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Determinants of Nutrition Agenda Setting in the Context of the Double Burden of Malnutrition in Tamil Nadu, India

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DETERMINANTS OF NUTRITION AGENDA SETTING IN THE CONTEXT OF THE DOUBLE BURDEN OF MALNUTRITION IN TAMIL NADU, INDIA

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DEDICATION

To my beloved family: Mom, Dad, Varsha, Joe, Satya, and Mina, who love and believe in me in the hardest circumstances, make me laugh with endless Facetime calls, and remind me who I am and of what I am capable. Alex: you came into my life just in time to make this all so complicated, but I wouldn't have it any other way, and I could not have done it without your love and support. Thank you one million times over. And last but never least, my two sweet monkeys, Taj and Sai. Doing this with you alongside me was nothing I could have imagined, and these will always be the strangest sweetest memories. I love you more than the universe can contain.

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ABSTRACT

The double burden of malnutrition is increasing in low- and middle-income countries, with economic, social, and health consequences. Policies and programs to address malnutrition at the national and subnational levels reflect the priorities and framing of the problem by the stakeholder community. Previous studies have examined if and how nutrition-related NCDs have been included into national nutrition policy agendas that have historically focused on reduction of undernutrition, but little is known about if or how this process occurs at the subnational level where policies are translated and implemented according to local contexts, priorities, and frames of nutrition-related NCDs.

We aimed to improve understanding of the determinants of nutrition agenda-setting in the context of the double burden of malnutrition in Tamil Nadu, India through in-depth interviews with state- and national-level nutrition stakeholders (n=28). We used a grounded theory method of analysis to construct stakeholder frames of undernutrition and nutrition-related NCDs and show how different frames held by stakeholders reflect intention and action regarding nutrition policy and programming. We mapped emergent themes to a determinants of political priority framework to identify the conditions and characteristics that support and inhibit the inclusion of nutrition-related NCDs in the nutrition policy agenda.

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Contrary to the framing of undernutrition, framing of nutrition-related NCDs lacked consistency with respect to health conditions, risk factors, target populations, roles for stakeholders, and program and policy effect on malnutrition. Comparison of the two frames suggests three challenges to bringing nutrition-related NCDs to the state nutrition policy agenda: prioritization of the problem, coherence by the policy community, and convergence of efforts to address them. Implementation of the recently released National Nutrition Strategy presents an opportunity to integrate nutrition-related NCDs into the state nutrition agenda, but leadership and responsibility among policy actors for addressing them is weak. The ways that nutrition-related NCDs are understood by stakeholders and portrayed to others highlight the lack of coherence within the policy community and the negative social constructions of those who suffer from them. Efforts to address the double burden of malnutrition at the subnational level must first overcome these barriers.

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LIST OF ABBREVIATIONS

AAY .... Antyodaya Anna Yojana

APL .... Above poverty line

BPL ....Below poverty line

ICDS ....Integrated Child Development Services

ICN ....International Congress of Nutrition

IFA ....Iron and folic acid

JSY ....Janani Suraksha Yojana

LMIC .... Lower Middle-Income Country

NCD .... Non-Communicable Disease

NGO ....Non-governmental organization

NPAG ....Nutrition Program for Adolescent Girls

PDS .... Public Distribution System

TPDS .... Targeted Public Distribution System

WHA ....World Health Assembly

WHO ....World Health Organization

CHAPTER 1

INTRODUCTION

Despite increased global attention to rising rates of overweight, obesity, and nutrition-related non-communicable diseases (NCD) over the last twenty years, many low- and middle-income countries (LMIC) are experiencing a rapid increase in the prevalence of nutrition-related non-communicable diseases (NCD) concurrent with chronic undernutrition (Popkin, 2003; WHO, 2016; Nilsson et al., 2016; Popkin et al., 2020; Independent Group, 2019; UNICEF, 2019, FAO et al., 2019; FAO/WHO, 2014; Willett et al, 2019; Swinburn et al., 2019). As a result of globalization, changes in agribusiness, and economic and technological advancements, LMICs are undergoing a nutrition transition from traditional diets based on consumption of staple grains, legumes, fruits and vegetables to highly processed, high sugar, high fat diets, in combination with a decrease in physical activity. These resulting shifts in food environments and dietary patterns in LMICs have contributed to the rapidly rising rates of nutrition-related non-communicable diseases in the context of chronic malnutrition, a double burden of malnutrition that can occur in communities, households, and individuals (Popkin, 2017; Popkin et al, 2020).

This shifting nutrition reality with its significant economic and social consequences presents new policy and programmatic challenges, especially in countries where resources may already be stressed. Obesity and overweight are risk factors for dyslipidemia, type 2 diabetes, hypertension and some cancers

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(Gillespie et al., 2016). Chronic non-communicable diseases are associated with loss of productivity, and increased cost to the health care system for management and treatment. Chronic undernutrition is linked to impaired cognitive development, loss of schooling years, and increased morbidity and mortality (Victora, 2008; World Food Programme, 2017). Given the serious consequences of both forms of malnutrition, the 2016 Global Nutrition Report states that with respect to addressing malnutrition in all its forms "all stakeholders need to increase the efficiency of their investments and policies by identifying and implementing double-duty actions that tackle more than one form of malnutrition at once" (Global Nutrition Report, 2016).

Recent literature suggests that consideration of nutrition-related NCDs in nutrition agendas in LMICs is still nascent (Lachat et al., 2013; Glasgow and Schrecker, 2016). There is however, a gap in our understanding of what determines the ascension of nutrition-related NCDs into subnational agendas, as previous studies focused on national-level policies only. Little is known about how nutrition-related NCDs are framed at the subnational level, and what other conditions and considerations contribute to the inclusion of nutrition-related NCDs to nutrition policy agendas. Furthermore, there is a lack of understanding of whether and how subnational policy actors from areas experiencing a double burden of malnutrition translate national level nutrition policy agendas that tend to focus on reduction of undernutrition into locally relevant ones that also address nutrition-related NCDs. This research addresses these research gaps and seeks to provide our understanding of how elements of political priority, including framing, influence the orientation of nutrition policies toward the

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double burden of malnutrition through the ascension of the nutrition-related NCDs into subnational policy agendas.

The double burden of malnutrition provides an opportunity to examine how frames impact intention and action in the development context. The fields of nutrition and public health frame rising rates of NCDs in the context of chronic undernutrition in LMICs as a "double burden of malnutrition", demonstrating beliefs that the cause of the NCD increase is nutrition-related, that the increase in overweight and obesity is a burden, and that these two conditions are linked. There is, however, little evidence that this conceptualization is shared by actors responsible for translating and implementing policies at the subnational level. India, and within it, the state of Tamil Nadu, are currently experiencing the double burden of malnutrition and is in the process of setting forth new strategies and policies to address this emergent problem. The timing presents an opportunity to increase our understanding of the influence of framing by policy and program actors and elements of political priority development on nutrition agenda-setting at the subnational level.

The goal of this research was to understand the influence of determinants of nutrition agenda setting in the context of the double burden of malnutrition at the subnational level, using the Indian state of Tamil Nadu as a case study. Two manuscripts were developed as part of this research. The aim of the first manuscript was to describe stakeholder frames of undernutrition and nutrition-related NCDs in Tamil Nadu and show how different frames held by stakeholders reflect intention and action regarding nutrition policy and programming at the state level in the LMIC context, as demonstrated in Tamil Nadu, India. We defined local stakeholders as state-level policy and program

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actors for the purposes of this study, as states in India have flexibility in interpreting and implementing national policies and programs and sometimes in developing their own. We also aimed to provide additional context for interpreting state perspectives by describing frames of undernutrition and nutrition-related NCDs used by national-level policy actors and advocates who are often more engaged with the global malnutrition discussion than state-level actors.

The aim of the second manuscript was to answer the following question: what conditions and characteristics support and inhibit the inclusion of nutrition-related NCDs in the nutrition policy agenda in Tamil Nadu? Through answering this question, we sought to understand 1) whether political priority exists for bringing nutrition-related NCDs into state nutrition policy agenda; and 2) whether the state has translated national strategies focused on undernutrition into locally relevant ones that address the emerging threat of the double burden of malnutrition. This research will contribute to the fields of global nutrition and nutrition policy by demonstrating the importance of gathering and analyzing subnational-level data to understanding perspectives about malnutrition priorities, and the conditions and characteristics that influence policy and agenda-setting.

This research is presented in five chapters. In Chapter 2, we provide a review of literature on the double burden of malnutrition; malnutrition burden and nutrition policy and programs in India and Tamil Nadu; framing; and the policy process. This chapter also presents a review of the conceptual and theoretical models guiding this work, identifies important gaps in the literature, and describes the significance of the research. In Chapter 3, we detail the

research methodology. We present the results of the research in two manuscripts in Chapters 4 and 5. In Chapter 6, we summarize and discuss implications of the findings, and propose future directions for research and policy oriented toward the double burden of malnutrition in LMICs.

CHAPTER 2

BACKGROUND AND SIGNIFICANCE

2.1 Introduction: The double burden of malnutrition

Worldwide, one-third of adults and 40.1 million children under 5 are overweight or obese, 22% of adults have elevated blood pressure, and 8.5% of adults are affected by diabetes (Global Nutrition Report, 2020). At the same time, almost 200 million children are stunted or wasted, almost a half billion adults are underweight, more than 600 million women of reproductive age suffer from anemia, and more than 1.5 billion people in total are affected by anemia or other micronutrient deficiencies (Global Nutrition Report, 2020; WHO, 2017). According to the 2020 Global Nutrition Report, the vast majority of countries in the world (87% of the 143 countries for which comparable data was available) are facing either two or three forms of malnutrition simultaneously. Multiple forms of malnutrition can be found within one individual (an overweight woman with micronutrient deficiencies), within a household (an overweight parent and a stunted child), or within the same community (local, regional, or national).

Recent work has noted that climate change and globalization in food trade and marketing, combined with increased purchasing power and advances in technology like cheap and readily available artificial sweeteners and edible oils, an increase in food processing, and labor-saving technology, have contributed to the shifting food systems and food environments in LMICs, which in turn influence diets and physical activity patterns (Popkin et al, 2012; Prentice, 2006;

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WHO, Double burden of malnutrition policy brief, 2017; Monteiro et al., 2014). Overweight and obesity are increasing in a growing population of adults, and being overweight or obese is a significant risk factor for nutrition-related non-communicable diseases, including hypertension, type 2 diabetes, some cancers, and dyslipidemia (Gillespie et al., 2016). In LMICs, these increases rates of overweight, obesity, and nutrition-related NCDs coexist with persistent and high rates of undernutrition, a double burden of malnutrition (Popkin 1994; Popkin 1996).

2.2 Nutrition transition

As early as 1994, Barry Popkin wrote about the nutrition transition in low- and middle-income countries as "an emerging crisis" (Popkin, 1994; Drewnowski and Popkin, 1997). The nutrition transition is a shift from traditional diets based on staple grains, legumes, fruits, and vegetables to more processed diets high in fat and sodium, added sugars, and animal-sourced foods. Popkin described five patterns of the nutrition transition (Figure 2.1): 1) collection of food low in saturated fat and high in carbohydrates, fiber, iron, and polyunsaturated fats; 2) famine, or "episodic periods of extreme food shortage", coinciding with increased social and gender stratification impact on dietary diversity; 3) receding famine, in which animal protein, fruit and vegetable consumption increase, and starch consumption decreases; 4) degenerative disease, in which diets high in cholesterol, sugar, refined carbohydrates, and total fat, and low in fiber and polyunsaturated fats predominate, and coincide with more sedentary lifestyles; 5) behavioral change, returning to increased fruit and vegetable, fiber, and complex carbohydrate consumption, decreasing consumption of meat, dairy and refined foods, and increasing physical activity. The focus of this pattern is on

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prevention of degenerative disease and remaining healthy into old age. Popkin notes that this fifth pattern of the nutrition transition has only been somewhat present in high-income countries, most of which are still fighting increasing obesity rates, and only in higher-income, higher-educated subgroups within those countries (Popkin, 1994). Most other countries remain in Pattern 3 or 4.
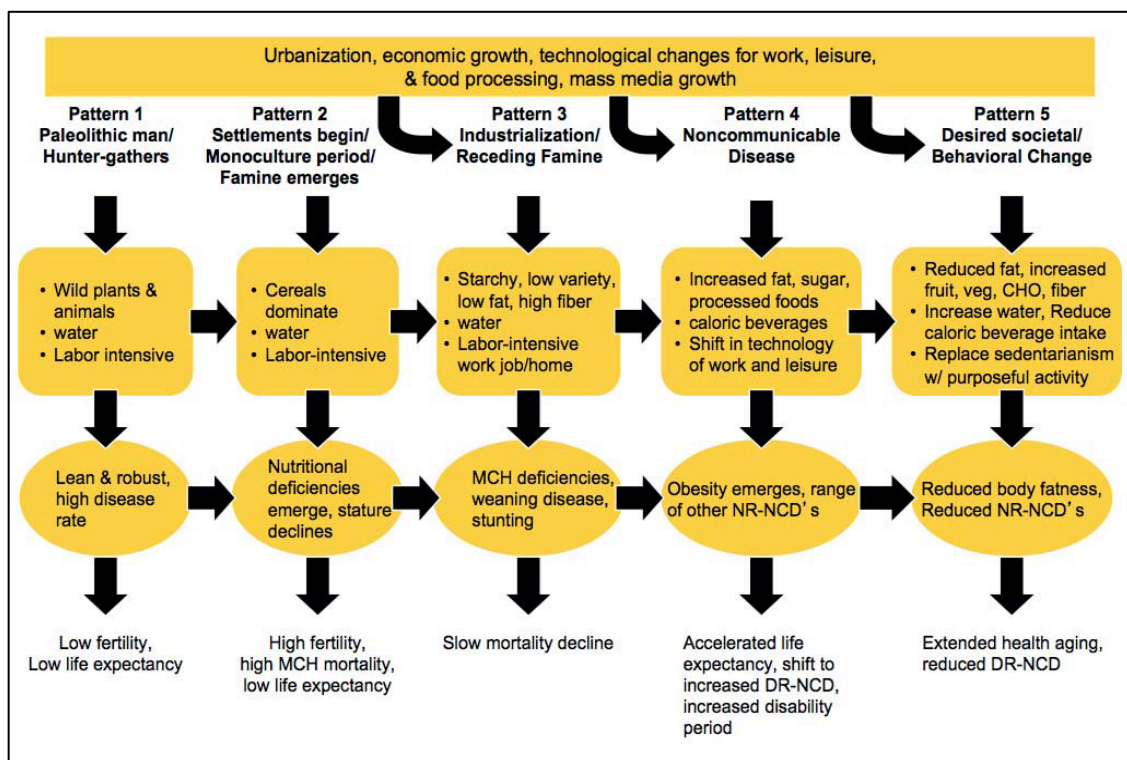
Figure 2.1 Stages of nutrition transition

The nutrition transition has coincided in LMICs with demographic shifts that include rapid urbanization, decreased fertility, and aging populations, and epidemiologic shifts from a high prevalence of infectious disease and undernutrition resulting from famine and poor sanitation to rising rates of NCDs. These transitions, nutrition, demographic, and epidemiological, are

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combining more rapidly in many LMICs than in high-income countries to create new and different lifestyles and food environments with dramatic health consequences, including the rapid increase in prevalence of overweight and obesity and an increase in prevalence and morbidity due to nutrition-related NCDs. The WHO reports that these transitions have occurred over decades in LMICs, compared to centuries in high-income countries. LMICs are experiencing a rise in childhood overweight and obesity with a rate 30% faster than the rise in wealthier nations (WHO, 2017; WHO, n.d.). While the rate of increase of NCD prevalence has slowed in higher income countries, it is still increasing across socioeconomic groups and diverse settings in LMICs (Gillespie et al., 2016).

2.3 Economic and health consequences of the double burden of malnutrition

Rising rates of nutrition-related NCDs are increasing the burden of chronic disease management and treatment on health systems in countries where resources may already be stressed (Popkin, 1994; Popkin, 1997). The costs to nations are more than the health systems costs, as chronic diseases have been linked to loss of productivity as well. The WHO estimates that economic costs due to NCDs are estimated to approach $7 trillion by 2025 if the trends of rapid increase are not stopped (WHO, 2014). With respect to the economic burden of malnutrition as a whole, the Global Alliance for Improved Nutrition estimated in 2015 that malnutrition cost $3.5 trillion globally, 11% of the world's gross domestic product (GAIN, 2015). The World Food Programme identifies three main paths that malnutrition can result in lost productivity that can have significant economic and social impact: unfulfilled educational potential from undernourished children through loss of schooling years, absenteeism from work by overweight and obese workers, and increased morbidity and premature

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death as a result of both over- and undernutrition (World Food Programme, 2017).

Linear growth retardation and stunting are associated with and predictive of outcomes like delayed cognitive development, decreased activity level later in life, lower long-term earnings, and higher likelihood of developing chronic diseases (Victora, 2008; Leroy and Frongillo, 2019). The Stories of Change project reports an almost 5% increase in wage associated with each additional centimeter of adult height (Gillespie et al., 2016). Moderate stunting in adults is associated with a 2 to 6 percent decrease in productivity, while severe stunting is associated with a 2 to 9 percent decrease in productivity (Gillespie and Haddad, 2001).

Research into the impact of maternal nutrition on infant outcomes shows that maternal malnutrition preconception and during pregnancy has an impact on the fetus and infant through both over and undernutrition. Maternal undernutrition can increase the risk of maternal anemia, preterm birth, intrauterine growth restriction, and low birth weight. Specifically, maternal short stature is causally associated with children who are small for gestational age (Leroy and Frongillo, 2019). Infants born small for gestational age or with low birth weight and children with nutrient deficiencies during the first 2 years of life have an increased risk of abdominal obesity and development of metabolic diseases later on that can contribute to loss of future productivity (Kozuki et al., 2015; Black et al, 2013; Adair et al, 2013; Victora et al, 2008; World Food Programme, 2017).

2.4 Global policies and actions to address nutrition-related NCDs and undernutrition

As undernutrition and overnutrition have historically been addressed separately in policies, programs, and advocacy, the question remains whether there has been concerted action to address the two conditions in concert. Nutrition-related NCDs have become more visible in nutrition policy over the last two decades. The last decade has seen an increase in declarations, commitments, or action plans that include the rise in NCDs as a concern or address the double burden of malnutrition (Scaling up Nutrition, 2016; WHO, 2016; Nilsson et al., 2016; Popkin et al., 2020; Independent Group, 2019; UN Children's Fund, 2019, FAO et al., 2019; FAO/WHO, 2014; Willet et al, 2019; Swinburn et al., 2019).

2010:

- Scaling Up Nutrition (SUN) Movement's first Road Map for Scaling-Up Nutrition is released, which mentions childhood overweight as a nutrition indicator, along with stunting, wasting, low birth weight, and anemia in women of reproductive age (Road Map, 2010).

- A4NH (CGIAR Research Program on Agriculture for Nutrition and Health) focuses on improving food and nutrition security through agricultural production and consumption. Phase I took place from 2012 to 2016, and Phase II is now underway (2017-2022), adding research on food system transformation, biofortification, integrated agriculture and nutrition programs, and food safety. The work is divided into five

research flagships, two of which have direct relevance for the double burden of malnutrition (Research flagships, n.d.)

- Flagship 1: Food Systems for Healthier Diets. Research that falls within this flagship focuses on global diet trends and system-level solutions to address food insecurity, overnutrition and undernutrition.
- Flagship 4: Supporting policies, programs, and enabling action through research. Research that falls under Flagship 4 focuses on understanding how integrated agriculture and nutrition programs improve maternal and child nutrition, how to effectively implements cost-effective nutrition-sensitive agricultural programs, and how to develop and maintain enabling multi-sector, multi-stakeholder environments for nutrition.

2012:

- World Health Assembly (WHA) Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition (Comprehensive Implementation Plan, 2014) . This 2012 action plan sets forth "priority actions" for achieving six global nutrition targets by 2025 (Table 2.1) and includes childhood overweight prevalence in its targets.

Table 2.1 Global Nutrition Targets 2025

Global target 1	40% reduction in number of children under 5 who are stunted, worldwide
Global target 2	50% reduction of anemia in women of reproductive age
Global target 3	30% reduction of low birth weight
Global target 4	No increase in childhood overweight
Global target 5	Increase rate of exclusive breastfeeding in the first 6 months to at least 50%
Global target 6	Reduce and maintain childhood wasting to less than 5%

2013:

- WHA adopts the WHO Global action plan for prevention and control of non-communicable diseases 2013-2020, which includes nine voluntary global targets and a monitoring framework for achieving those targets (Table 2.2). (WHO, 2014.)

Table 2.2 World Health Organization Global NCD Action Plan 2013-2020

Global target 1	A 25% relative reduction in the overall mortality from cardiovascular diseases, cancer, diabetes, or chronic respiratory diseases
Global target 2	At least 10% relative reduction in the harmful use of alcohol, as appropriate, within the national context
Global target 3	A 10% relative reduction in prevalence in insufficient physical activity
Global target 4	A 30% relative reduction in mean population intake of salt/sodium
Global target 5	A 30% relative reduction in prevalence of current tobacco use
Global target 6	A 25% relative reduction in the prevalence of raised blood pressure or contain the prevalence of raised blood pressure, according to national circumstance
Global target 7	Halt the rise in diabetes and obesity
Global target 8	At least 50% of eligible people receive drug therapy and counseling (including glycemic control) to prevent heart attacks and strokes
Global target 9	An 80% availability of the affordable basic technologies and essential medicines, including generics, required to treat major noncommunicable diseases in both public and private facilities.

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2014:

- First Global Nutrition Report is published. The report is developed to track progress towards combating malnutrition, and reaffirm commitment and accountability. The report states that "multiple burdens are the new normal", as 45% of countries are facing overweight and obesity and undernutrition, and that the need for multisectoral (multidisciplinary) efforts are therefore necessary. According to the Global Nutrition Report, "nutrition-relevant" sectors together receive a large portion of government funding. Coordination with these sectors, like agriculture, education, health and social protection programs could result in double- or triple-duty actions (International Food Policy Research Institute, 2014).

- WHA develops and approves a global monitoring framework to track progress toward achieving the Global Nutrition Targets 2025 (NCD Global Monitoring Framework, n.d.).

- Second International Conference on Nutrition (ICN2): Rome Declaration on Nutrition and Framework for Action (2014). The purpose of the Declaration on Nutrition is to reaffirm the commitment to ending malnutrition in all its forms, acknowledge the complex, varied and unequal nutritional challenges and food systems, while promoting multilevel, multi-sectoral, and multidimensional approaches to addressing malnutrition (Table 2.3). The purpose of the Framework for Action is to "provide a set of policy options and strategies which governments, acting in cooperation with other stakeholders, may incorporate, as appropriate, into their national nutrition, health,

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agriculture, development and investment plans, and consider in negotiating international agreements to achieve better nutrition for all"

The global targets for "better nutrition" include the Global Nutrition Targets 2025 and the WHO Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013-2020.

Table 2.3 Rome Declaration on Nutrition Commitments

1. Eradicate hunger and prevent all forms of malnutrition
2. Increase investments for effective interventions and actions to improve people's diets and nutrition
3. Enhance sustainable food systems
4. Raise the profile of nutrition with national strategies and align national resources accordingly
5. Strengthen human and institutional capacities to improve nutrition
6. Strengthen and facilitate contributions and action by all stakeholders
7. Ensure healthy diets throughout the life course
8. Create enabling environment for making informed choices
9. Implement these ten commitments through the Framework for Action
10. Integrate the Declaration's vision and commitments into the post-2015 development agenda process

2015:

- 68th session of the WHA results in approval of core set of primary outcome indicators to achieving the Global Nutrition Targets, intermediate outcome indicators, process indicators, and policy environment and capacity indicators (World Health Assembly, 2015).

