts from India who have vast experience and expertise in the PHN domain. A strong call for leadership and robust vision for PHN in India was heard which the experts believe will be paramount to PHN's sustainability and utility in the coming days.

Competing Interests

The authors declare that they have no competing interests.

Author's Contributions

SK designed the study, helped in acquisition of data and also in writing of the manuscript. AS contributed in building the conceptual framework and writing of the manuscript. TP conducted the coding and analysis, contributed in writing the manuscript. NN and RL provided overall structuring and critical feedback to finalize the manuscript draft.

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