- UN General Assembly pledges to end malnutrition in all forms and 193 countries adopted the 2030 Agenda for Sustainable Development, which includes 17 Sustainable Development Goals with 169 associated targets. While only SDG 2 (End hunger, achieve food security and improved

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nutrition and promote sustainable agriculture) explicitly mentions nutrition, all 17 SDGs have relevance for nutrition (SUN: Nutrition and the Sustainable Development Goals), and highlight the need for multisectoral solutions.

- The United Nations Decade of Action on Nutrition (2016–2025) is declared by the UN General Assembly. As part of the Decade of Action, countries are asked to consider their specific needs, the recommended policy options from the Framework for Action put forward at ICN2, and set their own specific, measurable, achievable, relevant, and time-bound (SMART) commitments that are in line with the SDGs (United Nations, 2016) to address all forms of malnutrition and nutrition-related NCD.

- World Health Organization's Strategic Action Plan to Reduce the Double Burden of Malnutrition in the South-East Asia Region 2016-2025 is released as an advocacy and reference tool for member states (Unknown author, 2017).

2016

- SUN Movement Strategy and Road Map for 2016-2025 is released. This document is a strategy for the second phase of the SUN movement (2016-2020). The goals are now tied to the Sustainable Development Goals, and include prevention and control of overweight in children and overweight, obesity, and diabetes in adults and adolescents (SUN Movement, 2016).

- Nutrition for Growth (N4G) 2017. This meeting focuses on identifying ways to address the political and financial commitment necessary to meet global nutrition targets, including both over- and undernutrition, and tracking progress toward the targets (Global Nutrition Summit, 2017). A follow up meeting is scheduled for December 2020.

Despite the number and intent of plans and strategic actions outlined above, the 2020 Global Nutrition Report estimates that the probability of meeting the targets for slowing down obesity, diabetes, and elevated blood pressure by 2025 is less than 1% (Global Nutrition Report, 2020). These action plans and strategies are the work of international organizations and collaborations; countries, especially LMICs with a significant malnutrition burden, will have to increase their individual efforts to improve the chance of meeting the global nutrition targets. India is experiencing a double burden of malnutrition currently, and will need develop policies and programs that are responsive to political, cultural, and epidemiological context to address it

2.5 Malnutrition in India

Setting

India is a vast and diverse South Asian country, including over one-sixth of the world's population (1.3 billion people) as of 2016 (World Bank, 2016). The country is divided into 29 States and 7 Union Territories, and has the fourth largest GDP in the world. India is home to more than 15 official languages, the most widely spoken of which is Hindi (41%), and many hundreds more minor

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languages and dialects. Hinduism is the most prevalent religion in India, yet there are many more practiced religions and sects. India's social structure is based on the caste system. A caste is a social community into which one is born and determines the individual's status within social hierarchy. There are four recognized castes in India, in addition to the Scheduled Castes (SC) who provide the majority of agricultural labor, and the Scheduled Tribes (ST). The country has a constitutional republic system of government, adopted after independence from British colonial rule (Aiyappan, 2020). India has a federal Constitution with some unitary features, meaning that states have a great deal of flexibility in determining and funding strategies that may or may not align with national policies around health, agriculture, sanitation, and other issues that demonstrate regional specificity (Lapping et al., 2014). While the Government of India sets a national agenda and policies, the success of these priorities is dependent on implementation that is decentralized to the subnational levels, translated and edited at the state, and sometimes district and block levels (Gillespie et al, 2013).

Undernutrition

India is undergoing rapid economic, demographic, social, health and nutrition transitions (World Bank, 2006). There is significant variation in severity of different malnutrition issues at the state and district levels in India, and among different geographically and socioeconomically oriented populations (World Bank, 2006; IIPS and ICF, 2017). Nationally, the prevalence of anemia among children and women of reproductive age remained above 50% in 2017 (Swaminathan et al., 2019), and 1 in 3 children under the age of five years of age were stunted, wasted, or both, and all socioeconomic groups were affected (Shankar et al., 2017; Menon et al., 2017). The prevalence of underweight children

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under five years of age decreased modestly from 42.5% to 35.8%. During the same time period, the prevalence of overweight and obesity rose from 9% to 19% in men and from 13% to 21% in women. Micronutrient deficiencies are a major source of concern in India. Almost 60% of children under five years of age are anemic (IIPS and ICF, 2017).

Overweight, obesity, and nutrition-related NCDs

In 2016, 20.7% of women in India were overweight or obese, compared to 18.6% of men. This rate is almost double that of one decade prior. Some districts have prevalence rates of overweight or obesity approaching 50%. Child overweight prevalence was 12% in 2017 (Swaminathan et al., 2019) Prevalence of hypertension in men varies from 0 to 43%, and in women from 3 to 27%. Elevated blood sugar, a significant risk factor for type 2 diabetes, is more prevalent in men, ranging from 1 to 22%, compared to 1 to 12.5% in women. (Menon et al., 2017). Studies show that Indians have higher mortality due to cardiovascular issues and a higher prevalence of metabolic syndrome, hypertriglyceridemia, insulin resistance syndrome, and a higher percentage of body fat in relation to BMI compared to other ethnicities (Misra and Vikram, 2004). High insulin resistance can contribute to development of Type 2 diabetes and atherosclerosis. The Indian Council for Research on International Economic Relations estimated that from 2005 to 2015, morbidity from obesity would cost the Indian economy $200 billion (Chadha et al., 2007). The WHO estimates that from 1994 to 2025, diabetes rates will increase in India from 19.4 million to 57.2 million (WHO, 2004).

Double burden of malnutrition

A region-level analysis using data from the NFHS-III (2005-06) to examine the prevalence of double burden of malnutrition also identified determinants of the coexistence of over- and undernutrition (Ravishankar, 2012). The study found that regions of India that experience the double burden of malnutrition are the north, south, west, and north-east regions of the country, and determinants of the coexistence of undernutrition and nutrition-related NCDs include women's age, religion, geographical location, women's education, wealth and lifestyle indicators. Sengupta et al. (2014) studied the difference in assessment of the double burden of malnutrition in India using traditional versus Asian-specific BMI categorizations for overweight and obesity. Using an Asian-specific BMI categorization scheme, 11 states in India could be classified as having a double burden, compared to 4 states identified when using traditional BMI cutoffs. This study identified the double burden in similar regions of the country as the work by Ravishankar (2012).

Whereas the percentage of Indian women aged 20-49 who are underweight decreased from 31.5 in 1998 to 26.6 in 2005, the percentage of women who are overweight increased from 13% to 18.2% (Corsi et al., 2011). Analysis of household-level data discovered that in Indian women aged 22-49 years, there is a socioeconomic pattern to nutrition status with low socioeconomic status associated with undernutrition and high socioeconomic status associated with being overweight or obese. This relationship is more apparent in urban than rural areas (Kulkarni et al., 2017). Prevalence of being overweight or obese is associated with greater education in either parent, and on a parent's occupation being in the service industry (Faizi et al., 2017).

Temporal trends

India has seen improvements in the prevalence of stunting over the last decade, decreasing from 48 percent to 38 percent in children less than five years of age. There has been very little change in prevalence of anemia among women in the same time frame, and wasting in children less than five years of age has actually increased from 19.8 to 21% (Menon et al., 2017). With respect to determinants of malnutrition, full immunization has increased from 43% in 2005-6 to 62% in 2015-16, institutional births have increased from 38.7 to 78.9%, and increases are also seen in all maternal care indicators, immunization and vitamin A indicators (except for polio vaccination which decreased from 78.2 to 72.8%). Indicators for childhood diseases have trended mostly in the positive direction. Child feeding practice indicators show that over time, breastfeeding in India has increased, but still only 55% of children aged 6 months are exclusively breastfed, and the percentage of children age 6-23 months receiving solid or semi-solid food and breastmilk has actually declined by almost 10% in the last decade (IIPS and ICF, 2017). The percentage of women who are overweight or obese has increased from 12.6 to 20.7. The percentage of men who are overweight or obese doubled in the same time from 9.3 to 18.6%.

Geospatial trends

Of the 640 districts in India, more than one third of children in 439 of the districts were stunted and more than 15% of children were wasted in 487 districts. Anemia in women of reproductive age is highest in the eastern districts (Menon et al, 2017). With respect to overnutrition, hypertension in both men and women is highest in the northeastern states, there is widespread variability in

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district prevalence of elevated blood glucose, and urban districts claim the highest prevalence of overweight/obesity in women (Menon et al., 2017).

National level nutrition policy and programmatic context

India has many nutrition-specific and nutrition-sensitive programs that are currently active in the country. This section details the major policies and programs that have had a role in shaping nutrition at the national level, including the Public Distribution System (PDS), the Mid Day Meal Programme, The Integrated Child Development Services (ICDS), the National Rural Health Mission (NRHM), and the Janani Suraksha Yojana (JSY) programs.

Policies

1993 National Nutrition Policy

The 1993 National Nutrition Policy was developed in response to the 1992 call at ICN Rome for national nutrition policy and action plans. The National Nutrition Policy emphasized the need to combine nutrition with development plans and provided guidelines for improving health and nutrition through essential food fortification, an increase in per capita availability of nutrient-rich foods, and improved nutrition awareness and education (Ramakrishnan, 2012). A National Plan of Action followed this policy in 1995 with commitments to action made by fourteen ministries and departments with relevance to nutrition. For example, the Ministry of Agriculture began a kitchen gardening program to promote the production and availability of nutritious food and vegetables at the household level, the Ministry of Forests and Environments distributed seedlings of fruits and vegetables rich in Vitamin A, and the Ministry of Education launched the Midday Meal Scheme for school-age children. The 12th Five Year Plan intends to bring an intersectoral approach to nutrition from the village to

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the State level, focusing on the 200 highest burden districts, and expanding the ICDS program.

National Nutrition Strategy, 2017

The 2017 release of the National Nutrition Strategy served as a focusing event, bringing renewed and increased visibility specifically to undernutrition in India (NITI Aayog, 2017). The report presented a mapping exercise to highlight the primary responsibility holder for addressing determinants of nutrition. Fifteen separate ministries and twenty-three programs were enlisted in addressing these determinants, demonstrating the complexity of achieving convergence of efforts even at the national level and when considering only undernutrition. This national strategy recognizes the need to highlight the state, district, and even block level capacities in translation of these priorities and gives much flexibility and power to these subnational policy actors and implementers to achieve nutrition targets. The National Nutrition Strategy does not communicate a sense of urgency around nutrition-related NCDs. The strategy briefly mentions nutrition-related NCDs as a growing concern, citing the findings from analysis of the National Family Health Survey-4 data in 2015-2016 of obesity in almost 21% of women and 19% of men in India (IIPS and ICF, 2017). A decrease in nutrition-related NCDs is not included as an intended outcome in the main document, but is described without elaboration as a longer-term goal than the undernutrition targets addressed through the National Nutrition Strategy. The Strategy also calls for the establishment of a National Nutrition Mission that will facilitate the integration of nutrition-related interventions that are geared specifically toward reduction of undernutrition from multiple sectors including sanitation and clean water, rural development, women and child

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development, health, and public food distribution. This national framing of malnutrition as being overwhelmingly an issue of undernutrition among women and children belies the rise in nutrition-related NCDs in India as a whole.

Programs

Public Distribution System

Originally designed as a rationing system to address hunger and food insecurity in the face of food shortages across India, the PDS has evolved since the 1970s to provide price stabilization for rice and act as a welfare and nutrition program in India. Most of India functions under the Targeted Public Distribution System (TPDS) that splits households into three tiers that determine benefits. Households with Above Poverty Line (APL) cards are eligible to buy rice at PDS at near market price. Below Poverty Line (BPL) households are eligible to buy rice, wheat, sugar, kerosene, and in some cases edible oils, at state government-determined subsidized prices. The Antyodaya Anna Yojana (AAY) program serves the third tier of beneficiaries, made up of the "ultra-poor" – a group that is defined in each state by local governments. Households with AAY cards are entitled to larger quantities of subsidized goods. Through the Annapurna scheme, indigent citizens aged 65 years and older receive 10 kg of rice free of cost. Given the shifting burden of malnutrition from hunger to include nutrition-related NCDs, the PDS has been suggested by some as a potential contributing factor to poor diets, especially among the poor who are more dependent than the wealthy on the PDS, and as a future vehicle for distribution of subsidized sources of more dietary diverse foods than the primary staple provided, rice.

In 2002, the Nutrition Program for Adolescent Girls (NPAG) was started in India, and was implemented in only 2 districts in Tamil Nadu. The NPAG was

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run through the PDS and provided 6kg of grains every week to girls aged 11 to 15 who weighed less than 30 kg, and to girls 15 to 19 years of age who weighed less than 35kg. This program was controversial as it was found that some families might be engaging in household sharing of the food and purposefully maintaining the weight of the adolescent girl child to below the weight cutoff to ensure receipt of grain through NPAG (Ramakrishnan, 2012). This program was replaced by the SABLA program in 2011, managed by the ICDS program.

While studies have claimed that the impact of the PDS on nutrient intake is large (Jha et al., 2011), the PDS may have some unintended consequences on nutrition. Desai and Vanneman (2015) found that PDS beneficiaries were more like that non-PDS beneficiaries to consume cereals that are purchased at subsidized prices through the program, than to consume milk and fruit. The authors suggest that the PDS may be useful to increase caloric consumption but at the potential cost of dietary diversity.

Mid-Day Meals

In 1995, the Tamil Nadu Midday-Meal Scheme was the inspiration for the National Programme of Mid-Day Meals in Schools that aims to provide a hot and nutritious meal for every schoolchild, in an effort to combat persistent malnutrition in Indian children. In 2001, the Right to Food Case passed in the Supreme Court resulting in an order to provide mid-day meals nationally to primary schools that are government funded and government assisted. The meals consist of a hot cooked meal with a specific nutritional makeup and variety throughout the week (Ramachandran, 2019). In 2007, this program was renamed the National Programme of Mid-Day Meals in Schools.

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The Integrated Child Development Services (ICDS)

ICDS is a critical actor in monitoring and supporting the health and nutrition of children and pregnant and lactating women in India. Through the centrally-sponsored ICDS program, children aged 0 to 6 years and pregnant and lactating women in urban, rural and tribal areas are provided with supplementary food; growth monitoring; anemia prevention in the form of iron and folic acid (IFA) tablets provided to children between 6 months and 3 years of age and pregnant women; childhood immunizations; health checkups; nutrition and health education to mothers; and early education. Community health workers also provide IFA tablets and health and education programs to adolescent girls under the Adolescent Girls Scheme (Kishori Shakti Yojana) (Research on ICDS, 2009).

SABLA, a community level effort to improve the nutrition and health status of women and adolescent girls who have persistently high rates of anemia in India, replaced the NPAG, which had been run through the PDS. SABLA is led by the central government, is managed by the State governments, and delivered through the AWCs through the ICDS platform. The SABLA program is active in 200 districts, including 9 districts in Tamil Nadu. The program supplies 600 kcal and 18-29g of protein every day for 300 days a year to girls aged 11 to 14 who are not enrolled in school and to all girls ages 15 to 18. Beneficiaries also receive IFA supplementation, health checkups and referral services, nutrition and health education, and life skills and vocational classes. The nutrition component of the program is funded 50:50 by the central and state governments (Rajiv Gandhi Scheme, n.d.).

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National Health Mission

The NHM was started in 2005 by the Government of India to provide affordable and high-quality healthcare to vulnerable, especially rural, populations through a decentralized and intersectoral approach. Some of these efforts play a role in nutrition status of mothers and children. The NHM focuses on tribal health, adolescent health, family planning, dental clinics, emergency obstetric and newborn care, skilled birth attendant training, anemia control through behavior change communication in school children and pregnant women, and some surgeries. Village Health and Nutrition days are also organized once a month in each village and are targeted to adolescent girls, pre- and postnatal women, newborns, children and mothers with children.

A key feature of the NHM is the Janani Suraksha Yojana (JSY) program. The goal of the JSY program is to reduce maternal and infant mortality through conditional cash transfers that provide incentives to pregnant women in households below the poverty level, women from scheduled tribes or scheduled castes, and health workers to have institutional deliveries. The incentives offered vary by state, urban versus local, and type of delivery (Jeyaranjan, 2011; Srinivasan, 2010). Besides the conditional cash transfers, the JSY programs supports early birth registration, antenatal care, birth planning, postnatal checkups and reporting by health workers, newborn immunizations, breastfeeding counseling, family planning and counseling, and transportation from home to facilities for delivery (Vora et al, 2015; PIP 2012-13). In 2013, earlier restrictions on eligibility were reversed so that benefits were no longer restricted to only women over 19 years of age and only for the first two live-born children.

The impact of the JSY program on maternal and child health is complex. Studies report an increase in institutional deliveries but studies report varied results with respect to the impact on perinatal and neonatal mortality, or antenatal care. One study by Carvalho et al. (2014) found that financial assistance from JSY was associated with a significant increase in childhood immunization rates, with wide variation in immunization rates across geographic and economic groups. Carvalho et al. also found that women who received JSY funds were more likely to breastfeed their infants within an hour of delivery, although there was no effect found on exclusive breastfeeding. Another review study reported equivocal results with respect to the impact on antenatal care (Glassman et al., 2013). The JSY program's influence on nutrition is therefore unclear.

2.6 Malnutrition in Tamil Nadu

Setting

The state of Tamil Nadu is located on the southeast coast of India with a population of more than 70 million. The state has a literacy rate of over 80%, claims the third highest per capita income in the country, and is one of the most industrialized and urbanized states in India. Poverty has declined to less than 17% of the rural population and less than 7% of the urban population since poverty reduction schemes were implemented by the state in the 1990s. (Gopalakrishnan, 2011; Tamil Nadu State Human Development Report, 2017; Muraleedharan et al ., 2011).

Double burden of malnutrition

The state of Tamil Nadu in India is experiencing chronic undernutrition with about a quarter of children under five years of age being stunted (27%) and underweight (24%), but also suffers from rates of nutrition-related NCDs higher

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than national averages with almost 31% of the adult population being obese compared to 20% nationally. Additionally, over 10% of the adult population has elevated blood sugar levels, an indication of increased risk of Type II Diabetes (IIPS and ICF, 2017; Dutta et al, 2019). With respect to determinants of malnutrition in Tamil Nadu, wide variability is seen in percentage of early initiation of breastfeeding and receiving an adequate diet. Literacy rates are lowest in the center and northwest districts of the state. Those same areas also display the largest gender gaps with respect to literacy. Interdistrict variability exists in coverage of nutrition-specific interventions, like consumption of iron-folic acid supplements during pregnant, or receiving four or more antenatal care appointments, and some nutrition-sensitive interventions like full child immunization and vitamin A supplementation. Some determinants show little variability across districts, like institutional delivery, presence of a skilled birth attendant at delivery, and access to safe drinking water and electricity (Kohli et al., 2017).

State-level nutrition policy and programmatic context

Within India, the state of Tamil Nadu has a long history of and reputation for commitment to addressing malnutrition, dating back to the early part of the 20th century. Tamil Nadu has made many state-specific changes to major nutrition-specific or nutrition-sensitive programs active in India that that have had an impact on the nutrition status of those living in the state including development of the Midday Meal Program, a universal Public Distribution System, and higher maternal entitlements intended to support pre- and postnatal nutrition than in other parts of the country (Ramakrishnan, 2012; Kalaiyarasan, 2014; World Bank, 2006 from Heaver, 2003). The political will to address

undernutrition is demonstrated through the sustained commitment of programmatic resources for these efforts in Tamil Nadu, but to date similar efforts to reduce nutrition-related NCDs have not been prioritized or planned.

Programs and policies

Public Distribution System

Unlike the TPDS in the rest of India, the PDS in Tamil Nadu is universal. Subsidized rice, wheat, edible oils, and in some cases sugar, are available to all, however rice is free to those living below the poverty line. AAY eligible individuals in Tamil Nadu include widows, the terminally ill, people with disabilities, people 60 years of age or older with no family support, tribal households, those suffering from HIV/AIDS or leprosy, and the urban homeless. In 2002, Tamil Nadu also started the *Annapurna Scheme*, through which poor elders (over 65 years of age) could receive 10 kg of free rice (Ramakrishnan, 2012; Kalaiyarasan, 2014).

The 2013 National Food Security Act (National Food Security Act) excluded several categories of existing beneficiaries, including households with at least one member paying income tax, owning a car or air conditioner, or owning over 5 acres of land, and ensuring that only 55.5% of the population in Tamil Nadu would be covered by the PDS under the NFSA ("Universal PDS won't be tampered with", 2017). Under the NFSA and nationally, only AAY households, Annapurna households, families living BPL, old age pensioners, widows, single women, and the disabled are eligible to receive subsidies under the PDS. The Tamil Nadu Food Minister, R. Kamaraj, committed with the Tamil Nadu state government to provide the funds missing from the central

government to continue offering universal coverage of subsidized commodities (*"Universal PDS won't be tampered with", 2017*).

Tamil Nadu Integrated Nutrition Program (TINP) and ICDS

The Tamil Nadu Integrated Nutrition Program (TINP I and II) was active from 1981 to 1997 with the support of the World Bank. TINP was created to function as an alternative to the centrally-sponsored ICDS program in Tamil Nadu, and included growth monitoring, nutrition education, direct food distribution, and Vitamin A supplementation in rural and urban areas. TINP differed from ICDS in that it targeted high-risk groups (pregnant and nursing mothers, children 6 months to 3 years of age only) with a smaller number of interventions, and embraced worker training, improving supervision and management, and soliciting community participation. The goals of TINP were geared towards child survival and focused on growth monitoring, nutrition education for mothers, and short-term food supplementation. In 1997, the World Bank funding for TINP came to an end and the centrally-sponsored ICDS program took over in Tamil Nadu. The World Bank estimates that the TINP's targeted approach was more effective at reducing malnutrition at a lower cost, given that fewer children were given supplementation and only those whose growth was faltering or were malnourished (World Bank, 2006 from Heaver, 2003).

Midday Meal Scheme

The Midday Meal Scheme was introduced in Tamil Nadu in 1982 as the Nutritious Food Scheme, and was the largest school and preschool feeding program in the country. The program has three goals: providing a nutritious meal to facilitate mental and physical development, increasing enrolment in

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schools, and reducing the percentage of children dropping out of school. The program originated to serve rural children of 2 to 9 years of age, expanded to include children in urban areas in 1982, old age pensioners in 1983, all children from 2 to 15 years of age in 1984, and pregnant women in 1995. The Midday Meal Scheme also provides uniforms and textbooks to all children up to the 8th standard in government and government-aided schools.

National Rural Health Mission

In 2009, Tamil Nadu implemented a Tribal Village Health Volunteer Scheme in the twelve districts with a tribal population. The Village Health Volunteer functions as an Accredited Social Health Activist and almost 3000 were placed in tribal or remote areas of Tamil Nadu to provide care. Birth waiting rooms were established in 17 Primary Health Centers under NRHM where pregnant women can stay for one week prior to their estimated date of delivery. Mobile medical units also provide care through non-governmental organization (NGO) contributions to these remote villages (Mobile Medical Units, NHM, n.d.).

In Tamil Nadu, Janani Suraksha Yojana entitlements for participating mothers are as follows: Rs 700 for delivering in an institution, Rs 600 for delivering a child in an urban health center, and Rs 500 for delivering a child at home. Entitlements for participating health workers in Tamil Nadu are as follows: Rs 600 for assisting in an institutional delivery, Rs 400 for an urban health center delivery, and Rs 0 for a home delivery. These entitlements are higher than the Indian national averages, but lower than states that are considered "low-performing" because of low institutional delivery rates (National Health Portal, n.d.).

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In India, any policy agenda designed to respond to the malnutrition burden will be developed at the national level and translated to address regional malnutrition context at the state level. As the malnutrition burden presents concerns of differing magnitudes across states, the country presents an opportunity to understand the determinants of nutrition agenda-setting and the factors that contribute to the development of political priority for addressing the double burden of malnutrition through the inclusion of nutrition-related NCDs in nutrition agendas, including framing of nutrition-related NCDs by the nutrition stakeholder community.

2.7. Determinants of nutrition agenda setting

Conditions and characteristics of the policy environment, including frames, influence what and how policy advancement can be achieved. Policies are a result of processes of agenda setting and decision making about an issue by various invested actors interacting within specific contexts (Walt and Gilson, 1994). The policy space within which stakeholders operate is influenced by circumstances surrounding the policy process, background characteristics of the actors, characteristics of the issue, and social, political, historical, cultural, and economic contexts that either provide support for the policy or constraints (Grindle and Thomas (1991), as reported by Crichton (2008). There are often tradeoffs between the dynamic sociopolitical, epidemiologic, and operational domains that influence decision making (Menon et al., 2011), for example when an issue is highly prevalent and severe in the suffering it causes, but policymakers are not invested in it due to a lack of perceived worth of the affected population. Sometimes an external focusing event can open a window of opportunity in which the issue has become advanced enough and to policy

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makers and has high enough political priority to warrant its inclusion in the policy agenda (Kingdon, 1995, as reported by Beland and Howlett, 2016; Shiffman, 2007).

History shows that not all health issues are treated alike. While some grab attention and hold center stage, like tobacco, breast cancer, polio, and HIV/AIDS, others struggle to gain traction and support from both the public and political leaders. Language used to describe the health issue, the idea conveyed, and the population impacted by the health issue are just some of the elements that determine whether an issue receives priority and attention from the public, governing institutions, or both. These elements have to do with *how* an issue is framed. It is also important to consider *who* is doing the framing, and in what *context*. Entman (1993) says that "to frame is to *select some aspects of a perceived reality and make them mores salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation* for the item described." Schneider and Ingram (1993) elaborate on that idea, describing how target populations are socially constructed, meaning that "cultural characterizations or population images of the persons or groups who behavior and well-being are described by the public policy…are normative and evaluative, portraying groups in positive or negative terms through symbolic language, metaphors, and stories." Perception, interpretation, and evaluation elements to framing lead to particular solutions or recommendations.

Pelletier et al.'s analysis of the Mainstreaming Nutrition Initiative found that framing the problem in a way that had "political resonance" and messaging efforts of key players and policy actors were influential conditions to gaining

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political attention and commitment (Pelletier, 2011). Richard Heaver of the World Bank elaborates on ideas around political commitment, discussing the importance of higher-level nutrition "champions" and mid-level "policy entrepreneurs" (Heaver, 2005). Heaver points out that it is essential that these champions and policy entrepreneurs be effective leaders with strong communication skills to build and sustain commitment. They can do this through framing, or what Heaver calls "the strategic use of information…tailored to the consumer".

Much research has been published on the impact of framing target populations and health issues and the impact on political prioritization (Kim et al., 2010; Benford and Snow, 2000; Weaver, 2007; Schneider and Ingram, 1993; Menon et al., 2011), but a gap exists in understanding how framings differ between national and subnational policy actors and the impact on political prioritization. Studies by Emily Yates-Doerr have demonstrated how ideas travel and carry meaning that can be imposed upon others (Yates-Doerr, 2012; Yates-Doerr, 2015; Yates-Doerr, 2016). In one study, Yates Doerr studied how "black-boxing" or packing historically and culturally nuanced concepts into words that become established parts of the nutrition lexicon hid a true understanding of the conceptualizations of the population she was studying. In the development context, this idea of black-boxing is especially important, as international donor, research, and advocacy institutions have historically held much power in determining the direction of public health efforts and expenditures in lower income countries. The terms "overweight", "obese" and "double burden" all carry with them cultural and historical understanding which are based in a biological paradigm. The frames that these institutions use to bring political

priority to issues are powerful and influential and may conflict with local priorities.

Studies have examined the process and consequences of ascendance of nutrition-related NCDs to the global and, in some cases, the national policy agendas to orient towards the double burden of malnutrition. Menon and Penalvo (2020) conducted a scoping review to identify studies examining double duty actions to address the double burden of malnutrition. They found that in spite of the global attention on the issue, very few studies exist on these interventions, suggesting a disconnect between state priorities and actions. Thow et al. (2016) recognized that policymakers in LMICs may see conflicts in historical priorities and strategies to address malnutrition (usually undernutrition) and those to address the "double burden of malnutrition". They conducted an exploratory policy space analysis for a potential solution to the apparent conflict of priorities in India. The authors highlighted a way in which the frames used in food supply policy discourse to discuss undernutrition compared to diet-related NCD prevention might be reconciled to provide a policy solution to both forms of malnutrition.

Glasgow and Schrecker (2016) found that there is a remarkable inconsistency between the WHO Commission on Social Determinants of Health's (2011) frame of nutrition-related NCDs , which focused on structural factors that influence health and illness, including "inequitable distribution of power, money, and resources", and what the authors describe as the perspective of atomistic behavioralism reflected in the 2011 United Nations high-level meeting on non-communicable diseases, and subsequent documents. These documents describe NCDs as "largely caused by four shared behavioral risk factors", i.e.,

tobacco use, unhealthy diet, physical inactivity, and the harmful use of alcohol (World Health Organization, 2011, reported by Glasgow and Schrecker, 2016), intimating that individuals are making choices that lead to NCDs, rather than suffering as a result of social inequalities and related determinants of health. This focus on behavioral risk factors and the choice of the biological indicators illustrates a frame of nutrition-related NCDs reflected in subsequent initiatives that hinges on personal responsibility, with implications for suggested policy and programmatic action. This work calls for more research into the way these perspectives, so pervasive at the global level, are reflected national and subnational nutrition policies to include NCDs in LMICs.

Lachat et al. (2013) conducted a systematic policy review of strategies to prevent NCDs published between 2004 and 2013 in 116 LMICs. They found that 47% of the countries had published NCD prevention strategies that focused on at least one behavioral risk factor, and that strategies were vague and generic, with little guidance on suggested actions for specific stakeholders. This study highlights the nascent process of including nutrition-related NCDs to nutrition agendas in LMICs, as well as the bias toward a biological individualistic point of view of nutrition-related NCD risk factors. The study was limited by its focus on national policy documents only, therefore lacking an understanding of how subnational level policies can be translated and implemented to reflect local priorities.

The double burden of malnutrition is increasing in Tamil Nadu, as undernutrition persists and nutrition-related NCDs increase. The state is experiencing higher rates nutrition-related NCDs than other parts of India, in the context of superior social and economic indicators. To date, most nutrition

policies are still oriented toward addressing undernutrition. Previous studies have examined if and how nutrition-related NCDs have been included into nutrition policy agendas, but there is a lack of understanding of how this process plays out at the subnational level, where policies are translated and implemented. Using the Indian state of Tamil Nadu as a case study, this study seeks to fill that gap by addressing two aims: 1) to describe stakeholder frames of undernutrition and nutrition-related NCDs in Tamil Nadu and show how different frames held by stakeholders reflect intention and action regarding nutrition policy and programming at the state level in the LMIC context, as demonstrated in Tamil Nadu, India; 2) to identify the conditions and characteristics that support and inhibit the inclusion of nutrition-related NCDs in the nutrition policy agenda in Tamil Nadu. Through answering the second question, we seek to understand 1) whether political priority exists for bringing nutrition-related NCDs into state nutrition policy agenda; and 2) whether the state has translated national strategies focused on undernutrition into locally relevant ones that address the emerging threat of the double burden of malnutrition.

2.8 Conceptual framework

This research is guided by Gillespie and Haddad's (2014) conceptual framework for the determinants of malnutrition (Figure 2.2). The past few decades have brought changes in many system-level factors that can contribute at the basic level to overnutrition downstream. Economic and income growth throughout the world, trade and marketing globalization, urbanization (both planned and unplanned), aging populations, and climate change, have all had serious impact on factors at the underlying level like food systems, food

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environments, social, health and living environments, and on lifestyle patterns at the immediate level. Intermediate level dietary and physical activity habits have been "fueled in part by [underlying factors] of transnational markets, the diffusion of technological innovations (particularly the near-universalization of television and digital communications), accelerated rates of urbanization, dramatic shifts in occupational structure, improved educational status, and changing sex roles" (Freire et al, 2014) that, in conjunction with genetic predispositions (immediate level), are creating obesogenic environments (Hetherington and Cecil, 2010, Gillespie and Haddad, 2014).
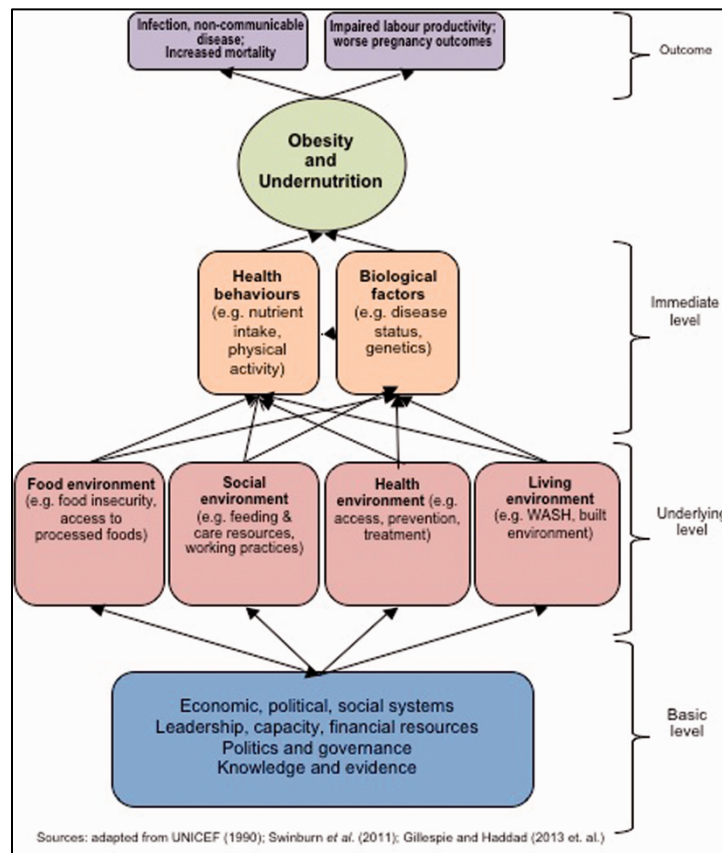

Figure 2.2. Conceptual Framework for Determinants of Malnutrition

The changing food consumption patterns described above result in diets low in micronutrients and high in energy – Pattern 4 in Popkin's pattern of nutrition transition. Freire et al. (2014) point out that "[a]lthough diets in developing countries still include large proportions of unprocessed foods, traditional diets have been replaced in whole or in part by energy-dense foods, particularly processed foods high in fat, sugar, and salt. In addition, traditional lifestyles have changed dramatically, particularly in terms of substantial reductions in physical activity." These immediate level factors of dietary pattern and sedentary lifestyle are significant risk factors for micronutrient deficiencies, overweight and obesity, and nutrition-related NCDs.

The Gillespie and Haddad framework was adapted from the UNICEF framework for causes of malnutrition to directly address the double burden of malnutrition in LMICs. The Gillespie and Haddad conceptual framework has several distinctions from the original UNICEF framework that has been used for decades primarily to explain undernutrition. Both obesity and undernutrition are included in the Gillespie and Haddad model and are not depicted as final outcomes; rather, they are markers of the economic and health consequences of malnutrition. The separation of the immediate causes into behavioral and biological factors is helpful in devising solutions or prevention strategies. The underlying causes have been divided into different types of environments that support the development of obesity or undernutrition; this division is helpful in envisioning multisectoral strategies to address malnutrition in all its forms. An underlying assumption depicted in the Gillespie and Haddad framework is that there are shared determinants of obesity and undernutrition. Potential double-duty or triple duty strategies are more likely to be strategies that address shared

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basic and underlying factor-level causes of malnutrition with multiple downstream effects. Finally, the factors included in the basic level of malnutrition include many elements that influence the agenda-setting and policy process, including quality of leadership, financial resources, knowledge, evidence, and politics (Shiffman and Smith, 2007).
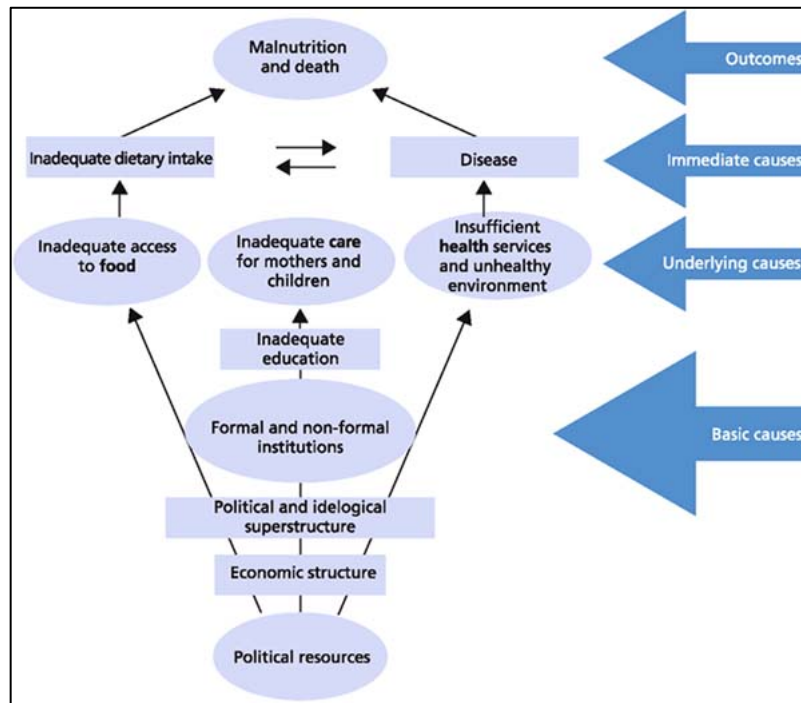
Figure 2.3 UNICEF Conceptual Framework for causes of malnutrition

Most other conceptual frameworks for the causes of malnutrition are adapted from the UNICEF framework for causes of malnutrition (1990) (Figure 2.3). The UNICEF framework was endorsed by the FAO and WHO at the International Conference on Nutrition (ICN) in Rome in 1992, resulting in many national plans of action for nutrition (Gillespie et al., 2016). This framework for the causes of malnutrition focuses on determinants and drivers of

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undernutrition, and demonstrates the complex relationships between the drivers of undernutrition, presented as basic, underlying, and immediate causes, with malnutrition (undernutrition) as the final outcome. The conceptual framework was developed prior to the interest in the rise in overweight, obesity and nutrition-related NCD, and is therefore best adapted to address causality of concurrent over- and undernutrition through basic, underlying, and immediate-level factors, like the Gillespie and Haddad model.

2.9 Theoretical framework

We drew upon several existing applied and theoretical frameworks to guide this work. We grounded our conceptualization of the role of stakeholders' contexts on nutrition policy and programming in Mejia Acosta and Fanzo's (2012) framework for nutrition governance. This framework acknowledges that stakeholders operate within a policy space that includes cultural, political, demographic, and geographic contexts, is shaped by existing institutions and policy frameworks, as well as stakeholders' motivations and technical capacity (Figure 2.4).
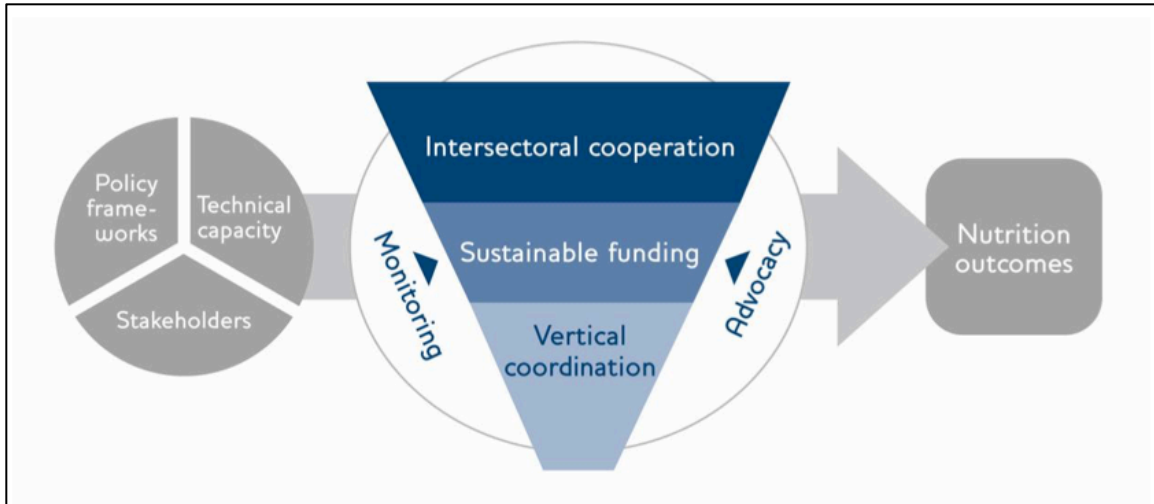
Figure 2.4. The Nutrition Governance Framework

Stakeholder motivations are influenced by social constructions of both the problem and the population affected by it. Schneider and Ingram (1993) define social construction of target populations as "cultural characterizations or popular images of persons or groups whose behavior and well-being are affected by public policy. They note that social constructions are crucial to agenda setting as they convey messages about the responsibility of government or support or not support citizens, as well as deservedness of those suffering from disease, compared to those who are not. Policymakers justify their choices by framing their proposed policy in a way that resonates with values and assumptions of the public about the target population and the goals of the policy.

We looked to other frameworks to inform our thinking about additional conditions that go beyond stakeholder's individual contexts to influence decision-making. Menon et al. (2011) articulate three domains, sociopolitical,

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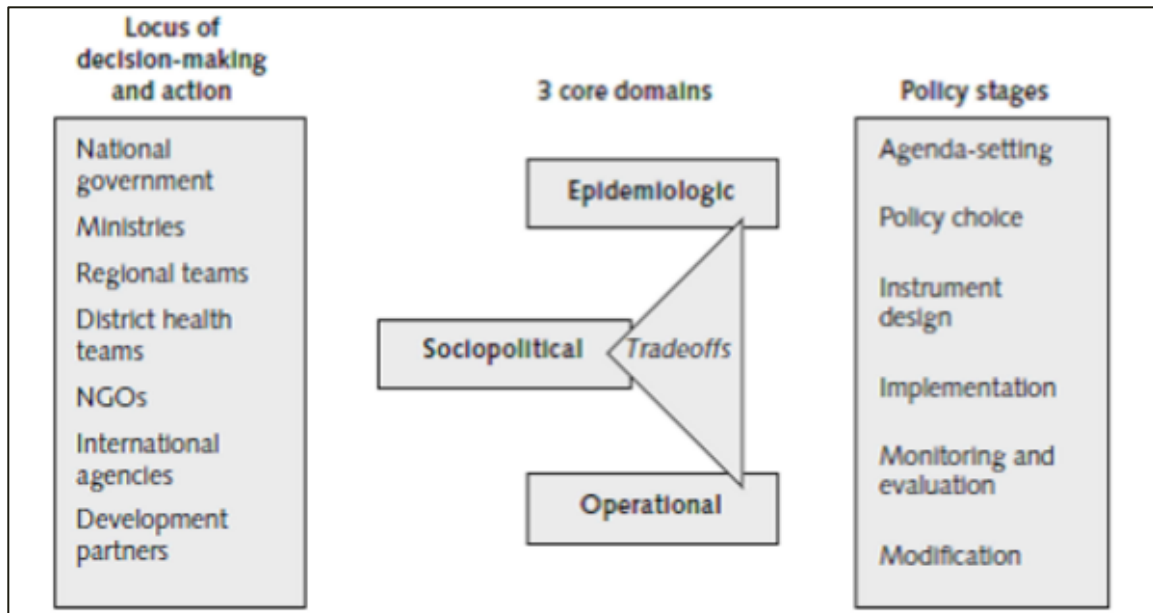
Figure 2.5 Mainstreaming Nutrition Initiative framework for defining strategic action

epidemiological, and operational that are essential for strategic action. The sociopolitical domain pertains to political, sociocultural, and organizational factors; the epidemiological domain includes nutritional problems, target populations, and geographic areas; and the operational domain refers to the quality, coverage, cost and use of programs. Interactions between these domains result in tradeoffs that have implications for decision making about policy and programmatic actions.

We also looked to Shiffman and Smith (2007)'s framework for factors that determine the development of political priority (Table 2.5) for an issue to inform our multi-level thinking about nutrition agenda-setting that includes the power of individual actors and institutions, framing both to the policy community and outside the policy community, characteristics of the problem itself, and the political context within which agendas are set and decisions are made. We

adapted this framework for our analysis in the second manuscript presented here. While this framework was intended to be applied to global-level issues, we believe that the concepts are both important and relevant in our state-level LMIC context. Shiffman and Smith's framework presents four dimensions (actor power, ideas, political context, and issue characteristics) and eleven factors within those dimensions that shape political priority for an issue.

Table 2.4 Framework on determinants of political priority for global initiatives

Dimension	Description	Factors shaping political priority	
Actor power	The strength of the individuals and organizations concerned with the issue	Policy community cohesion	The degree of coalescence among the network of individuals and organizations that are centrally involved with the issue at the global level
		Leadership	The presence of individuals capable of uniting the policy community and acnknowledged as particularly strong champions for the cause
		Guiding institutions	The effectiveness of organizations or coordinating mechanisms with a mandate to lead the initiative
		Civil society mobilization	The extent to which grassroots organizations have mobilized to press international and national political authorities to address the issue at the global level

Ideas	The ways in which those involved with the issue understand and portray it	Internal frame	The degree to which the policy community agrees on the definition of, causes of, and solutions to the problem
		External frame	Public portrayals of the issue in ways that resonate with external audiences, especially the political leaders who control resources
Political contexts	The environment in which actors operate	Policy windows	Political moments when global conditions align favorably for an issue, presenting opportunities for advocates to influence decisionmakers
		Global governance structure	The degree to which norms and institutions operating in a sector provide a platform for effective collective action
Issue characteristics	Features of the problem	Credible indicators	Clear measures that show the severity of the problem and that can be used to monitor progress
		Severity	The size of the burden relative to other problems, as indicated by objective measures such as mortality levels
		Effective interventions	The extent to which proposed means of addressing the problem are clearly explained, cost-effective, backed by scientific evidence, simple to implement, and inexpensive.

Actor power describes the strength of individuals and organizations concerned with the issue, and includes the factors of policy community cohesion, leadership, guiding institutions, and civil society mobilization. *Ideas* include internal and external frames and are the ways in which those involved with the issue understand and portray it. *Political contexts* are the environments in which actors operate, including policy windows and the governance structure. *Issue characteristics* are features of the problem, including the presence of credible indicators, objective measure of severity relative to other problems, and the existence of effective interventions. The framework provides a tool which can be used to improve understanding about the development of policies oriented toward the rapidly growing double burden of malnutrition in Tamil Nadu, through inclusion of nutrition-related NCDs on the nutrition policy agenda.

CHAPTER 3

METHODS

3.1 Study design

We used case study methodology to conduct this research, considering the state of Tamil Nadu in India to be a critical case through which we could use in-depth qualitative research methods to study 1) how framing of malnutrition influences agenda-setting and 2) how determinants of political priority for inclusion of nutrition-related NCDs in nutrition agendas explain the orientation in nutrition policy, or lack thereof, toward addressing the double burden of malnutrition at the subnational level (Yin, 2018). A rationale for the selection of Tamil Nadu as the setting for this study is provided below.

3.2 Setting

Tamil Nadu, a state on the southeast coast of India with a population of more than 70 million, is one of the most industrialized and urbanized states in India and has the second largest economy in the country (Government of Tamil Nadu, 2017; Gross State Domestic Product, 2019). The state has a literacy rate of over 80% and has experienced rapid decline in poverty to less than 17% of rural population and less than 7% of the urban population since the state implemented schemes to reduce poverty in the 1990s (Table 3.1) (Gopalakrishnan, 2011; Tamil Nadu State Human Development Report, 2017; Muraleedharan et al., 2011).

Table 3.1. Characteristics of Tamil Nadu

Population	72,147,030
Literacy rate (%)	M: 89.1; F: 79.4
Scheduled tribe/Scheduled caste (%)	1.1/20
Below poverty line (%) [rural, urban, total]	16.83, 6.54, 11.28
Rural	51.6
Undernutrition (%) [stunting, wasting, underweight]	27, 27.6, 23.8
Nutrition-related NCD in men (%) [overweight or obese, high blood pressure, elevated blood glucose]	28.2, 15.7, 15.4
Nutrition-related NCD in women (%) [overweight or obese, high blood pressure, elevated blood glucose]	30.9, 8.3, 11.0

*Source: Indian Census 2011; Government of Tamil Nadu, 2017; National Sample Survey Office survey on Household Consumer Expenditure, NFHS-4 Tamil Nadu Fact Sheet, 2015-16.

Tamil Nadu has a long history of demonstrated political commitment and public support for social programs including those that aim to prevent malnutrition (Kalaiyarasan, 2014). As a result, the nutrition policy and program actors are experienced and knowledgeable as well as varied, including local, national, and international actors. In addition, the strong enabling environment of Tamil Nadu may have contributed to increased willingness of policy actors to show interest and participate in our research. Finally, while there has been improvement in prevalence of undernutrition as a result of the state's commitment to addressing it, quarter of children under five years of age remain stunted (27%) and underweight (24%). The state also suffers from rates of nutrition-related NCDs higher than national averages with almost 31% of the adult population being obese compared to 20% nationally. Additionally, over 10% of the adult population has elevated blood sugar levels, an indication of increased risk of Type II Diabetes (IIPS and ICF, 2017; Dutta et al, 2019). As the burden of nutrition-related NCDs is higher in Tamil Nadu than national

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averages and the state still struggles simultaneously with undernutrition, state policy and program actors were more likely to be aware of the issue of a double burden of malnutrition (Kohli et al., 2017).

3.3 Sampling procedures and sample description

In previous work by POSHAN studying nutrition policy in another Indian state, the team discovered that it was necessary to conduct about 30 interviews before they achieved representation from relevant policy actors at the state, national and international level, and theoretical saturation. Based on that experience, we recruited 28 nutrition stakeholders with knowledge of the nutrition policy process or implementation of nutrition-specific or nutrition-sensitive initiatives at either the state (n = 21) or national level (n = 4) or both (n = 3) to achieve theoretical saturation. We included national-level policy actors and advocates in the sample to provide perspectives from the level where policies are often developed compared to the state level where they are interpreted and implemented. The key informants from the full group of stakeholders were identified using initial purposive sampling through our review of relevant policy documents and with input from local professional colleagues and contacts in the field. The purpose of these interviews was to understand the range of perspectives of stakeholders on the rising rates of nutrition-related NCDs in the context of chronic undernutrition to help guide and identify the necessary avenues for investigation in subsequent interviews.

We used theoretical and snowball sampling, guided by the principal of maximal contrast (Palinkas et al., 2015), to include a range of perspectives for the remaining interviews from policy actors from national policy advocates to state-level government officials and nutrition policy and program implementers and

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achieve theoretical saturation (Table 3.2). The sample of state-level stakeholders included representatives from state academic institutions; government officials from the Department of Public Health and Preventive Medicine, the Ministry of Women and Child Development, the Integrated Child Development Services program, the National Rural Health Mission, and the State Planning Commission; and the United Nations Children's Fund (UNICEF). Stakeholders from the national level were heavily involved in policy and advocacy work.

The POSHAN project, led by the International Food Policy Research Institute supported the lead author through funding and introduction to stakeholders to whom she otherwise may not have had access as an outside researcher. This association with POSHAN facilitated the establishment of rapport between the lead author and the stakeholders, and likely contributed to the quality of data collected through enhanced candidness in the interviews.

Table 3.2 Sampling frame for stakeholder interviews

	State-level	**National-level**	**State and national-levels**
Nutrition stakeholders	Government (6) • Includes representatives from agriculture, health, public health, women and child development. Program implementation (3) Development partners (3) Academia/Research (7) Medical (2)	Medical/policy and advocacy (1) Medical/policy and advocacy/academia (1) Policy and advocacy (2)	Policy and advocacy (1) Academia/policy and advocacy (2)
Total	**21**	**4**	**3**

The lead author approached initial key informants with a formal invitation letter describing her position and intention in the research, that required written consent. This formality seemed to invite caution from the stakeholders in their attitude toward participation and guardedness in their responses. After consultation with co-authors who had experience communicating with local government officials, use of the formal introduction letter ceased and verbal consent was obtained instead for the remaining interviews.

3.4 Instrument

Two interview guides with open-ended questions were developed by the study team, one for state-level stakeholders and one for national-level advocates and policymakers (Appendices A and B). We did not use the term "double burden of malnutrition" in our interview guide, which is a product of global framing. As a result, we were able to reconstruct the participants' frames using their own perspectives, words, and phrases. We considered the core domains (biological/epidemiological, sociopolitical, and operational) identified by Menon et al. (2011) as essential for strategic actions as well as several policy process frameworks (Clark, 2002; Shiffman and Smith, 2007; Gillespie et al., 2013) in developing the interview guide and in identifying the themes for investigation. We used a realist perspective to inform our interview guide and orient the emergent themes in the context of existing data on malnutrition prevalence in Tamil Nadu and global and national expert recommendations (Maxwell, 2012). We also used theoretical sampling guided by emerging concepts from initial coding, constant comparison, and conceptual memos to adapt the interview guide as interviews progressed. The process of theoretical sampling allowed

evolution of the interview guide as questions or themes emerged that needed to be explored further to help answer the research questions (Corbin and Strauss, 2008, Patton 2002).

The interview guide for state-level stakeholders had four themes: stakeholder identification of major health challenges in Tamil Nadu (current and over the past decade); causes, target populations, intervention strategies, and responsibility for implementation of strategies to address chronic undernutrition at the state level; causes, target populations, intervention strategies, and responsibility for implementation of strategies to address nutrition-related NCDs at the state level; and causes, target populations, intervention strategies, and responsibility for implementation of strategies to address both forms of malnutrition simultaneously through double duty actions.

The second interview guide was developed for national level stakeholders who were already engaged in discussions about trends in malnutrition in India as a whole and efforts to address it. Questions in this guide had five themes: frames of undernutrition , nutrition-related NCDs, and the cooccurrence of both forms of malnutrition in India as a whole (current and past); the relationship between nutrition-related NCDs and chronic undernutrition, including common causes, target populations, possible double duty actions, and responsibility for identification and implementation of double duty actions; potential differences in frames represented by different types of policy actors or disciplines; the potential of different frames to inform successful policies to address all forms of malnutrition; and stories of successful strategies to tackle undernutrition in India, the factors that contributed to the success, and lessons learned that can be applied to addressing all forms of malnutrition.

3.5 Data Collection

Semi-structured interviews were conducted in person from February 2018 to March 2018. These in-person interviews were conducted with the 21 state-level stakeholders in Chennai, the capital of Tamil Nadu, and continued over telephone or video conference with the 7 national-level stakeholders from April 2018 to June 2018. The lead author conducted all interviews in English. Stakeholders were informed that they would not be identified beyond level of expertise (state or national), agency where relevant, and discipline, and consent was obtained orally. Interviews were recorded with permission of the interviewee in most cases. In cases where recording was not allowed, detailed notes were taken during the interview by the lead author and supplemented with additional details immediately following each interview. Primary data sources were verbatim transcriptions and the interview notes in cases where recording was not allowed. Interviews with current academics and government and program officials were often conducted in their offices, while those with former government and program officials, representatives from non-governmental organizations and advocates were conducted in informal settings or their homes. The interviews ranged in length from twenty-five to ninety minutes.

Field notes were taken by the lead author immediately after each interview, in which the environment and study participant were described, along with methodological observations and reflections, and analytical reflections. These observations provided context to each interview and allowed the lead author to reflect on emerging themes and concepts, as well as any methodological issues in the interview that may have an impact on interpretation

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of results. These challenges included guarded or vague responses and interview questions that did not elicit the intended information. Coauthors reviewed and discussed initial field notes with the lead author in a peer review process to provide additional perspective on emerging themes, suggest avenues for exploration in future interviews, and assist in addressing methodological challenges present in the interview. (Charmaz, 2006). Transcripts and field notes from the interviewer were kept in NVIVO in one file, to be analyzed together.

3.6 Analysis

Interviews were audio-recorded, transcribed, and coded using NVIVO 12. We used open, axial, and selective coding with constant comparison to derive a broad initial list of codes (Charmaz, 2006). This method encouraged examination of our own perspectives and reflexivity and of the social constructions present in the setting studied (Goffman, 1974; Glaser and Strauss, 1967; Charmaz, 2006; Charmaz, 2008). We generated initial codes during the open coding process using line-by-line coding of transcripts when available and field notes for interviews for which recordings were not allowed. Open coding involves breaking down data into discrete segments that reflect themes. We used axial coding to organize the initial codes into conceptual categories, constantly comparing data to other data from audio recordings, transcripts, and memos to further refine the axial codes. We then used selective coding to consider how the focused codes related to each other and could be integrated into theory, and devised conceptual themes. We were mindful of our interpretations as researchers while applying an emic perspective to the data, gathering and categorizing codes into themes with culturally specific language and knowledge to understand participants' views.

The first five interviews were transcribed and coded by the lead author immediately after the interviews to allow for insights gained about the quality or content of interviews to be discussed with coauthors and applied to future interviews in terms of technique and adjustment of the wording of questions to elicit the information we sought. The remaining interviews were transcribed by a profession transcription company. The resulting transcripts were validated by the lead author through comparison with the audio recordings, and in cases where the transcription was not adequate, were then re-transcribed by the lead author.

For manuscript 1, the themes were then organized into five categories derived from the most prevalent responses in the interviews and guided by the policy process frameworks used to inform the interview guide development (Clark, 2002; Shiffman and Smith, 2007; Gillespie et al., 2013). These categories represented elements of frames of undernutrition and nutrition-related NCDs and allowed comparison of stakeholder framing between both forms of malnutrition.

For manuscript 2, the themes were then mapped onto the framework developed by Shiffman and Smith (2007), following a process used initially by Lapping et al. (2014) to categorize themes according to the framework, adjusting the framework as needed. Shiffman and Smith's framework presents four dimensions (actor power, ideas, political context, and issue characteristics) and eleven factors within those dimensions that contribute to political priority for an issue. *Actor power* describes the strength of individuals and organizations concerned with nutrition-related NCDs and undernutrition. *Ideas* include internal and external frames and are the ways in which those involved with the

issue understand and portray it. ***Political contexts*** are the environments in which nutrition policy actors operate. ***Issue characteristics*** are features of the problem of rising rates of nutrition-related NCDs within Tamil Nadu. While this framework was intended to be applied to global-level issues, we believe that the concepts are both important and relevant in our state-level LMIC context.

We began with the four dimensions (actor power, ideas, political context, and issue characteristics) and eleven factors of the framework described by Shiffman and Smith, and adapted the framework to incorporate emergent themes and categorize the determinants of political priority for addressing the double burden of malnutrition in Tamil Nadu through inclusion of nutrition-related NCDs in nutrition policies that were identified by stakeholders (Table 4.2). All categories and interpretations for both manuscripts by the lead author were discussed and agreed upon through peer review with coauthors (Corbin and Strauss, 2008).

Table 3.3 Conditions and characteristics that may determine political priority for nutrition-related NCDs in the context of chronic undernutrition in Tamil Nadu, India.

Actor power describes the strength of individuals and organizations concerned with nutrition-related NCDs and undernutrition	
Policy community cohesion	Who do actors identify as key to addressing malnutrition in all its forms?
Leadership of policy community	Do actors identify individuals or organizations capable of uniting the policy community and acknowledged as champions for the cause?
Influencers	Do actors identify any opportunities for leadership that are present or lacking in being able to influence the public's support for addressing these issues?
Guiding institutions and coordination	The effectiveness of organizations or coordinating mechanisms with a mandate to lead development of nutrition policy and programming that addresses malnutrition in all its forms

Ideas include internal and external frames and are the ways in which those involved with the issue understand and portray it.	
Internal frame	To what degree does the policy community agree on the definition of, causes of, and solutions to the problem
External frame	Do actors identify public portrayals of the issue in ways that resonate with external audiences, especially the political leaders who control resources?
Social Construction	How does the policy community perceive target population and causes of nutrition-related NCDs? How do stakeholders prioritize resources based on these perceptions??
Political contexts are the environments in which nutrition policy actors operate	
Policy windows	Do policy actors identify political moments when state or national conditions align favorably for an issue, presenting opportunities for advocates to influence decisionmakers?)
State governance structure	The degree to which norms and institutions operating in the nutrition sector provide a platform for effective collective action
Issue characteristics are features of the problem of rising rates of nutrition-related NCDs within Tamil Nadu.	
Credible indicators	Are there clear measures that show the severity of nutrition-related NCDs? Are there credible indicators that can be used to monitor progress in addressing malnutrition in all its forms?
Severity	Is there consistency between the malnutrition burden and the planned allocation of resources?
Effective interventions	The extent to which proposed means of addressing malnutrition in all its forms are clearly explained, cost-effective, backed by scientific evidence, simple to implement, and inexpensive. (Are proposed means compatible with reality of malnutrition burden?)

This research was reviewed and granted exemption by the University of South

Carolina Institutional Review Board.

CHAPTER 4

THE ROLE OF STAKEHOLDER FRAMING ON NUTRITION

AGENDA-SETTING TO ADDRESS THE DOUBLE BURDEN OF

MALNUTRITION IN TAMIL NADU, INDIA[1]

4.1 Abstract

Addressing the growing double burden of malnutrition in many low- and middle-income countries requires improved understanding of how stakeholder framing influences nutrition agenda setting at the subnational level where policies are translated to address local context and implemented. We used the Indian state of Tamil Nadu, a state experiencing chronic undernutrition and rising rates of nutrition-related non-communicable diseases (NCD) and with a history of commitment to addressing undernutrition, as a case study to understand the differences in framing of undernutrition and nutrition-related NCDs at the subnational level. Our goal was to identify the differences in the frames and show how the frames reflect intention and action by stakeholders regarding nutrition policy and programming. We conducted in-depth interviews with nutrition stakeholders from across multiple nutrition-sensitive disciplines using semi-structured questionnaires. We coded interviews and categorized results guided by the most prevalent responses and several established policy process frameworks. We found that the frames of undernutrition and nutrition-related NCDs were comprised of five domains: problem identification, risk factors, target populations, roles for stakeholders, and policy and program response. Stakeholders were consistent in identifying problems, risk factors, and target populations for addressing undernutrition; roles and responsibilities for stakeholders were defined; and those conditions resulted in clearly articulated multisectoral strategies to address undernutrition. In contrast, stakeholders were inconsistent in identification of the same domains for nutrition-related NCDs,

resulting in lack of convergence and bottlenecks to implementing double duty actions.

Nutrition-related NCDs have not yet acquired a critical level of priority and coherence among state-level stakeholders regarding the problem identification, risk factors, target populations, responsibility and solutions, which has prevented demonstration of political commitment to addressing them in Tamil Nadu through inclusion in the policy agenda, dedicated resources, and convergence of multisectoral efforts. For multisectoral double duty strategies likely to be effective at the subnational level to be developed and implemented, stakeholders must address all three challenges in agenda-setting: priority of the problem, coherence of the policy community, and convergence of actions.

4.2 Introduction

Worldwide, one-third of adults and 40.1 million children under 5 are overweight or obese, 22% of adults have elevated blood pressure, and 8.5% of adults are affected by diabetes (Global Nutrition Report, 2020). At the same time, almost 200 million children are stunted or wasted, almost a half billion adults are underweight, more than 600 million women of reproductive age suffer from anemia, and more than 1.5 billion people in total are affected by anemia or other micronutrient deficiencies (Global Nutrition Report, 2020; WHO, 2017). Recent work has noted that climate change and globalization in food trade and marketing, combined with increased purchasing power and advances in

technology like cheap and readily available artificial sweeteners and edible oils, an increase in food processing, and labor-saving technology, have contributed to the shifting food systems and food environments in low- and middle-income countries (LMIC), which in turn influence diets and physical activity patterns (Popkin et al, 2012; Prentice, 2006; WHO, 2017; Monteiro et al., 2014). Overweight and obesity are increasing in a growing population of adults, and being overweight or obese is a significant risk factor for nutrition-related non-communicable diseases, including hypertension, type 2 diabetes, some cancers, and dyslipidemia (Gillespie et al., 2016). In many LMICs, increased rates of overweight, obesity, and nutrition-related non-communicable diseases (NCD) coexist with persistent and high rates of undernutrition, a double burden of malnutrition, stressing already delicately balanced healthcare and economic resources (Popkin, 1994; Drewnowski and Popkin, 1997; Popkin, 2003; WHO, 2014; GAIN, 2015). Multiple forms of malnutrition can be found within one individual (an overweight woman with micronutrient deficiencies), within a household (an overweight parent and a stunted child), or within the same community (local, regional, or national).

Globally, pressure from the health and nutrition expert and advocate community is increasing to develop public health policies to address the double burden of malnutrition (Ravishankar, 2012; Dutta et al., 2019; WHO, 2017; HLPE, 2017; Popkin et al., 2020; Hawkes et al., 2019). The focus of much of the global attention on the double burden of malnutrition is on identifying cost-effective, double duty actions that aim to address problems of undernutrition and nutrition-related NCDs simultaneously and holistically (Prentice, 2006; HLPE,

2017; WHO, 2017; Strategic Action Plan, 2017; Willett et al., 2019; Hawkes et al, 2019). The global commitment to identifying double duty actions to address the double burden of malnutrition may or may not feature strongly in national- or subnational- perspectives about and strategies to address specific nutrition challenges.

Development of these strategies occurs through a policy process, which includes management of knowledge, advocacy, and the determination of policy decisions about target populations and solutions to inform effective action (Clark, 2002). Lack of consensus about the prominence and relevance of nutrition-related NCDs within a country or regional context represents a bottleneck to developing policies that are based on evidence to adequately address current and future nutrition challenges, and stymies development of functional, forward-looking multisectoral strategies (Lapping et al., 2012; Gillespie and van den Bold, 2015).

Global recommendations indicate that multisectoral coordination in this agenda-setting stage is important, and key work in the policy sciences has highlighted the role of stakeholder perspectives in determining the success of multisectoral coordination (Michaud-Letourneau and Pelletier, 2017). Successful coordination to address the double burden of malnutrition will require framing that demonstrates convergence on the understanding of the purpose, scope, and methods to do so (Levinson et al, 2013; Michaud-Letourneau and Pelletier, 2017). Frames are an interface between internal values and assumptions and external cues from the environment. They can be subjective and culturally bound, and are able to be influenced by global-level recommendations, malnutrition prevalence,

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and an increasingly multisectoral and multilevel group of policy actors. Frames are important in communication among the policy community, including the global expert community, local governments, local practitioners (internal frame) and to others (external frame) (Entman, 1993; Schneider and Ingram, 1993).

There are perception, interpretation, and evaluation elements to framing that suggest particular solutions or recommendations, as information is distilled and presented to give weight to some characteristics of an issue over others (Entman 1993, Schneider and Ingram 1993, Pelletier, 2011, Shiffman and Smith 2007; Nisbet, 2009). Internal frames that are clearly articulated by the policy community through external frames to advocates and others can lead to the development of policy windows, through which agendas can be advanced and political attention and will mobilized (Lapping et al., 2012). Pelletier et al.'s (2011) analysis of the Mainstreaming Nutrition Initiative found that framing the problem in a way that had "political resonance" and the messaging efforts of key players and policy actors was influential in gaining political attention and commitment. There is a critical need for research illuminating the meaning and impact of relevant policy and program actors' frames of public health issues on the policy process to inform evidence-based and culturally appropriate policy and program action. Learning more about frames of malnutrition in LMICs that are experiencing the double burden will advance efforts to communicate and integrate science more effectively into the nutrition policy making process in these contexts.

Experts in the fields of nutrition and public health frame rising rates of NCDs in LMICs that also experience chronic undernutrition as contributing to a

double burden of malnutrition. This frame exhibits a consensus at the global level that the cause of the NCD increase is nutrition-related, that the increase in overweight and obesity is a burden, and that chronic undernutrition and nutrition-related NCDs are linked. Whereas this frame may influence national-level policy actors and program development through knowledge sharing (dissemination of global initiatives, action plans, and strategic guides) and advocacy, subnational actors who view malnutrition from a local context may not endorse this frame of nutrition-related NCDs. Framing the rise of nutrition-related NCDs in the context of chronic malnutrition as a double burden may not lead to policies sensible to those responsible for implementing them at the subnational level (Clark, 2002; Gulati et al., 2013).

India, like many other LMICs undergoing nutrition transition, is experiencing the double burden of malnutrition. Thirty-eight percent of children under five are stunted and 36% are underweight. Simultaneously, 20% of adults are obese or overweight. Historically, policies to prevent and improve malnutrition in India focused on addressing food insecurity and poverty. Some of these interventions and programs include the Green Revolution to increase staple food grain production and social safety net programs for vulnerable populations such as the Integrated Child Development Scheme, the Public Distribution System (PDS) and the Midday Meals Scheme (Thow et al., 2016; Haddad, 2011). The 1993 National Nutrition Policy that promoted food fortification, nutrition awareness and education, and increased availability of nutrient-rich foods, and the more recently launched National Nutrition Strategy (Niti Aayog, 2017) expanded their focus beyond hunger, encompassing the many

sociocultural and underlying determinants of undernutrition in India. The National Nutrition Strategy uses an integrated, decentralized, and multisectoral strategy that includes rural development, sanitation and safe drinking water, health, food security, and women and child development to address undernutrition (Niti Aayog, 2017).

As India has undergone vast socioeconomic and demographic changes over the last several decades, social environments and food environments have also changed. There are increased sedentary behaviors and availability, access and affordability of a wider variety of foods, similar to other LMICs undergoing these transitions (Unknown author, 2017). At the national level, attention to nutrition-related NCDs is fragmented. Programs exist like Eat Right India, an effort led by the Food Safety and Standards Authority of India to support healthy food choices through social and behavioral change and cooperation with food businesses ("Eat Right India"). Yet, the National Nutrition Strategy barely mentions nutrition-related NCDs, instead focusing almost entirely on multisectoral strategies to reduce undernutrition in India.

Within India, the state of Tamil Nadu has persistently high rates of undernutrition, concurrent with even higher rates of adult overweight and obesity than India as a whole (31%). Using the state of Tamil Nadu as a case study, we seek to increase our understanding of the influence of framing by policy and program actors on agenda-setting at the subnational level where policies can be adapted or developed to the local malnutrition context to address the emerging threat of the double burden of malnutrition (Gillespie et al., 2013). Comparison of state-level frames of nutrition-related NCDs and undernutrition

can yield important insight about why the global concern about malnutrition in all its forms has gained less traction compared to undernutrition at this level within India and other LMIC countries. The timing of the unfolding transition in India presents an opportunity to increase our understanding of the impact of issue framing by policy and program actors on potential solutions.

The aim of this study is to describe stakeholder frames of undernutrition and nutrition-related NCDs in Tamil Nadu and show how different frames held by stakeholders reflect intention and action regarding nutrition policy and programming at the state level in the LMIC context. States in India have flexibility in interpreting and implementing national policies and programs and sometimes to develop their own due to their constitutional structure, a situation seen in other low- and middle-income countries as well (Lapping et al., 2014). Therefore, for the purpose of this study, we define local stakeholders as state-level policy and program actors. We also aim to provide additional context for interpreting state perspectives by describing frames of undernutrition and nutrition-related NCDs used by national-level policy actors and advocates who are often more engaged with the global malnutrition discussion than state-level actors. This research will contribute to the fields of global nutrition and health policy by demonstrating the importance of gathering and analyzing local-level data to understanding malnutrition contexts and the determination of policy and agenda through issue framing.

4.3 Methods

Setting

Tamil Nadu, a state on the southeast coast of India with a population of more than 70 million, was chosen as the setting for this study due in part to its long history dating back to the early part of the 20th century of demonstrated political commitment and public support for social programs, including those that aim to prevent malnutrition. Due to this history of commitment to addressing malnutrition, the nutrition policy and program actors in Tamil Nadu are experienced and knowledgeable as well as varied, including local, national, and international actors. In addition, the strong enabling environment of Tamil Nadu may have contributed to increased willingness of policy actors to show interest and participate in our research.

The state has made many state-specific changes to major nutrition-specific and nutrition-sensitive programs active in India (Ramakrishnan, 2012; Kalaiyarasan, 2014; World Bank, 2006 from Heaver, 2003). Examples of this political will and commitment of programmatic resources towards addressing undernutrition include being the first to introduce the Midday-Meal Program that provides a hot lunch daily to school-aged children, a universal Public Distribution System that provides subsidized staple grains, and a maternity benefits program that provides greater support than the national program (Ramakrishnan et al., 2012). Tamil Nadu is one of the most industrialized and urbanized states in India and claims the third highest per capita income in the country. The state has a literacy rate of over 80% and has experienced rapid

decline in poverty to less than 16% of rural population and less than 7% of the urban population since the state implementation of poverty reduction schemes in the 1990s. (Gopalakrishnan, 2011; Tamil Nadu State Human Development Report, 2017; Balabanova et al (eds), 2011).

Another reason that Tamil Nadu was chosen as the setting for this study was its malnutrition context. In this environment of policy and programmatic attention to undernutrition, rates of chronic undernutrition have decreased. Over the last 25 years the rate of stunting has declined from 35 percent to 27 percent among children below five years of age, while the rate of underweight has declined from almost 50 percent to 24 percent in the same population. Meanwhile, the rate of obesity in adults increased over 10 years to almost 31 percent. Over 10 percent of the adult population has elevated blood sugar levels (IIPS and ICF, 2017; Dutta et al, 2019). In this malnutrition context, we considered that state policy and program actors were likely aware of the issue of a double burden of malnutrition (Kohli et al, 2017). The rapid increase in nutrition-related NCDs combined with persistent undernutrition in Tamil Nadu highlights the need to identify effective and appropriate double-duty actions to guide allocation of financial and programmatic resources.

Sample

We conducted an in-depth qualitative study using semi-structured interviews with state-level (n=21) and national level (n=7) nutrition stakeholders and policy actors. The key informants were identified based on our review of policy documents and with input from local professional colleagues. These initial

interviews helped identify the necessary avenues for investigation in subsequent interviews. This research was reviewed and granted exemption by the University of South Carolina Institutional Review Board.

We used theoretical and snowball sampling, guided by the principal of maximal contrast (Palinkas et al., 2015), to include a range of perspectives for the remaining interviews from policy actors from national policy advocates to state-level government officials and nutrition policy and program implementers. Interviewees had knowledge of the nutrition policy process or implementation of nutrition-specific or nutrition-sensitive initiatives at either the state (n = 21) or national level (n = 4) or both (n = 3). The sample included representatives from academia; state-level program officials from the Department of Public Health, the Ministry of Women and Child Development, the Integrated Child Development Services program, the National Rural Health Mission, the United Nations Children's Fund (UNICEF), and the State Planning Commission; and individuals heavily involved in policy and advocacy work at the national level. National-level policy actors and advocates were included in the sample to provide perspectives on how rising rates of nutrition-related NCDs in the context of chronic undernutrition are framed at the national level where policies are often developed compared to the state level where they are interpreted and implemented.

Instrument

We considered the core domains identified by Menon et al. (2011) as essential for strategic actions as well as several policy process frameworks (Clark,

2002; Shiffman and Smith, 2007; Gillespie et al., 2013) in developing the interview guide and in identifying the themes for investigation. Two interview guides with open-ended questions were developed, one for state-level stakeholders with questions pertaining only to the malnutrition context in Tamil Nadu, and one for national-level advocates and policymakers that pertained to malnutrition in India as a whole (Appendix 1 and 2). We did not use the term "double burden of malnutrition" in our interview guide, which is a product of global framing. As a result, we were able to reconstruct the participants' frames using their own perspectives, words, and phrases. We also used a realist perspective to develop our interview guide and orient the emergent frames in the context of existing data on malnutrition prevalence in Tamil Nadu and global and national expert recommendations (Maxwell, 2012). The state-level participants were asked to describe current major health challenges in Tamil Nadu and how they have changed over the last decade, to elicit whether the participant considered malnutrition to be of primary concern in the state. Subsequent questions allowed participants to elaborate on causes of chronic undernutrition, to share their perspective on the burden of nutrition-related NCD in the state compared to the country, causes of that burden or lack thereof, and potential solutions. Finally, participants were asked to reflect upon co-occurring undernutrition and nutrition-related NCDs, describing whether there are common causes, potential solutions, target populations, and where lies the responsibility for addressing malnutrition in all its forms.

The second interview guide was developed for national-level stakeholders who were already engaged in discussions about the malnutrition burden in India

as a whole and efforts to address it. As a result, questions explicitly asked for participants' understandings of frames of undernutrition and nutrition-related NCDs in India as a whole and how they have changed over time. Participants were then asked to describe if and how nutrition-related NCDs and chronic undernutrition are related, potential solutions, target populations, and responsibility for addressing them. Subsequent questions asked participants to reflect on how thinking about co-occurring undernutrition and nutrition-related NCDs has changed over time, the potential differences in frames represented by different types of policy actors or disciplines, and the potential of different frames to inform successful policies to address all forms of malnutrition. Those national-level stakeholders with experience specifically in Tamil Nadu were also asked to reflect upon the same questions in the context of the state. Finally, participants shared stories of successful framing in helping to target undernutrition in India, what led to that success, and lessons learned that can be applied to addressing all forms of malnutrition.

Data Collection

In-depth semi-structured interviews were conducted in person in Chennai the capitals of Tamil Nadu from February 2018 to March 2018. Interviews continued over video conference with national-level stakeholders from April 2018 to June 2018. The lead author conducted all interviews in English. Interviews were recorded with permission of the interviewee. In cases where recording was not allowed, detailed notes were taken during the interview by the lead author and supplemented with additional details immediately following each interview. Primary data sources were verbatim transcriptions and the

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interview notes in cases where recording was not allowed. Interviews with current academics and government and program officials were often conducted in their offices, while those with former government and program officials, representatives from non-governmental organizations and advocates were conducted in informal settings or their homes. The interviews ranged in length from twenty-five to ninety minutes.

Field notes were taken by the lead author immediately after each interview, in which the environment and study participant were described, along with methodological observations and reflections, and analytical reflections. These observations provided context to each interview and allowed the lead author to reflect on emerging themes and concepts, as well as any methodological issues in the interview that may have an impact on interpretation of results.

Analysis

Interviews were audio-recorded, transcribed, and coded using NVIVO 12. We used a constructivist grounded theory-based method of open, axial, and selective coding with constant comparison to identify frames of chronic undernutrition and the rise in nutrition-related NCDs (Charmaz, 2006). This method encouraged examination of our own perspectives and reflexivity and of the social constructions present in the setting studied (Goffman, 1974; Glaser and Strauss, 1967; Charmaz, 2006; Charmaz, 2008). We were mindful of our interpretations as researchers while applying an emic perspective to the data, gathering and categorizing codes into themes with culturally specific language

and knowledge to understand participants' views. These themes, described in the results section, were then organized into five domains derived from the most prevalent responses in the interviews and guided by the policy process frameworks used to inform the interview guide development (Clark, 2002; Shiffman and Smith, 2007; Gillespie et al., 2013). The domains, when combined, illustrate the way that each form of malnutrition was framed.

4.4 Results

We identified themes, organized into five domains, that together illustrate the ways in which undernutrition and nutrition-related NCDs were framed by stakeholders. Comparison of these themes within the two frames reflected differences in the way that stakeholders consider the following with respect to each form of malnutrition: 1) problem identification to improve them, 2) their major risk factors, 3) target populations, 4) roles for different stakeholders, and 5) policy and programmatic intention and action (Table 4.1).

Table 4.1. Frames, domains, and themes for undernutrition and nutrition-related NCDs with illustrative quotations

	Themes for frame of:	
Domains	**Undernutrition**	**Nutrition-related NCDs**
Problem identification	• Underweight • Stunting • Anemia	Inconsistent and varied definition of the problem • Risk factors (e.g., sedentary jobs, fast food) • Vulnerable populations (e.g., youth, elderly) • Possible solutions (e.g., nutrition education,

		increased dietary diversity)
	"But the main challenge in Tamil Nadu is stunting and wasting among children, number one. Number two is, very high prevalence of anemia among girls and women of reproductive age."	*"So, obesity is also a kind of malnourishment, overeating or lack of nutrition in the right quantities. So, if you don't have the right amount of vitamins or your other minerals, you will have those things. And timely eating quality food, so all this, what do we say, that not eating the right food. So that is one problem, so adults, generally female obesity…is because they eat the last in the house. So, whatever is available they eat. Those kind of things, and also the kind of work they do. It is also related to the nature of work, so if it is more, not very, uh a sedentary kind of work, their metabolism itself comes down, so those things affect, and that is why it leads to obesity. They won't say they are eating a lot of sugar or something, so urban, in rural scenario it would be completely different. in a rural village that happens, it's because their access to food itself will be difficult. so, they won't be able to eat more fruits/vegetables. so, a balanced diet itself will be at stake, even if they have eggs or something, they will give it to the children first.*
Major risk factors	• Poverty • Sanitation • Decreased dietary diversity	• Lack of coherence in identification of risk factors for nutrition-related NCDs • Major risk factors for nutrition-related NCDs

		differ by population
	"A lot of stunting and wasting is also because of the environment and hygiene…the nutrients which are being consumed are not being absorbed by the body. They're being expelled by the body because of poor sanitation. You have continual diarrhea or dysentery. No nutrient is being absorbed and that leaves you no nutrient absorption, stunting, anemia and continuous worm infestation or something. Along with the better nutrition you also need an environment of huge improvements in the hygiene, in the sanitation of the environment."	*"Well actually this is all part of health transition and it's bound to occur as we move from a period of pre transitional nutritional deficiencies to inappropriate nutrition there is bound to be a considerable overlap, and even within states you will find a lot of developmental disparities between regions between social classes and so on. So I think different groups of people in India, different levels of nutrition and health transition and these mixed patterns are bound to show up."*
Target population	• Women and children	• There is no consistent identification of specific target population • Different malnutrition issues are described for different populations
	"[W]hat worked in undernutrition is that at least there were many things that most people were saying which were similar to each other…largely it came to us...that you focus on children, you focus on women. This is something that was agreed, and I think the fact that so many different people were saying the same thing, putting pressure in their own ways obviously helped."	*"…different populations, different kinds of income groups are there, so where they are? … because we need to work out where people are, and which kind of population is affected both obesity and anemia, so how the social programs are reaching, so what are the behavior change we can achieve, activities we can take, so all these things we need to map and analyze. Either it is culture-specific or population-specific."*

Stakeholder roles	• There are defined roles within agriculture, nutrition, and health. • Government has a responsibility to address undernutrition.	• There are unclear roles for stakeholder groups • No one stakeholder group has taken responsibility to address nutrition-related NCDs, although medical community is most aware.
	"we all know we'll have to work with various sectors and make sure education of women is better, empowerment is there, WASH is there. So there has to be a mechanism where you can bring every sector together. That's why this mission approach has been brought in ... which is multi-sectoral in nature, but difficult to put in practice, but it synthesizes. Then there is a role, and also there is a focus on district level planning. We have moved from national to state to district level planning now…So it's not one ministry. It's realizing it has to be an interdepartmental, and that's where the National Nutrition Mission talks of integrated approach.	*"[There is] a world of difference in what they understand by nutrition. Talk to an economist, they will talk about…the RDA of the calories they have taken rather than focusing on the individual person...but, on the past planning commission, talk to an agriculturist, and he'll talk about the amount of food which is there. Talk to the policymaker, the adult guy, the medicine one, is going to think of only adults will become obese while children also it's attracting."*
Policy and programmatic intention and action	• Early focus on addressing hunger, calorie deficiency and development • Current focus on	• Lack of convergence of efforts to address malnutrition in all its forms has created bottlenecks for

	decreasing underweight, stunting, and anemia in women and children.	implementation of potential double-duty actions • Wide variation in double-duty policy suggestions exist
	"[T]he time that I was just a student … or maybe even earlier, it used to be thought of in terms of famines and hunger and florid diseases like beriberi, pellagra, and all those fortunately went away. And then, it's focus has been on under-size as evaluated in reference to the global WHO reference in children, or for adults."	*"People are now starting to think about these being a part and parcel of the same process…but otherwise it has been in isolated silos that it was being dealt with. It's only now that the thinking has started, and maybe many of the policymakers are not convinced, and even if they are convinced, they don't have the time to chalk out or draw or design sort of a thing, because the focus is on undersized…that creates sensationalism."*

Problem identification

State and national level stakeholders were consistent in their identification of problem identification within undernutrition. Most stakeholders described a shift in focus away from alleviating hunger to other forms of undernutrition. They highlighted increased food availability, higher purchasing power, a strong history of social protections in Tamil Nadu, and government food programs were identified as major reasons for the decreased concern about hunger in Tamil Nadu. Stakeholders cited the universal PDS, the Midday-Meal Program, the ICDS program and *Amma's (Mother)* Canteens (a program that offers heavily subsidized hot meals in the capital of Tamil Nadu) as example of government programs that improved food availability.

Given that hunger was not considered by most stakeholders to be of current critical concern in Tamil Nadu, most stakeholders believed that efforts to improve persistent undernutrition should be focused on decreasing the rates of underweight and stunting in children as well as anemia in women and children. Some stakeholders (n=19) discussed the need to prioritize anemia reduction in women and children to reduce undernutrition. One state government representative believed that there is too much focus on underweight by government to the detriment of addressing stunting, citing growth monitoring through weight registration in ICDS as evidence. According to the government representative, measuring stunting and wasting, in addition to underweight, is perceived to be a financial and time burden for staff and considered unnecessary due to the belief that underweight acts as a composite measure of stunting and wasting. Two state-level and one national-level stakeholder also discussed the need to consider the effect of the environment on nutrition, including climate change impact on food scarcity and potential hormonal dysregulation resulting from ingestion of endocrine disrupters in chemicals and plastics.

Whereas stakeholders were consistent in their identification of problem identification pertaining to undernutrition, their interpretation of problem identification in cases of nutrition-related NCDs was inconsistent and varied. Some stakeholders described risk factors, some mentioned vulnerable populations, and some discussed possible solutions.

Major risk factors

When discussing the major risk factors of persistent undernutrition, stakeholders near universally described poor sanitation and hygiene, specifically open defecation and poor water quality leading to micronutrient malabsorption, and ultimately anemia and stunting. Less commonly discussed risk factors for persistent undernutrition included social determinants like lower social status of women, resulting in early marriage and childbearing for girls, intrahousehold allocation of food geared towards feeding of men and male children, intergenerational effects, and a cultural tradition of vegetarianism. These social determinant risk factors were suggested primarily by national-level stakeholders.

In contrast, discussion of nutrition-related NCDs elicited 25 different suggestions for potential major risk factors. The most common dietary risk factors among them were consumption of junk foods and decreased dietary diversity. In addition, several respondents attributed better surveillance and detection to higher reported rates of obesity and diet-related NCDs in Tamil Nadu, compared to other Indian states. Some stakeholders identified government policies that offer subsidized or free rice, food processing, changes to employment opportunities from labor to office jobs, and a higher proportion of women participating in the labor force resulting in consumption of fewer home-cooked foods to be the major risk factors for nutrition-related NCDs. Three of the eight national level and 4 of the 21 state level stakeholders identified the need to view risk factors of both undernutrition and nutrition-related NCDs from a systemic and holistic point of view that considers multisectoral

contributions to address the basic, underlying, and immediate determinants of malnutrition, rather than through a narrow and specific lens.

Target population

Stakeholders consistently identified women, adolescent girls, and children as the most important populations to target in efforts to reduce undernutrition, regardless of the strategy undertaken: provision of meals to pregnant and lactating women, adolescent girls, and children through government feeding programs; efforts to improve sanitation and hygiene through health education in schools; wearing of chappals (sandals); deworming; or iron supplementation Three government stakeholders working in public health and with medical backgrounds from the national and state levels countered a more efficient strategy would be to prevent development of anemia and stunting through improved sanitation and hygiene practices for the entire population, rather than targeting deworming and iron supplementation efforts to women of reproductive age and children, as these interventions focusing on were attempts to combat anemia and stunting after they have developed.

With respect to nutrition-related NCDs, no specific population was consistently identified as most important to target in policy and programmatic efforts. Blanket policy and programmatic responses were considered likely ineffective by stakeholders, due to the heterogeneity of the potential target population. Stakeholders described inter-district and intra-district variation in facility access and quality, roads, income, and access availability of health services as reasons for this heterogeneity in nutrition and health status across the

population. Stakeholders also described the rise in obesity, overweight, and nutrition-related NCDs as due to individual behavior and lifestyle changes in diet and physical activity. This is in contrast to stakeholder attribution of systemic poverty and poor sanitation to persistent undernutrition. Therefore, parents, children, schools and teachers, and the whole population were all listed as target populations to address nutrition-related NCDs.

Stakeholder roles

State- and national-level stakeholders with experience in Tamil Nadu described how efforts to reduce undernutrition in the state have been led enthusiastically by the state government, and with more political commitment and resources than in many other states. Systemic issues like poverty, sanitation, and hunger are addressed through several aligned social programs, and different sectors have defined roles in implementation of these programs. Especially with the implementation of the National Nutrition Mission, stakeholder roles have been clearly outlined and convergence mechanisms planned to reduce undernutrition in target populations.

In contrast, the definition of roles for various nutrition stakeholders to act in concert to address nutrition-related NCDs is murky. The responsibility for addressing obesity, overweight, and nutrition-related NCDs was described most often as falling primarily to medical personnel. Additionally, the Tamil Nadu Health Services Project which is a partnership between the Government of Tamil Nadu and the World Bank and managed through the Department of Health and Family Welfare also includes health promotion screening activities geared

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toward preventing NCDs in its more general goals of improving the health care system for the most vulnerable in the state.

Policy and programmatic intention and action

Stakeholders are united in their commitment to targeting women and children in efforts to decrease underweight, stunting and anemia by reducing poverty, improving sanitation, and increasing dietary diversity. Addressing nutrition-related NCDs has mostly fallen to the medical community. Stakeholders from all sectors and both levels noted that the siloed strategy to reduction of different forms of malnutrition was a reason that India as a whole, and Tamil Nadu specifically, has not been able to successfully identify and implement double-duty actions designed to reduce malnutrition in all its forms. Stakeholders that did suggest potential double duty actions to address malnutrition in all its forms supplied inconsistent and wide-ranging responses, including environmental safety, nutrition literacy, health promotion, agricultural policy, food marketing and regulation, and mental health.

4.5 Discussion

A number of themes emerged from our discussions with stakeholders that can be organized into five domains: problem identification, risk factors, target populations, roles for stakeholders, and policy and programmatic intention and action with respect to malnutrition. These themes differentiate the two frames of undernutrition and nutrition-related NCDs. Understanding the two frames and how they are different gives us insight into three of the challenges that contribute to less political commitment for malnutrition in all its forms compared to

undernutrition at the state level: 1) varied priority among stakeholders for nutrition-related NCDs, 2) lack of coherence in how stakeholders consider different characteristics of nutrition-related NCDs, and 3) poor convergence of policy and programmatic efforts to address them.

The stakeholder community demonstrated strong priority for undernutrition through a history of political will and commitment of resources; coherence in terms of identification of risk factors, target populations, and solutions; and convergence of efforts to addressing undernutrition through multisectoral efforts. In contrast, nutrition-related NCDs do not have enough priority within the stakeholder community to give a sense of urgency and commitment comparable to undernutrition; there is a lack of coherence regarding the problem identification, risk factors, potential solutions, and target populations necessary to decrease nutrition-related NCDs, resulting in wide variation in suggestions for double-duty actions; and convergence of efforts of those working to address both undernutrition and nutrition-related NCDs is lacking, contributing to implementation bottlenecks of potential double-duty actions. Attempts to reduce malnutrition in all its forms in Tamil Nadu through identification and implementation of double duty actions must address all three of these challenges.

Priority

One challenge to addressing malnutrition in all its forms in Tamil Nadu is the lesser priority given to nutrition-related NCDs by many stakeholders, when compared to the near universal priority for undernutrition. The priority afforded

nutrition-related NCDs varied by stakeholder discipline and level. With respect to stakeholder discipline, whereas stakeholders from the medical and agriculture communities tended to consider nutrition-related NCDs as major malnutrition priorities, representatives from non-governmental organizations and government agencies working in nutrition and women and child development focused more often on issues of undernutrition. Representatives from government agencies with a wider scope of action, like the Department of Public Health and Preventive Medicine and the National Health Mission, were among the few state-level stakeholders who described malnutrition spontaneously as including both undernutrition and nutrition-related NCDs.

With respect to stakeholder level, national-level stakeholders were unanimous in their acknowledgement of critical need to address malnutrition in all its forms in India as a whole. This is contrary to the myriad reactions of state-level policy and program actors regarding the relative importance of undernutrition and nutrition-related NCDs in Tamil Nadu. As a result, state-level stakeholders from different sectors described defining their own roles independent of each other and often independent of the pervasive national stakeholder perspective. Due to India's federal Constitution with unitary features, states have a great deal of flexibility in determining and funding strategies that may or may not align with national policies around health, agriculture, sanitation, and other issues that demonstrate regional specificity (Lapping et al., 2014). While the Government of India sets a national agenda and policies, the success of these priorities is dependent on implementation that is decentralized to the subnational levels, translated and edited at the state, and

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sometimes district and block levels (Gillespie et al, 2013). Although the urgency of addressing malnutrition in all its forms was noted by national-level stakeholders in our study, it bears reminding that this perspective is not yet reflected in most national-level nutrition policies, similar to in Tamil Nadu.

Coherence

Another challenge to addressing malnutrition in all its forms in Tamil Nadu is the lack of coherence among the stakeholder community around the problem identification, risk factors, potential solutions, and populations to target for addressing nutrition-related NCDs. There is a lack of clarity about problem identification and target populations due to the heterogeneity of the population and the many risk factors for nutrition-related NCDs. The responsibility for rising rates of nutrition-related NCD is often described as belonging to individuals regarding their lifestyle choices, and as such the health sector has mostly been tasked with addressing it through medical intervention. The consideration of nutrition-related NCDs as lifestyle issues rather than the result of structural and systemic weaknesses by state-level stakeholders suggests a focus on changing individual behaviors as a solution and may explain why the multisectoral convergence mechanism that is in place to address undernutrition has not been designed for nutrition-related NCDs. In contrast, coherence exists within the stakeholder community for these same characteristics of undernutrition, resulting in strategies with clear and defined roles for stakeholders, strong governmental leadership, and societal support.

Convergence

Successful strategies to address malnutrition in all its forms must demonstrate convergence of efforts across sectors. Other countries grappling with the need for multisectoral nutrition programming to address undernutrition specifically have shown that consistent identification of geographic and demographic targets, in combination with a convergence approach, can result in impressive reductions in undernutrition (Levinson et al, 2013; Michaud-Letourneau and Pelletier, 2017). Social safety net programs in Mexico, Egypt, and the United States have included additional components that monitor child overweight and obesity, include micronutrient-rich foods, and incentivize purchase and consumption of fruits and vegetables, respectively (Hawkes et al, 2019) as successful multisectoral efforts to address undernutrition and nutrition-related NCDs simultaneously. The dissonance demonstrated in the range of priority given to nutrition-related NCDs specifically contributes to the lack of urgency regarding convergence of efforts and understanding for malnutrition in all its forms.

Additionally, the perception that the heterogeneity of the population with respect to malnutrition prevalence and risk factors for undernutrition and nutrition-related NCDs precludes identification of shared drivers impedes development of multisectoral policy action to address them. Perhaps this interpretation also contributes to the lack of political commitment to addressing malnutrition in all its forms, demonstrated by that programs to reduce malnutrition in Tamil Nadu usually address *either* undernutrition *or* nutrition-related NCD. The absence of multisectoral cooperation has also been perceived

as contributing to implementation bottlenecks for double duty actions. Public health programs are more likely to succeed in implementation efforts if the following key areas are addressed: innovation, which can be achieved in messaging or framing; an evidence-based set of related, simple, and cost-effective interventions; effective performance management; multisectoral coalitions with public- and private-sector organizations; communication of accurate and timely information to policymakers and the public; and political commitment – a consequence of the effectiveness of the other five components (Frieden, 2014). The themes reflected in our frames of nutrition-related NCDs and undernutrition highlight the failure in all of those key areas, which has led to a seeming absence of political commitment to address malnutrition in all its forms.

Previous work identified different perspectives among stakeholders regarding coordination of efforts (i.e., convergence): implementation, advocacy, structuralist, and people-centered perspectives (Michaud-Letourneau and Pelletier, 2017). We found these perspectives represented in our data. Some stakeholders discussed the lack of coordination or convergence as resulting from 1) the absence of guidance or leadership to implement actions designed to address malnutrition in all its forms (implementation perspective); 2) a lack of political commitment from high level policymakers (advocacy perspective); 3) multiple interpretations of how to coordinate the various groups, represented by the range of opinions on whose responsibility it is to lead efforts to address malnutrition in all its forms (structuralist perspective), and 4) a need for common understanding or language to understand the perspectives of stakeholders from different disciplines (people-centered perspective). Most commonly, the

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divergent views on problem identification, target populations, and risk factors suggest strong people-centered perspectives, while the unclear roles for stakeholders and siloed responses support structuralist perspectives present in the nutrition stakeholders interviewed. Our data did not suggest an advocacy perspective represented by political commitment from high-level policy makers or an implementation perspective represented by leadership.

Garrett and Natalicchio (2011) identified factors that contribute to multisectoral coordination, including leadership, vision, understanding, ownership, responsibility, capacity, organizational structure, priorities, urgency, and the socioeconomic environment. Lack of coherent frames, reflected in many of these factors, can limit effective and comprehensive multisectoral solutions to the rise in nutrition-related NCDs in Tamil Nadu (Lamstein et al., 2016). Policymakers in LMICs may see conflicts in historical priorities and strategies to address malnutrition (usually undernutrition in the form of hunger) and those to address the double burden of malnutrition (Thow et al., 2016). Thow et al. conducted an exploratory policy space analysis for a potential solution to the apparent conflict of priorities in India. The authors highlighted a way in which the frames used in food supply policy discourse to discuss undernutrition compared to diet-related NCD prevention might be reconciled to increase political will for and provide a policy solution to both forms of malnutrition. Our study builds upon the work of Thow et al. to capture how stakeholders frame issues around undernutrition, nutrition-related NCDs, and the double burden of malnutrition, and the relative weight they accord each issue at the state-level in India.

There are some potential limitations to this study. The primary author is not fluent in Hindi or Tamil, necessitating the interviews to be conducted in English. The inability to conduct interviews in the local language may have hindered the ability to develop rapport with some of the stakeholders being interviewed. A few state- and lower-level program actors were less comfortable conversing in English than other stakeholders, and demonstrated less interest in elaborating or prolonging discussions. In addition, the primary author was not a researcher known to the stakeholders, which could have resulted in some reluctance to hold candid discussions or difficulty in recruitment of important stakeholders. Given the primary author's relationship with local collaborators and researchers, we do not believe that this potential limitation was realized, as their personal professional networks were likely adequate to gain access to and the confidence of policy actors necessary to develop a rich variety of perspectives on the nutrition policy context in Tamil Nadu.

4.6 Conclusion

Despite major advances in prevention of undernutrition in Tamil Nadu over the last few decades, nutrition policies have not yet expanded to address the newer but highly prevalent and problematic issue of nutrition-related NCDs. Framing of undernutrition in Tamil Nadu is consistent across national and local stakeholders, demonstrating a high coherence with respect to problem identification within undernutrition, risk factors, target populations, responsibility, and solutions. This policy coherence has contributed to the maintenance of undernutrition as a political and programmatic priority in the state addressed through convergence of multisectoral efforts. In comparison,

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framing of nutrition-related NCDs is inconsistent between national and local stakeholders. Nutrition-related NCDs have not yet acquired a critical level of priority and coherence among state-level stakeholders regarding the problem identification, risk factors, target populations, responsibility and solutions, which has contributed to their unsuccessful incorporation into the Tamil Nadu nutrition policy agenda and convergence of multisectoral efforts to address them.

Our methods and findings may be relevant to other LMICs as they address the double burden of malnutrition. Double duty actions to address malnutrition in all its forms while responsibly allocating resources cannot be achieved unless the true malnutrition prevalence is clearly described and political priorities generated. Multisectoral coordination is necessary to act upon those political priorities but is not easily achieved without cohesion amongst stakeholder perspectives. Previous work that found that strategic action by midlevel actors could potentially lessen the impact of a lack of cohesion considered policies to address undernutrition only (Pelletier, Menon, et al., 2011). We further that work by considering the potential influence of a lack of cohesion in concert with priority and convergence in contexts suffering from undernutrition and nutrition-related NCDs simultaneously. Experience from the framing of undernutrition in Tamil Nadu and its influence on policy and programmatic response demonstrates the need for local evidence in understanding what constitutes a successful framing strategy that supports political priorities (Gillespie and Haddad, 2014; Lapping, 2012; Pelletier, 2011). Our method, which gathered rich qualitative information from stakeholders at the national and local levels, enabled us to identify the divergent frames and

challenges implied by the frames that may need to be reconciled in order for cohesion to be developed. Success of current and future efforts to reduce the increasingly concerning burden of malnutrition in all its forms through double duty actions in India and LMICs experiencing similar nutrition challenges will partially depend on framing that drives consensus about nutrition priorities among multilevel and multisectoral stakeholders.

Conflict of interest

The authors have no conflicts of interest to declare.

References

Charmaz K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. SAGE.

Charmaz K. (2008). Constructivist and Objectivist grounded theory. In N.K. Denzin & Y. Lincoln (Eds.), *Handbook of Qualitative Research* (2ⁿᵈ ed., pp. 509-535). SAGE.

Clark, T.W. (2002). *The policy process: a practical guide for natural resource professionals*. Yale University Press.

Drewnowski, A., & Popkin, B.M. (1997). The Nutrition Transition: New Trends in the Global Diet. *Nutrition Reviews*, *55*(2), 31-43.

Dutta, M., Selvamani. Y., Singh, P., Prashad, L. (2019). The double burden of malnutrition among adults in India: evidence from the National Family Health Survey-4 (2015-16). *Epidemiology and Health*, *41*, Article e2019050. https://doi:10.4178/epih.e2019050.

Entman, R.M. (1993). Framing: Toward Clarification of a Fractured Paradigm. *Journal of Communication*, *43*(4), 51-58.

Frieden, T.R. (2014). Six components necessary for effective public health program implementation. *American Journal of Public Health*, *104*(1), 17-22.

Garrett, J., ed.; Natalicchio, M.,ed. (2011). Working multisectorally in nutrition: Principles, practices, and case studies. IFPRI Research Monograph. Washington, D.C.: International Food Policy Research Institute (IFPRI). http://dx.doi.org/10.2499/9780896291812

Gillespie, S., ed.; Hodge, J., ed.; Yosef, S., ed.; and Pandya-Lorch, R., ed. (2016). Nourishing millions: Stories of change in nutrition. Washington, D.C.: International Food Policy Research Institute (IFPRI). http://dx.doi.org/10.2499/9780896295889

Gillespie, S & Haddad L. (2014). The double burden of malnutrition in SE Asia and the Pacific: priorities, policies and politics. *Health Policy and Planning*, *30*(9), 1193-1206.

Gillespie, S., Haddad, L., Mannar, V., Menon, P., Nisbett, N. (2013). Maternal and Child Nutrition Study Group. The politics of reducing malnutrition: building commitment and accelerating progress. *Lancet*, *382*(9891), 552-569. https://doi:10.1016/S0140-6736(13)60842-9

Gillespie, S. & van den Bold, M. (2015). Stories of change in nutrition: A tool pool. IFPRI Discussion Paper 1494. Washington, D.C.: International Food Policy Research Institute (IFPRI).

Glaser, B.G. & Strauss, A.L. (1967). The discovery of grounded theory. Aldine.

Global Alliance for Improved Nutrition. (2015). *Why we need to care about the double burden of malnutrition.* https://www.gainhealth.org/knowledge-centre/accountable-double-burden-malnutrition/Fworld

Global Hunger Index (2019). *2018 GHI Results.* https://www.globalhungerindex.org/results.html

Goffman, E. (1974). Frame Analysis: An Essay on the Organization of the Experience. Harper Row.

Gopalakrishnan, S. (2011). Census of India 2011. Provisional Population Totals: Rural-Urban Distribution. Tamil Nadu. Paper 2, Volume 1 of 2011. Series 34.

Gulati, S., Misra, A., Colles, S., et al. (2013). Dietary intakes and familial correlates of overwight/obesity: a four cities study in India. *Annals of Nutrition and Metabolism*, *62*, 279-90.

Haddad, L. (2011). Why India needs a national nutrition strategy. *British Medical Journal, 343,* d6687.

Hawkes, C., Ruel, M., Salm, L., et al. (2019). Double-duty actions: seizing programme and policy opportunities to address malnutrition in all its forms. *Lancet* Series on Double Burden of Malnutrition, *395*(10218), 142-155. https://doi.org/10.1016/S0140-6736(19)32506-1

Heaver, R. (2003). *India's Tamil Nadu Nutrition Program: Lessons and Issues in Management and Capacity Development*. Health, Nutrition, and Population Discussion Paper. The World Bank. Washington, D.C..

High Level Panel of Experts on Food Security and Nutrition. (2017). *Nutrition and food systems. A report by the High-Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security*. Rome.

International Institute for Population Sciences (IIPS) and ICF. (2017). *National Family Health Survey (NFHS-4), India, 2015-16: Tamil* Nadu. Mumbai: IIPS.

Kalaiyarasan, A. (2014). A comparison of Developmental Outcomes in Gujarat and Tamil Nadu. *Economic & Political Weekly*, *69*(15), 55-63.

Kohli, N., Nguyen. P.H., Avula, R., Tran, L.M., and Menon, P. (2017). *Improving Nutrition in Jharkhand: Insights from Examining Trends in Outcomes, Determinants and Interventions between 2006 and 2016.* POSHAN Policy Note #8. New Delhi: International Food Policy Research Institute.

Lamstein, S., Pomeroy-Stevens, A., Webb, P., Kennedy, E. (2016). Optimizing the Multisectoral Nutrition Policy Cycle: A Systems Perspective. *Food and Nutrition Bulletin*, *37*(4S), S107-S114.

Lapping, K., Frongillo, E.A., Studdert, L.J., Menon, P., Coates, J., Webb, P. (2012). Prospective analysis of the development of the national nutrition agenda in Vietnam from 2006 to 2008. *Health Policy and Planning*, *27*, 32–41.

Lapping, K., Frongillo, E.A., Nguyen, P.H., Coates, J., Webb, P., Menon, P. (2014). Organizational factors, planning capacity, and integrational challenges constrain provincial planning processes for nutrition in decentralizing Vietnam. *Health Policy and Planning*, *35*(3), 382-391.

Levinson, F. J. and Balarajan, Y. (August, 2013). 'Addressing Malnutrition Multisectorally: What have we learned from recent international experience?', UNICEF Nutrition Working Paper, UNICEF and MDG Achievement Fund, New York.

Maxwell, J.A. (2011). Realist Approach for Qualitative Research. Sage.

Menon, P., Frongillo, E.A, Pelletier, D.L., et al. (2011). Assessment of epidemiologic, operational, and sociological domains for mainstreaming nutrition. *Food and Nutrition Bulletin, 32,* 2(supplement), S105-S114.

Michaud-Letourneau, I. and Pelletier, D.L. (2017). Perspectives on the coordination of multisectoral nutrition in Mozambique and an emerging framework. *Food Policy, 70*, 84-97.

Monteiro, C.A., Moura, E.C., Conde, W.L., and Popkin, B.M. (2004). Socioeconomic Status and Obesity in Adult Populations of Developing Countries: A Review. *Bulletin of the World Health Organization, 82*, 940-946.

Muraleedharan, V.R., Dash, U., Gilson, L. (2011). from Chapter 6. pp.159–192. From Balabanova, D., McKee, M., and Mills, A. (eds). *'Good health at low cost' 25 years on. What makes a successful health system?* London School of Hygiene and Tropical Medicine.

National Nutrition Strategy (September 2017). NITI Aayog.
    http://niti.gov.in/writereaddata/files/document_publication/Nutrition
    _Strategy_Booklet.pdf

Nisbet, M.C. (2009). Communicating Climate Change: Why Frames Matter for
    Public Engagement. *Environment: Science and Policy for Sustainable
    Development*, *51*(2), 12-23.

Palinkas, L.A., Horwitz, S.M., Green, C.A., et al. (2015). Purposeful sampling for
    qualitative data collection and analysis in mixed method implementation
    research. *Administration and Policy in Mental Health and Mental Health
    Services Research*, *42*, 533-544.

Pelletier, D.L., Frongillo, E.A., Gervais, S., Hoey, L., Menon, P., Ngo, T., Stoltzfus,
    R., Ahmed, A., Ahmed, T. (2011). Nutrition agenda setting, policy
    formulation and implementation: Lessons from the Mainstreaming
    Nutrition Initiative. *Health Policy and Planning*. doi: 10.1093/heapol/czr011

Popkin, B.M., Adair, L.S., and Ng, S.W. (2012). NOW AND THEN: Global
    Nutrition Transition and the Pandemic of Obesity in Developing
    Countries. *Nutrition Reviews*, *70*(1), 3-21.

Popkin, B.M. (1994). The nutrition transition in low-income countries: an
    emerging crisis. *Nutrition Reviews, 52*(9), 285-98.

Popkin, B.M. (2003). The Nutrition Transition in the Developing World.
    Development Policy Review, 21(5-6), 581-597.

Popkin, B., Corvalan, C., Grummer-Strawn, L.M. (2020) Dynamics of the double
    burden of malnutrition and the changing nutrition reality. *Lancet Series*,
    395(10217), 65-74.

Prentice, A.M. (2006). The emerging epidemic of obesity in developing countries.
    International Journal of Epidemiology, *35*(1), 93-99.

Ramakrishnan, U., Lowe, A., Vir, S., et al. (2012). Public health interventions,
    barriers, and opportunities for improving maternal nutrition in India. *Food
    and Nutrition Bulletin*, *33*(2), S71-S92.

Ravishankar, A.K. (2012). Is India Shouldering a Double Burden of Malnutrition?
    Journal of Health Management, *14*(3), 313-328.

Schneider, A. and Ingram, H. (1993). Social Construction of Target Populations: Implications for Politics and Policy. *American Political Science Review, 87*(2), 334-347.

Shiffman, J. and Smith, S. (2007). Generation of political priority for global health initiatives: a framework and case study of maternal mortality. *Lancet, 370*,1370–9.

Tamil Nadu State Human Development Report (2017). http://www.spc.tn.gov.in/TNHDR2017/chapter1.pdf

The Eat Right Movement. Eat Right India. https://eatrightindia.gov.in/index

Thow, A.M., Kadiyala, S., Khandelwal, A., et al. (2016). Toward Food Policy for the Dual Burden of Malnutrition: An Exporatory Policy Space Analysis in India. *Food and Nutrition Bulletin, 37*(3), 261-274.

Unknown author. (2020, January 2). Is rural India 100% open defecation-free like Swachh Bharat data concludes? *The Hindu*. https://www.thehindu.com/data/data-mismatch-is-rural-india-100-open-defecation-free-like-swachh-bharat-data-concludes/article30460909.ece

Unknown author. (2017). Strategic Action Plan to reduce the double burden of malnutrition in the South-East Asia Region 2016–2025. World Health Organization. https://apps.who.int/iris/handle/10665/253377.

Willet, W., Rockstrom, J., Loken, B., et al. (2019). Food in the Anthropocene: the EAT-*Lancet* Commission on health diets from sustainable food systems. *Lancet, 393*(10170), 447-492.

World Health Organization (2014). *Global Status Report on Noncommunicable Diseases*. Geneva: WHO.

World Health Organization (2017). *The double burden of malnutrition*; Policy brief. Geneva: WHO.

2020 Global Nutrition Report: Action on equity to end malnutrition. Bristol, UK: Development Initiatives.

CHAPTER 5

POLITICAL PRIORITY FOR NUTRITION-RELATED NON-
COMMUNICABLE DISEASES AND INFLUENCE ON
DEVELOPMENT OF POLICIES FOR THE DOUBLE BURDEN OF
MALNUTRITION IN TAMIL NADU, INDIA[1]

5.1 Abstract

The double burden of malnutrition is increasing in low- and middle-income countries, with economic, social, and health consequences. Policies and programs to address malnutrition at the national and subnational levels reflect the contexts, frames, characteristics, and priorities of the stakeholder community. Previous studies have examined if and how nutrition-related NCDs have been included into national nutrition policy agendas that have historically focused on reduction of undernutrition, but little is known about if or how this process occurs at the subnational level where policies are translated and implemented according to local contexts, stakeholder priorities, characteristics, and frames of nutrition-related NCDs.

Using the Indian state of Tamil Nadu as a case study, we aimed to identify what conditions and characteristics support and inhibit the inclusion of nutrition-related NCDs in the nutrition policy agenda. Through answering this question, we sought to understand whether political priority exists for bringing nutrition-related NCDs into state nutrition policy agenda; and whether the state has translated national strategies focused on undernutrition into locally relevant ones that address the emerging threat of the double burden of malnutrition. We conducted in-depth interviews with state- and national-level nutrition stakeholders (n=28), and used a grounded theory method of analysis, followed by mapping of emergent themes to an adapted version of Shiffman and Smith's framework on determinants of political priority.

Implementation of the recently released National Nutrition Strategy presents an opportunity to integrate nutrition-related NCDs into the state nutrition agenda, but leadership and responsibility among policy actors for

addressing them is weak. The ways that nutrition-related NCDs are understood by stakeholders and portrayed to others highlight the lack of coherence within the policy community and the negative social constructions of those who suffer from them. Efforts to address the double burden of malnutrition at the subnational level must first overcome these barriers.

5.2 Introduction

Global attention to rising rates of overweight, obesity, and nutrition-related non-communicable diseases (NCD) has increased over the last twenty years, demonstrated through the shift in the Sustainable Development Goals and the UN Decade of Action on Nutrition to include malnutrition in all its forms, the recently published *Lancet Series* about the double burden of malnutrition, and the realignment of global level nutrition initiatives and strategies to address chronic undernutrition and rising nutrition-related NCDs (WHO, 2016; Nilsson et al., 2016; Popkin et al., 2020; Independent Group, 2019; UNICEF, 2019, FAO et al., 2019; FAO/WHO, 2014; Willett et al, 2019; Swinburn et al., 2019). As a result of globalization, changes in agribusiness, and economic and technological advancements, many low- and middle-income countries (LMICs) are undergoing nutrition transition from traditional diets based on consumption of staple grains, legumes, fruits and vegetables to highly processed, high sugar, high fat diets, in combination with a decrease in physical activity. These shifts in food environments and dietary patterns in LMICs have led to rapidly rising rates of

nutrition-related non-communicable diseases in the context of chronic malnutrition, a double burden of malnutrition that can occur in communities, households, and individuals (Popkin, 2017; Popkin et al, 2020). This shifting nutrition reality with its significant economic and social consequences presents new policy and programmatic challenges. Nutrition policies in LMICs experiencing the double burden of malnutrition must consider how to balance already stressed healthcare and public health systems to address the emerging threat of the rise in nutrition-related NCDs as well as continuing to tackle chronic undernutrition.

India is undergoing rapid economic, demographic, social, health and nutrition transitions (Ramakrishnan, 2006). There is significant variation in severity of different malnutrition issues at the state and district levels in India, and among different geographically and socioeconomically oriented populations (Ramakrishnan, 2006; IIPS and ICF, 2017). Nationally, the prevalence of anemia among children and women of reproductive age remained above 50% in the decade from 2006 to 2016, and 1 in 3 children under the age of five years of age remain stunted, wasted, or both. The prevalence of underweight children under five years of age decreased modestly from 42.5% to 35.8%. During the same time period, the prevalence of overweight and obesity rose from 9% to 19% in men and from 13% to 21% in women (IIPS and ICF, 2017).

Any policy agenda designed to respond to the malnutrition burden will be developed at the national level and translated to address regional malnutrition context at the state level. India has a federal Constitution with some unitary features, meaning that states have a great deal of flexibility in determining and funding strategies that may or may not align with national

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policies around health, agriculture, sanitation, and other issues that demonstrate regional specificity (Lapping et al., 2014). While the Government of India sets a national agenda and policies, the success of these priorities is dependent on implementation that is decentralized to the subnational levels, translated and edited at the state, and sometimes district and block levels (Gillespie et al, 2013). As the malnutrition burden presents concerns of differing magnitudes across states, the country presents an opportunity to understand the factors that contribute to the development of political priority for addressing the double burden of malnutrition through the inclusion of nutrition-related NCDs in nutrition agendas at the state level.

The 2017 release of the National Nutrition Strategy served as a focusing event, bringing renewed and increased visibility specifically to undernutrition in India (NITI Aayog, 2017). The report presented a mapping exercise to highlight the primary responsibility holder for addressing determinants of nutrition. Fifteen separate ministries and twenty-three programs were enlisted in addressing these determinants, demonstrating the complexity of achieving convergence of efforts even at the national level and when considering only undernutrition. This national strategy recognizes the need to highlight the state, district, and even block level capacities in translation of these priorities and gives much flexibility and power to these subnational policy actors and implementers to achieve nutrition targets. The National Nutrition Strategy does not communicate a sense of urgency around nutrition-related NCDs. The strategy briefly mentions nutrition-related NCDs as a growing concern, citing the findings from analysis of the National Family Health Survey-4 data in 2015-2016 of obesity in almost 21% of women and 19% of men in India (IIPS and ICF, 2017).

A decrease in nutrition-related NCDs is not included as an intended outcome in the main document, but is described without elaboration as a longer-term goal than the undernutrition targets addressed through the National Nutrition Strategy. This national framing of malnutrition as being overwhelmingly an issue of undernutrition among women and children belies the rise in nutrition-related NCDs in India as a whole.

The state of Tamil Nadu in India is experiencing chronic undernutrition with about a quarter of children under five years of age being stunted (27%) and underweight (24%), but also suffers from rates of nutrition-related NCDs higher than national averages with almost 31% of the adult population being obese compared to 20% nationally. Additionally, over 10% of the adult population has elevated blood sugar levels, an indication of increased risk of Type II Diabetes (IIPS and ICF, 2017; Dutta et al, 2019). In this malnutrition context, this study addressed the following research question: what conditions and characteristics support and inhibit the inclusion of nutrition-related NCDs in the nutrition policy agenda in Tamil Nadu? Through answering this question, we sought to understand 1) whether political priority exists for bringing nutrition-related NCDs into state nutrition policy agenda; and 2) whether the state has translated national strategies focused on undernutrition into locally relevant ones that address the emerging threat of the double burden of malnutrition.

5.3 Methods

Theoretical and methodological orientation

Conditions and characteristics of the policy environment influence what and how policy advancement can be achieved. Policies are a result of processes of agenda setting and decision making about an issue by various invested actors

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interacting within specific contexts (Walt and Gilson, 1994). The policy space within which stakeholders operate is influenced by circumstances surrounding the policy process, background characteristics of the actors, characteristics of the issue, and social, political, historical, cultural, and economic contexts that either provide support for the policy or constraints (Grindle and Thomas (1991), as reported by Crichton (2008). There are often tradeoffs between the dynamic sociopolitical, epidemiologic, and operational domains that influence decision making (Menon et al., 2011), for example when an issue highly prevalent and severe in the suffering it causes, but policymakers are not invested in it due to a lack of perceived worth of the affected population. Sometimes an external focusing event can open a window of opportunity in which the issue has become advanced enough and to policy makers and has high enough political priority to warrant its inclusion in the policy agenda (Kingdon (1984), as reported by Beland and Howlett, 2016; Shiffman, 2007).

In our analysis, we applied the Shiffman and Smith (2007) framework on factors that determine development of political priority for an issue. While this framework was intended to be applied to global-level issues, we believe that the concepts are both important and relevant in our state-level LMIC context. Shiffman and Smith's framework presents four dimensions (actor power, ideas, political context, and issue characteristics) and eleven factors within those dimensions that contribute to political priority for an issue. *Actor power* describes the strength of individuals and organizations concerned with nutrition-related NCDs and undernutrition. *Ideas* include internal and external frames and are the ways in which those involved with the issue understand and portray it. *Political contexts* are the environments in which nutrition policy actors operate. *Issue*

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characteristics are features of the problem of rising rates of nutrition-related NCDs within Tamil Nadu.

Study setting

Tamil Nadu is located on the southeast coast of India with a population of more than 70 million. The state has a literacy rate of over 80%, claims the third highest per capita income in the country, and is one of the most industrialized and urbanized states in India. Poverty has declined to less than 17% of the rural population and less than 7% of the urban population since poverty reduction schemes were implemented by the state in the 1990s. (Gopalakrishnan, 2011; Tamil Nadu, 2017; Balabanova et al (eds), 2011).

Tamil Nadu has taken the initiative to make state-specific changes to major national nutrition-specific and nutrition-sensitive programs, including development of the Midday Meal Program, a universal Public Distribution System, and higher maternal entitlements intended to support pre- and postnatal nutrition than in other parts of the country (Ramakrishnan, 2012; Kalaiyarasan, 2014; World Bank, 2006 from Heaver, 2003). The political will to address undernutrition is demonstrated through the sustained commitment of programmatic resources for these efforts in Tamil Nadu, but to date similar efforts to reduce nutrition-related NCDs have not been prioritized or planned.

Data Collection

We conducted an in-depth qualitative study using semi-structured interviews with stakeholders with knowledge of the nutrition policy process or implementation of nutrition-specific or nutrition-sensitive initiatives at either the state (n = 21) or national level (n = 4) or both (n = 3). We included national-level policy actors and advocates in the sample to provide perspectives from the level

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where policies are often developed compared to the state level where they are interpreted and implemented. The key informants from the full group of stakeholders were identified through our review of relevant policy documents and with input from local professional colleagues and contacts in the field and interviewed to help guide investigation in subsequent interviews. This research was reviewed and granted exemption by the University of South Carolina Institutional Review Board.

We used theoretical and snowball sampling, guided by the principal of maximum variation (Palinkas et al. 2015) to include perspectives from state-level government officials, researchers, and program implementers, as well as national policy advocates. The sample of state-level stakeholders included representatives from state academic institutions; government officials from the Department of Public Health and Preventive Medicine, the Ministry of Women and Child Development, the Integrated Child Development Services program, the National Rural Health Mission, and the State Planning Commission; and the United Nations Children's Fund (UNICEF). Stakeholders from the national level were individuals heavily involved in policy and advocacy work.

We developed two interview guides with open-ended questions, one for state-level stakeholders and one for national-level advocates and policymakers (Appendices A and B). We used a realist perspective in the construction of our interview guide and to anchor our analysis in the context of existing knowledge and recommendations about malnutrition burden in Tamil Nadu and globally (Maxwell, 2012). The interview guides were informed by several frameworks that consider conditions for agenda-setting and strategic action (Menon et al.,

2017; Schneider and Ingram, 1993; Gillespie et al., 2013); these frameworks also helped in classifying emergent themes during analysis.

The interview guide for state-level stakeholders had four themes: stakeholder identification of major health challenges in Tamil Nadu (current and over the past decade); causes, target populations, intervention strategies, and responsibility for implementation of strategies to address chronic undernutrition at the state level; causes, target populations, intervention strategies, and responsibility for implementation of strategies to address nutrition-related NCDs at the state level; and causes, target populations, intervention strategies, and responsibility for implementation of strategies to address both forms of malnutrition simultaneously through double duty actions. The second interview guide was developed for national level stakeholders who were already engaged in discussions about trends in malnutrition in India as a whole and efforts to address it. Questions in this guide had five themes: frames of undernutrition , nutrition-related NCDs, and the cooccurrence of both forms of malnutrition in India as a whole (current and past); the relationship between nutrition-related NCDs and chronic undernutrition, including common causes, target populations, possible double duty actions, and responsibility for identification and implementation of double duty actions; potential differences in frames represented by different types of policy actors or disciplines; the potential of different frames to inform successful policies to address all forms of malnutrition; and stories of successful strategies to tackle undernutrition in India, the factors that contributed to the success, and lessons learned that can be applied to addressing all forms of malnutrition.

We conducted semi-structured interviews in person with state-level stakeholder from February 2018 to March 2018 in Chennai and Delhi, the capitals of Tamil Nadu and India, respectively. National-level stakeholder were interviewed over video conference from April 2018 to June 2018. The lead author conducted all interviews in English. Oral consent was obtained to record the interview in most cases. In cases where consent to record was not given, the lead author took detailed notes during the interview which were supplemented with additional details immediately following each interview. Primary data sources were verbatim transcriptions and interview notes from cases where recording was not allowed. Field notes were taken by the lead author immediately after each interview, in which the environment and study participant were described, along with methodological observations and reflections, and analytical reflections. These observations provided context to each interview and allowed the lead author to reflect on emerging themes and concepts, as well as any methodological issues in the interview that may have an impact on interpretation of results.

Interviews with current academics and government and program officials were usually conducted in their offices, while those with former government and program officials, representatives from non-governmental organizations and advocates were conducted in informal settings or their homes. The interviews ranged in length from twenty-five to ninety minutes.

Data Analysis

Interviews were audio-recorded, transcribed, and initially coded by the first author in NVivo 12, using a constructivist grounded theory-based method of open, axial, and selective coding with constant comparison (Charmaz, 2006;). The

constructivist grounded theory orientation encouraged examination of our perspectives and reflexivity, in addition to the social constructions present in the setting studied (Goffman, 1974; Glaser and Strauss, 1967; Charmaz, 2008). We applied an emic perspective to the data, gathering and categorizing codes into themes using the participants' own words and phrases to reconstruct their perspectives.

The themes were then mapped onto the framework developed by Shiffman and Smith (2007). Using a process first applied by Lapping et al. (2012), we began with the four categories (actor power, ideas, political context, and issue characteristics) and eleven factors of the framework described by Shiffman and Smith, and organized our themes into these categories and factors. We adapted the framework to incorporate emergent themes and categorize the determinants of political priority for addressing the double burden of malnutrition in Tamil Nadu through inclusion of nutrition-related NCDs in nutrition policies (Table 4.2). Additional information on the identification of internal frames – a factor within the framework of development of political priority – of the rise in nutrition-related NCDs and chronic undernutrition can be found in our previous work (Constantinides et al., n.d.).

Table 5.1 Conditions and characteristics that may determine political priority for nutrition-related NCDs in the context of chronic undernutrition in Tamil Nadu, India.

Actor power describes the strength of individuals and organizations concerned with nutrition-related NCDs and undernutrition	
Policy community cohesion	Who do actors identify as key to addressing malnutrition in all its forms?

Leadership of policy community	Do actors identify individuals or organizations capable of uniting the policy community and acknowledged as champions for the cause?
Influencers	Do actors identify any opportunities for leadership that are present or lacking in being able to influence the public's support for addressing these issues?
Guiding institutions and coordination	The effectiveness of organizations or coordinating mechanisms with a mandate to lead development of nutrition policy and programming that addresses malnutrition in all its forms
Ideas include internal and external frames and are the ways in which those involved with the issue understand and portray it.	
Internal frame	To what degree does the policy community agree on the definition of, causes of, and solutions to the problem
External frame	Do actors identify public portrayals of the issue in ways that resonate with external audiences, especially the political leaders who control resources?
Social Construction	How does the policy community perceive target population and causes of nutrition-related NCDs? How do stakeholders prioritize resources based on these perceptions??
Political contexts are the environments in which nutrition policy actors operate	
Policy windows	Do policy actors identify political moments when state or national conditions align favorably for an issue, presenting opportunities for advocates to influence decisionmakers?)
State governance structure	The degree to which norms and institutions operating in the nutrition sector provide a platform for effective collective action
Issue characteristics are features of the problem of rising rates of nutrition-related NCDs within Tamil Nadu.	
Credible indicators	Are there clear measures that show the severity of nutrition-related NCDs? Are there credible indicators that can be used to monitor progress in addressing malnutrition in all its forms?
Severity	Is there consistency between the malnutrition burden and the planned allocation of resources?

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| | Effective interventions | The extent to which proposed means of addressing malnutrition in all its forms are clearly explained, cost-effective, backed by scientific evidence, simple to implement, and inexpensive. (Are proposed means compatible with reality of malnutrition burden?) |

5.4 Results

We identified three dimensions (actor power, ideas, and issue characteristics) that inhibit and one dimension (political context) that supports the development of political priority for nutrition-related NCDs. Quotations from interviewees that illustrate these results are presented in Table 4.3.

Table 5.2 Illustrative quotations from nutrition stakeholders

Dimension	Condition or characteristic	Illustrative quotation
Actor power	Policy community cohesion	"I think it should be the governments work in properly implementing. So NGOs we do some work, but we cannot, we are just a drop in the ocean. We can't reach in terms of … it cannot be like a government mission. In government they have funding, they have facility all that, but there is a problem of implementation. That doesn't go down to the poor people. So, if they work along the NGOs, and they take care, because the NGOs are there to deliver it to the field, the community is much better with the NGOs than with the government officials. So, if the NGOs can be a facilitating, play a facilitating role between the government and the community to reach these programs to the people, I think it will be an effective way, but I am not sure whether it will work out."

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	Leadership	"[The] self help group movement is very strong in Tamil Nadu. So creating awareness of all the self help group members. Because women are the ones who decide what to cook and what to serve, so that will be a very key thing in my opinion to take these things forward."
	Influencers	"[T]he most important thing I'll say is education department. The Department of Education should clearly drive home the point because, with first standard children that's more impressionable than an 18-year old college student. So that is where they should catch them young and drill. Drill them in such that these are the things which are mandatory for you and the safety of society."
	Guiding institutions	"…[T]hat process of decentralizing, of shifting not just responsibility but also shifting funds…That would take a huge institutional arrangement…You need facilitative frameworks and you need those institutions. You need to create institutions that are interested in making that happen. That have the skills and capacity to make that happen…Enormous resources and time are required to do that. It's not easy to put together."
Ideas	Internal frame	"I'm not sure that the co-occurrence is even framed at this point in time. I don't see that very visibly in the work that we've been doing. It's taken a lot for us to convince people within the activist area, for example, that obesity is something that we really need to be talking about. We've been knocked flat by senior and more aging than myself activists saying this is a problem of the rich and really you shouldn't be falling into the trap of speaking this obesity language. You're giving up on malnutrition and hunger."

	External frame	"What do you consume? How do you manage your waste? What will give you good health? How do you remain fit? How do you remain healthy? If you can link it to reduced cost of healthcare, improved productivity in terms of output of energy, in terms of output of work, give that as a package. We are giving these like individual packages, health package separately, sanitation package separately. It's not, getting into the consciousness as one message – that if I manage my body in terms of the intake and the experimenting, I have to do both in order to manage my body better, in order to reduce my costs on health related expenses."
	Social Construction	"[W]ithin government, within civil society, the general feeling is that undernutrition is the problem, and NCDs – on the other end, the problem with diets are, even if it's a problem it's seen largely as a problem of the rich. And, therefore, in terms of public policy priorities, not something that would be top priority because if there is a fixed, say budget and energy and whatever going into malnutrition then many would argue that rather do undernutrition because these poor diets and the other extreme over nutrition, just for the want of any other word is not something that is so widely prevalent. And, also that where it is, does exist, that it's really the problem of the rich and they don't need state support, and they might as well take care of themselves. So, that would be the large, general perception…Of course, people who work on this closely understand it better, have been looking at data…[b]ut, it's a fairly new area."
Political contexts	Policy windows	"[T]he National Nutrition Strategy…after 20 years you see a little ray of hope, which talks about both ends, with undernutrition also as well as over

		nutrition, and they talk about several dimensions which could possibly benefit the populations, especially the maternal childhood population. So, whether it's the NFSA act, National Food Security Act, which is a huge opportunity, although our policy makers at the moment are not making the best use of it. They are using it to channelize grains and usually items which are popular, rice…several grains essentially, which are carbohydrate rich sources, to be given to mothers or to be given to families which are below poverty line. Here we could use this opportunity very effectively and efficiently to also push in a little bit of proteins…eggs which are more, you know, as a complete diet, vitamins, minerals, as well as protein and good quality fat."
	State governance structure	"So, food is a big issue there politically for every whichever party comes in…[a]nd reelection, they have something to do with food. Also, this competitive politics where food is important so they keep coming up with newer things to do, in relation to food…I can't think of any other Chief Minister talking about what they were giving them for Midday meal. But, Tamil Nadu Chief Ministers do regularly. Whether it's two eggs, or three eggs, or four eggs, and ... If you look at the system of monitoring the meals, it goes right all the way up to the Chief Minister. So, the Chief Ministers actually once three months, asking if the Midday Meal is happening okay or not…So, that kind of priority I think is something they gave."
Issue characteristics	Credible indicators	"You need to know prevalence of something in order to be able to address that and then for targeting. I think that's the way to do it, is base the interventions on data, and often you rely on the national data and that's once in four to 5 years, if not longer, so then that's not

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		very useful. Health department has its own data but that has a lot of problems…while it's a good repository of all the women in the village, the data is often dated and outcomes not reliable. So they round up your hemoglobin levels to nearest digit or BP is always 120/80 because they know that no one is actually looking at this for outcomes data. It's not really reliable. So then you're just rolling out these interventions statewide and not really targeting…the way to do it I think, would be to base it on data, then you target more efficiently. You can have a common program there."
	Severity	"Yeah, both [undernutrition and nutrition-related NCDs] are coming, because Tamil Nadu, the economy is going up and people tending to switch, you see the lifestyle things are happening now…At the same time, rural India will have a lot of anemia and low birth weight, so we have both the problems right now. So, somehow, we have to balance it out, bring this thing – both the things we have to bring down…But priority will be the anemia and stunting, because these are proportionally high. So, that meaning, we need to focus a little more."
	Effective interventions	"We don't know what monster we're going towards in the absence of any kind of, even now, policy on healthy diets. In the sense, that would require many, many things to do. It would require the agriculture policy looking at prices, availability. These are the kinds of things that I don't think anybody is thinking of in the government."

Actor Power

Policy community cohesion. Stakeholders were inconsistent in their identification of key actors and their roles in addressing nutrition-related NCDs. No one or group of government agencies or disciplines was identified among the respondents as being authoritative sources of knowledge about either causes or solutions to address nutrition-related NCDs. Some stakeholders described the strong role that non-governmental organizations can play in addressing nutrition-related NCDs as a complex issue with multiple entry points. Others described a conflict between NGO roles and a perceived governmental need to maintain a reputation as a progressive and competent state with respect to its management of the health and well-being of its citizens.

Leadership. Only one stakeholder named a particular individual as taking initiative to address nutrition-related NCDs and undernutrition. The named individual, a member of the National Health Mission, was also a stakeholder interviewed for this research, and was one of the few state-level respondents who endorsed a strong belief in the need to quickly address the rise in nutrition-related NCDs in addition to undernutrition and the need for a multi-sectoral response. Other stakeholders (n=5) mentioned the strong influence that women's self-help groups have in Tamil Nadu, considering this group of women as capable of acting as champions for the cause. The remaining respondents did not describe specific individual or organization leaders or the need for one in leading coordination of efforts to address nutrition-related NCDs in a double-burden oriented nutrition agenda.

Influencers. While champions to assist with cohesion of the policy community and spearhead initiatives to address both forms of malnutrition were

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mostly not discussed, the vast majority of respondents considered the strong role that parents, schools through the Department of Education, and the media play in Tamil Nadu in influencing the public's support for health and nutrition. Women's self-help groups were also mentioned as having influence over village-level implementation of nutrition programs and public support for them.

Guiding institutions. No particular institution was described as having a coordinated mechanism or mandate to address malnutrition in all its forms. While almost all stakeholders understood the need for multisectoral involvement in addressing nutrition-related NCDs in addition to chronic undernutrition, none felt that coordination existed at this point, and only one respondent from the State Planning Commission discussed a mechanism for doing so. She suggested the development of an institution tasked with supporting villages through the various involved Ministries in designing, funding, and implementing interventions ideally suited to their specific malnutrition burden. While this level of decentralization was deemed to be the only way to address the vast variety and complexity of malnutrition in all its forms in Tamil Nadu, she acknowledged that such a task would be challenging.

Ideas

Internal frames. Nutrition stakeholders in Tamil Nadu were not consistent in their definitions of, causes of, or solutions to nutrition-related NCDs. Examples of themes in the internal frames were unclear roles for all stakeholder groups and a lack of responsibility being taken by any; inconsistent identification of specific target population; different malnutrition issues and causes perceived to be attached to different populations; and lack of coherence on the issues to prioritize to address nutrition-related NCDs.

External frames. Few stakeholders explicitly discussed presentation to those outside of the immediate nutrition policy community of nutrition-related NCDs and solutions to the rapid rise in them. Those who did were more likely to talk about the need to increase public awareness of how to implement lifestyle modifications, especially in youth, or to promote a holistic approach to reduction of nutrition-related NCDs. One stakeholder said "Here the problem is that when mothers feel that the more you feed the children, the better for them…how do you change, make mothers change that attitude and how do you make children less dependent on screens and going more into activities, to play?"

Social Construction. State-level stakeholders were more likely to suggest that nutrition-related NCDs were a result of individual lifestyle choices, specifically leisure activities and dietary choices. A government health official said "For example, salt intake, physical exercise, these things, how do you communicate to people and make them understand that it's your decisions that many time results in all this you're burdening with all this chronic lifestyle disease?" Other state-level respondents did not attribute nutrition-related NCDs to the rich only, but described similar decision-making around leisure activity and diet within poorer sectors of society. Overall, nutrition-related NCDs were discussed by the majority of respondents in terms of lifestyle choices among youths – aspiring to work in white-collar jobs where they would have higher proportions of their day spent sedentary at a desk, eating food prepared outside the home, street and convenience foods high in fat and sugar, spending more time playing video games and watching television, and less time engaging in recreational physical activity.

National-level respondents discussed wider drivers of food choices that did not proscribe evaluative dimensions to specific populations in considering the rise of nutrition-related NCDs. These wider drivers included the role of food businesses and social media in marketing of and aspirational qualities around certain foods, agricultural policies that promote rice production over other crops, women's changing roles in the workplace and families, leading to decreased time available at home to prepare wholesome traditional foods, and overall economic development, allowing people to use more convenience gadgets in the kitchen and for transportation.

Political Contexts

Policy windows. Several stakeholders identified the current time as ripe for bringing more attention to the urgency of addressing nutrition-related NCDs in Tamil Nadu. The launch of the National Nutrition Mission in 2018 acted as a focusing event for malnutrition in India and provided a mechanism for close monitoring of nutrition indicators, and convergence of the many ministries involved in improving nutrition. While the primary focus of the National Nutrition Mission is to reduce undernutrition and anemia by 2022 in children and adolescent girls and women of reproductive age respectively, it also sets a longer-term target of 2030 for reduction of all forms of malnutrition. The National Food Security Act was also seen as a potential opportunity to address nutrition-related NCDs, rather than viewing it solely as a method of reducing hunger.

Another potential policy window was identified by two state-level stakeholders as the government's more recent focus on addressing the health of an increasingly older population. Tamil Nadu was described as having a larger

proportion of elders than other states, as a result of relatively better social and health factors. They noted that during an expanded lifespan, more chronic conditions will become apparent, including nutrition-related NCDs. The state government's interest in protecting the health of elders could offer a window of opportunity to increase the profile of nutrition-related NCDs nutrition policy.

State governance structure. Since the nutrition strategies are implemented primarily by the government ministries, there must be support from the state government to consider nutrition-related NCDs as essential to include in the nutrition policy agenda. The National Health Mission, a cross-cutting department which interacts with and coordinates different departments concerned with health and nutrition and that sets the budget and priorities for spending, considers the Global Burden of Disease report or Tamil Nadu in guiding priority for development of a primary prevention program for non-communicable diseases. Some stakeholders felt that the state government's strong support for social welfare programs could make development of political priority for nutrition-related NCDs possible if the strategy focused on improving dietary diversity, as programs devoted to food have come to hold critical importance in political power over the years.

Issue Characteristics

Credible indicators. Some state-level stakeholders from both government and development partners commented on the lack of current and accurate data on which to base assumptions about nutrition-related NCD prevalence and severity. This deficiency was noted by several participants in relation to understanding not only the actual prevalence of disease, but also the most affected populations and related risk factors. Three state-level stakeholders also

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said that superior NCD screening efforts in Tamil Nadu could be causing increased rates as more cases are detected. Many respondents conveyed great urgency in their need for desegregated data. One stakeholder emphasized the need for highly targeted nutrition interventions to be able to address malnutrition in all its forms and thought the government and state research institutions collected sufficient data to be able to disaggregate by geography, socioeconomic status, and nutrition status in order to develop these interventions

Severity. While most stakeholders acknowledged that nutrition-related NCDs were increasing in the state, not all felt that there was a case to be made for its priority in nutrition policy agendas, based on prevalence relative to undernutrition in the state. One stakeholder stated explicitly that he was aware of the threat of nutrition-related NCDs, but did not give them weight equal to undernutrition in potential nutrition agendas. A national level stakeholder with experience in Tamil Nadu said, "How do you make it an issue that is important for the politicians and the policy makers, right? That's when things get taken up. That's when resources are put into these things, and I think that will take a little more time right now. So right now, the framing would be basically to say that, "Look. This is a problem." I think we have to achieve that. That, "This is a problem which requires policy intervention. This is a problem, not just of the few rich, it's a problem -- it is a potential problem for everybody." I think that's where we are at."

Effective interventions. Effective interventions to reduce nutrition-related NCDs exist and effective potential double duty actions to address malnutrition in all its forms also exist. Respondents noted that addressing them through government action would require a comprehensive multisectoral effort that has

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not yet been considered. One state government respondent from the public health sector said "so the problem is how do we put in a primary prevention strategy for non-communicable diseases?...whatever strategy we have is secondary prevention like screening and other issues. For example, we screen for hypertension, we screen for diabetes, but primary prevention strategies should be an important part of our system." Other stakeholders mentioned the opportunity presented by the Universal Public Distribution System in Tamil Nadu, that could be used to promote increased dietary diversity through the foods chosen to be provided at subsidized prices. While this potential was noted by many respondents, it was also noted that the Public Distribution System has become a political tool in Tamil Nadu and that politicians are loathe to alter it other than increasing provisions, at the risk of angering a citizenry that considers the food to be their right.

5.5 Discussion

Despite a perceived political context which supports political priority for nutrition-related NCDs, the weakness of actor power, the inconsistency of ideas, and the unfavorable issue characteristics may contribute to the lack of political commitment for orientation of nutrition policies in Tamil Nadu toward addressing the double burden of malnutrition through inclusion of nutrition-related NCDs to the nutrition agenda (Working Group on Priority Setting, 2000; Shiffman, 2006, Lapping, 2012). At the national level, the most prominent nutrition policy is clearly aimed at undernutrition, providing passing reference to the dual burden of malnutrition (Niti Aayog, 2017). Given the federal governance structure in India and Tamil Nadu's history of commitment to both social programs, generally, and malnutrition, specifically, state-level nutrition

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policy design and implementation is an opportunity to include nutrition-related NCDs in the nutrition agenda in Tamil Nadu before health and social costs become overwhelming. This process would allow the state to address its relatively higher burden of nutrition-related NCDs while serving as an example to other subnational governments in LMICs experiencing the nutrition transition.

Political commitment demonstrated by inclusion of nutrition-related NCDs in the nutrition agenda is based in part on the political priority given to nutrition-related NCDs in Tamil Nadu, especially in comparison to undernutrition (Shiffman and Smith, 2007). Concerning the power of policy actors, the lack of cohesion in the policy community combined with the leadership vacuum with respect to champions and guiding institutions highlights the limited support for consideration that nutrition-related NCDs have had within the state. The various groups of people who can be considered influencers – advocates and leaders who could increase support for addressing nutrition-related NCDs - were all outside of the nutrition policy and program community and are looked upon as outsiders to be educated (parents, schools) or with apprehension (social media).

With respect to political context, the time when data were collected (early 2018) was seen as an opportune policy window, and the platform for effective action provided by institutions working to address malnutrition was seen as potentially adequate to take advantage of this policy window. With respect to issue characteristics, important points were made about the lack of desegregated data to inform appropriate demographically and geographically targeted intervention planning. Potential effective interventions exist for nutrition-related NCDs, but the contribution of this condition to the development of political

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priority was undermined by the belief by many stakeholders that the lower prevalence of nutrition-related NCDs as compared to undernutrition supported a continued allocation of resources for interventions to address primarily undernutrition. Overall, the policy community did not demonstrate consensus regarding their consideration of either severity and resource allocation, effective interventions, or appropriate measurement of nutrition-related NCDs.

The most critical barriers to including nutrition-related NCDs in the state-level nutrition agenda were the ideas – the way those involved think of and portray nutrition-related NCDs. The nutrition stakeholders were inconsistent in their internal framing, describing various priority areas, causes, target populations, and solutions to the rise in nutrition-related NCDs in Tamil Nadu. External framing that propels action was equally inconsistent and suffered from the negative social construction applied to populations experiencing high rates of nutrition-related NCDs, the sense that the severity of the disease burden is not high relative to issues of undernutrition, and the lack of commitment to the existing effective interventions to address nutrition-related NCDs. Inconsistent and negative framing can result in a low demand from communities and governments, with repercussions for sustained government commitment and resources to address the issue (Horton et al., 2009; Schneider and Ingram, 1993). Previous work has suggested that sociopolitical characteristics of an issue, including political and social support are crucial for an issue to receive enough attention to influence policy development (Lapping et al., 2012; Shiffman, 2006).

These results suggest the need for a convergence mechanism for nutrition-related NCDs that acts as a central authority and reference in the decentralized context, like the National Nutrition Strategy suggests for undernutrition in India.

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Including multisectoral perspectives and experiences in developing priorities, planning, and implementing strategies to address nutrition-related NCDs, would encourage sustained participation from and empowerment of the stakeholder community and acknowledge the agency, knowledge, and capacities of these actors (Patashnik, 2008). A nutrition policy landscape where those that work in undernutrition and nutrition-related NCDs are not viewed as representing vastly different perspectives may be one in which commonalities and double duty actions can be identified, planned, and implemented at this state level.

Interviews with stakeholders were not explicitly presented as attempting to elicit information about political priority for nutrition-related NCDs. We may not have been able to extract open and honest answers regarding ideas and actor power especially, had we asked explicitly for that information. Therefore, the results presented here are interpretations by the authors of perspectives communicated by stakeholders regarding the ways they consider different forms of malnutrition, and the visibility in the nutrition policy landscape of nutrition-related NCDs alone and in conjunction with undernutrition. We believe these interpretations are fair representations of the stakeholder beliefs, due to the consistency demonstrated in responses addressing several factors, and the glaring lack of consensus on others (internal and external frames). All interpretations of the lead author were discussed and agreed upon with coauthors.

Tamil Nadu has demonstrated political commitment and public support for social programs to improve health and well-being, including those that aim to prevent malnutrition (Ramakrishnan, 2012). In this political context, nutrition policy and program actors are experienced and knowledgeable and include

subnational, national, and international actors. The strong enabling environment of Tamil Nadu may have contributed to increased willingness of policy actors to show interest and participate in our research. Finally, the comparatively high rates of nutrition-related NCDs in the state may have increased awareness among state policy and program actors of the issue of a double burden of malnutrition.

The interviews were all held in English, as the lead author is not fluent in Hindi or Tamil. The POSHAN project, led by the International Food Policy Research Institute supported the lead author through funding and introduction to stakeholders to whom she otherwise may not have had access as an outside researcher. This association with POSHAN facilitated the establishment of rapport between the lead author and the stakeholders, and likely contributed to the quality of data collected through enhanced candidness in the interviews.

The political will and efforts to include NCDs are nascent; undernutrition agendas are still dominated by attention to undernutrition within the public, government and the rest of the policy community. Strategies to address nutrition-related NCDs together with undernutrition are still being determined (Pradeilles et al., 2019; Menon and Penalvo, 2020). Raising the profile of nutrition-related NCDs to the point where there is political commitment for orientation of nutrition policies to double duty actions to address the double burden of malnutrition will be facilitated by addressing the critical barriers highlighted in this paper. The political context is favorable as a window of opportunity to bring nutrition-related NCDs onto the agenda may be open due to the National Nutrition Mission's release and the importance that food and nutrition have always held in Tamil Nadu's politics. Yet, there is little cohesion,

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leadership, or responsibility being claimed among the policy actors for addressing nutrition-related NCDs, demonstrating varying and possibly competing aims and perspectives (Sabatier, 2007). The ways that nutrition-related NCDs are both understood by the policy community and portrayed to others highlight the lack of consensus on priorities, causes, and solutions, and the negative social constructions associated with nutrition-related NCDs and those who suffer from them These characteristics and conditions, combined with unreliable measurement and a perceived lack of severity of the disease burden, all contribute to the lack of political priority for nutrition-related NCDs in Tamil Nadu, and thus for the emerging threat of the double burden of malnutrition.

Frieden (2014) describes political commitment as a consequence of the effectiveness of several key components in implementation that can be applied to our context: innovation (ideas through internal and external framing strategies, as well as social constructions of target populations and issues, and issue characteristics); an evidence-based set of related, simple, and cost-effective intervention (one part of issue characteristics); effective performance management (political context); multisectoral coalitions with public- and private-sector organizations (actor power and political context); communication of accurate and timely information to policymakers and the public (ideas). Our work demonstrates the role that stakeholders can play in supporting these key components to develop enough political priority for nutrition-related NCDs that can then be translated into political commitment for their inclusion in the nutrition policy agenda. Across many administrations, Tamil Nadu has demonstrated political and economic commitment to social welfare programs and policies, including those aimed at reducing poverty and malnutrition. In

Tamil Nadu, the political power and resources that have been devoted to addressing nutrition-related NCDs are different than those devoted to undernutrition. This difference suggests that undernutrition is represented in the political landscape as a social welfare issue, and that nutrition-related NCDs are not. Strategies to create political priority for addressing nutrition-related NCDs would need to harness the commitment to social welfare programs that is reputedly quite strong in the state.

This study confirms previous findings that consensus within the policy community is important in agenda setting and policy formulation (Pelletier, Menon, et al., 2011). Future research should examine strategies to align global frames of the double burden with national and subnational frames in LMICs and include awareness of the role of social constructions of diseases causes and target populations on the development of political priority.

Conflict of interest

The authors have no conflicts of interest to declare.

References

Bacchi, C.L. (2009). *Analysing policy: what's the problem represented to be?* Frenchs Forest, NSW: Pearson.

Béland, D. and Howlett, M. (2016). The Role and Impact of the Multiple-Streams Approach in Comparative Policy Analysis. *Journal of Comparative Policy Analysis: Research and Practice, 18*:3, 221-227. https://doi: 10.1080/13876988.2016.1174410

Charmaz, K. (2006). Constructing grounded theory: A practical guide through qualitative analysis. SAGE.

Charmaz, K. (2008). Constructivist and Objectivist grounded theory. In N.K. Denzin & Y. Lincoln (Eds.) *Handbook of qualitative research* (2nd ed., pp. 509-535). SAGE.

Clark, T.W. (2002). The policy process: a practical guide for natural resource professionals. Yale University Press.

Crichton, J. (2008). Changing fortunes: analysis of fluctuating policy space for family planning in Kenya. *Health Policy and Planning, 23*(5), 339-350. doi:10.1093/heapol/czn020

Dutta, M., Selvamani. Y., Singh, P., Prashad, L. (2019). The double burden of malnutrition among adults in India: evidence from the National Family Health Survey-4 (2015-16). *Epidemiology and Health, 41*, Article e2019050. https://doi:10.4178/epih.e2019050.

FAO, IFAD, UNICEF, WFP and WHO. (2019). *The State of Food Security and Nutrition in the World 2019. Safeguarding against economic slowdowns and downturns*. Rome, FAO.

FAO/WHO. (2014). Second International Conference on Nutrition - Conference Outcome Document: Rome Declaration on Nutrition. Rome, Italy, http://www.fao.org/3/a-ml542e.pdf

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Frieden, T.R. (2014). Six components necessary for effective public health program implementation. *American Journal of Public Health*, *104*(1), 17-22.

Gillespie, S., Haddad, L., Mannar, V., Menon, P., Nisbett, N. (2013). Maternal and Child Nutrition Study Group. The politics of reducing malnutrition: building commitment and accelerating progress. *Lancet*, *382*(9891), 552-569. https://doi:10.1016/S0140-6736(13)60842-9

Glaser, B. and Strauss, A. (1967). Discovery of grounded theory. Strategies for qualitative research. Sociology Press.

Goffman, E. (1974). Frame Analysis: An Essay on the Organization of the Experience. Harper & Row.

Grindle, M.S., Thomas, J.W. (1991). Public choices and policy change: the political economy of reform in developing countries. The Johns Hopkins University Press.

Gopalakrishnan, S. (2011). Census of India 2011. Provisional Population Totals: Rural-Urban Distribution. Tamil Nadu. Paper 2, Volume 1 of 2011. Series 34. http://censusindia.gov.in/2011-prov-results/paper2/data_files/tamilnadu/Tamil%20Nadu_PPT2_Volume1_2011.pdf

Independent Group of Scientists appointed by the Secretary-General, Global Sustainable Development Report 2019: The Future is Now – Science for Achieving Sustainable Development, (United Nations, New York, 2019).

International Institute for Population Sciences (IIPS) and ICF. (2017). *National Family Health Survey (NFHS-4), 2015-16: India.* Mumbai: IIPS.

Kalaiyarasan, A. (2014). A comparison of Developmental Outcomes in Gujurat and Tamil Nadu. *Economic & Political Weekly*, *69*(15), 55-63.

Kingdon, J. (2010). Agendas, alternatives and public policies, 2nd ed. HarperCollins College Publishers.

Lapping, K., Frongillo, E.A., Studdert, L.J., Menon, P., Coates, J., Webb, P. (2012). Prospective analysis of the development of the national nutrition agenda in Vietnam from 2006 to 2008. *Health Policy and Planning*, *27*, 32–41.

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Lapping, K., Frongillo, E.A., Nguyen, P.H., Coates, J., Webb, P., Menon, P. (2014). Organizational factors, planning capacity, and integrational challenges constrain provincial planning processes for nutrition in decentralizing Vietnam. *Health Policy and Planning*, *35*(3), 382-391.

Maxwell, J.A. (2011). Realist Approach for Qualitative Research. Sage.

Menon, P., Frongillo, E.A., Pelletier, D.L., et al. (2011). Assessment of epidemiologic, operational, and sociological domains for mainstreaming nutrition. *Food and Nutrition Bulletin, 32*, 2(supplement), S105-S114.

Menon, S., Peñalvo, J.L. (2020). Actions Targeting the Double Burden of Malnutrition: A Scoping Review. *Nutrients, 12*(1), 81.

Muraleedharan, V.R., Dash, U., Gilson, L. (2011). from Chapter 6. pp.159–192. From Balabanova, D., McKee, M., and Mills, A. (eds). *'Good health at low cost' 25 years on. What makes a successful health system?* London School of Hygiene and Tropical Medicine.

Nilsson, M., Griggs, D., Visbeck, M. (2016). Policy: map the interactions between Sustainable Development Goals. *Nature*, *534*(7607), 320-2.

National Nutrition Strategy (September 2017). NITI Aayog. http://niti.gov.in/writereaddata/files/document_publication/Nutrition _Strategy_Booklet.pdf

Palinkas, L.A., Horwitz, S.M., Green, C.A., et al. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research*, *42*, 533-544.

Patashnik, E. (2008). Reforms at risk: what happens after major policy changes are enacted. Princeton University Press.

Pradeilles, R., Baye, K., & Holdsworth, M. (2019). Addressing malnutrition in low- and middle-income countries with double-duty actions. *Proceedings of the Nutrition Society, 78*(3), 388-397. doi:10.1017/S0029665118002616

Pelletier, D., Menon, P., Ngo, T., Frongillo, E., and Frongillo, D. (2011). The Nutrition Policy Process: The Role of Strategic Capacity in Advancing National Nutrition Agendas. *Food and Nutrition Bulletin*, *32*, S59-69. https://doi:10.1177/15648265110322S203.

Pelletier, D.L., Frongillo, E.A., Gervais, S., Hoey, L., Menon, P., Ngo, T., Stoltzfus, R., Ahmed, A., Ahmed, T. (2011). Nutrition agenda setting, policy formulation and implementation: Lessons from the Mainstreaming Nutrition Initiative. *Health Policy and Planning*. doi: 10.1093/heapol/czr011

Popkin, B., Corvalan, C., Grummer-Strawn, L.M. (2020) Dynamics of the double burden of malnutrition and the changing nutrition reality. *Lancet Series*, *395*(10217), 65-74.

Popkin, B.M. (2017). Relationship between shifts in food system dynamics and acceleration of the global nutrition transition. *Nutrition Reviews, 75*, 73–82.

Ramachandran, P. (2006). The double burden of malnutrition in India. *FAO: Food and Nutrition Paper (84):* The double burden of malnutrition – Case studies from six developing countries.

Ramakrishnan, U., Lowe, A., Vir, S., et al. (2012). Public health interventions, barriers, and opportunities for improving maternal nutrition in India. *Food and Nutrition Bulletin*, *33*(2), S71-S92.

Shiffman, J. (2007). Generating political priority for maternal mortality reduction in 5 developing countries. *American Journal of Public Health*, *97*(5), 796–803. https://doi.org/10.2105/AJPH.2006.095455

Shiffman, J. and Smith, S. (2007). Generation of political priority for global health initiatives: a framework and case study of maternal mortality. *Lancet*, *370*,1370–9.

Swinburn, B.A., Kraak, V.I., Allender, S., et al. (2019). The Global Syndemic of Obesity, Undernutrition, and Climate Change: The Lancet Commission report. *Lancet, 393*, 791–846.

Tamil Nadu State Human Development Report (2017). http://www.spc.tn.gov.in/TNHDR2017/chapter1.pdf

UNICEF (2019). *The State of the World's Children 2019. Children, Food and Nutrition: Growing well in a changing world*. UNICEF, New York.

Walt, G. and Gilson, L. (1994). Reforming the health sector in developing countries: the central role of policy analysis. *Health Policy and Planning, 9*, 353–70.

Willet, W., Rockström, J., Loken, B., et al. (2019). Food in the Anthropocene: the EAT-Lancet Commission on healthy diets from sustainable food systems. *Lancet, 393*, 447–92.

World Health Organization Commission on Ending Childhood Obesity. (2016). Report of the commission on ending childhood obesity. WHO.

Heaver, R. (2003). *India's Tamil Nadu Nutrition Program: Lessons and Issues in Management and Capacity Development*. Health, Nutrition, and Population Discussion Paper. The World Bank. Washington, D.C.

2020 Global Nutrition Report: Action on equity to end malnutrition. Bristol, UK: Development Initiatives.

CHAPTER 6

SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

6.1 Summary of findings

The double burden of malnutrition is increasing rapidly across LMICs. Globally, stakeholders are demonstrating more concern and attention to addressing the double burden of malnutrition through the inclusion of nutrition-related NCDs in nutrition policy agendas and the suggestion of double duty actions to tackle undernutrition and nutrition-related NCDs simultaneously (Shrimpton et al., 2016). In India, this global attention to nutrition-related NCDs has not yet made its way into major national nutrition initiatives, in spite of India's considerable prevalence of chronic undernutrition and rising prevalence of nutrition-related NCDs across the country. The state of Tamil Nadu has higher rates of nutrition-related NCDs than the rest of the country, in the context of chronic undernutrition, and in spite of a long history of political commitment to addressing malnutrition.

The goal of this study was to improve understanding of the determinants of nutrition agenda setting in the context of the double burden of malnutrition at the subnational level where policies are interpreted and implemented, using the Indian state of Tamil Nadu as a case study. Two manuscripts were developed as part of this research from the results of qualitative analysis of 28 in-depth semi-structured interviews with nutrition stakeholders. The aim of the first

manuscript was to describe stakeholder frames of undernutrition and nutrition-related NCDs in Tamil Nadu and show how different frames held by stakeholders reflect intention and action regarding nutrition policy and programming at the state level in the LMIC context, as demonstrated in Tamil Nadu, India. We were interested in the views of state-level policy and program actors for this study, as states in India have flexibility in interpreting and implementing national policies and programs and sometimes in developing their own. We also aimed to provide additional context for interpreting state perspectives by describing frames of undernutrition and nutrition-related NCDs used by national-level policy actors and advocates who are often more engaged with the global malnutrition discussion than state-level actors.

In manuscript 1, we found that there was little consistency in the way that nutrition-related NCDs were framed by stakeholders, compared to undernutrition. We identified five common themes in the overall frames of undernutrition and nutrition-related NCDs: stakeholders discussed priority issues, risk factors, target populations, roles for stakeholders, and effect on program and policy action. Whereas stakeholders were remarkably consistent about these themes for undernutrition, there was little commonality in the identification of priority issues, risk factors, target populations, and roles for stakeholders, with respect to nutrition-related NCDs. Three challenges were evident from the wide variation seen within the frame of nutrition-related NCDs: 1) the issue had not yet reached a point of prioritization within the stakeholder community where urgency to address them was felt; 2) there is little coherence amongst stakeholders about what to prioritize, why, how, and for whom in order to reduce nutrition-related NCDs; and 3) there is a lack of convergence from

stakeholder disciplines and agencies to work multisectorally to reduce nutrition-related NCDs.

Whereas the stakeholders were aware of the benefit of multisectoral efforts, the varied prioritization and lack of consensus about the prominence and relevance of nutrition-related NCDs within the state context represent a bottleneck to developing and implementing policies based on evidence to adequately address the double burden of malnutrition. Menon et al. (2011) described the consequences of the tradeoffs between the sociopolitical, epidemiologic, and operational domains that influence decision making, a phenomenon that we demonstrate with respect to nutrition-related NCDs in Tamil Nadu. This study confirms previous work that agenda setting is influenced by coherence within a multidisciplinary policy community and further illustrates how priority of the problem among stakeholders, coherence, and convergence of actions work together to influence both agenda-setting and stakeholder commitment (Pelletier, Menon, et al., 2011).Nutrition-related NCDs are rising rapidly and are already prevalent at rates higher than national averages, and cause significant long-term morbidity along with increased mortality. Yet, policymakers have not yet fully prioritized or invested in them as a critical nutrition issue through implementation of multisectoral efforts, in part due to a frame that lacks coherence and includes a lack of perceived worth of the affected population.

The aim of the second manuscript was to identify what conditions and characteristics support and inhibit the inclusion of nutrition-related NCDs in the nutrition policy agenda in Tamil Nadu. Supportive conditions and characteristics included: a favorable policy context – stakeholders viewed the time around the

2017 launch of the National Nutrition Strategy as a policy window which could be taken advantage of to increase the visibility of nutrition-related NCDs; and a governance structure in place to continue to support addressing undernutrition and include nutrition-related NCDs to the policy agenda, due to the historical commitment in Tamil Nadu to issues of food and nutrition.

Conditions and characteristics that inhibit the inclusion of nutrition-related NCDs in the nutrition policy agenda included inconsistent identification of key actors and their leading roles in addressing nutrition-related NCDs; a leadership vacuum with respect to issue champions and guiding institutions; the ways that nutrition-related NCDs are both understood by the policy community (internal frame) and portrayed to others (external frame) highlight the lack of consensus on priorities, causes, and solutions; and negative social constructions associated with nutrition-related NCDs and those who suffer from them. These results are supported by previous work that describes the importance of framing to achieve political resonance and champions to push the inclusion of an issue in a policy agenda (Pelletier et al., 2011; Heaver, 2005). Previous research provides additional support to our results on the influence of social constructions, describing how social constructions of target populations have a powerful influence on policy stakeholders and agenda-setting, conveying messages about government responsibility to citizens, and deservedness of those suffering from disease, compared to those who are not (Schneider and Ingram, 1993). Combined with unreliable measurement and a perceived lack of severity of the disease burden, these conditions and characteristics contribute to the lack of political priority for nutrition-related NCDs in Tamil Nadu, and thus for the emerging threat of the double burden of malnutrition.

In considering how to increase political priority for nutrition-related NCDs, it is useful to examine examples of other public health issues that have generated political priority and been included in policy agendas. One study by Nesbitt (2017) conducted a narrative analysis of the political economy shaping policy on child undernutrition in India from the mid 2000s to the mid 2010s when stunting became a highly publicized and politicized issue in nutrition and development policy. The author describes narrative elements that can be persuasive in a policy environment, and that were used by key players in the development of a national narrative around undernutrition, specifically stunting, in India. These narrative elements include the selection and portrayal of main characters who will be affected by policy reform, and identification of other characters who act as heroes or villains, or champions and policy elite (the latter seemingly a result of the power and mismanagement they represent). Narratives also present a plot that links policy actions to specific outcomes through causal mechanisms and introduction of morality as a characteristic of the policy. Finally, key actors or champions use rhetorical devices and strategies to signal congruence or incongruence, or judgment of the resonance of a narrative due to consistency with accepted beliefs, and highlight perceived winners and losers within the debated policy.

With respect to the focus on stunting in India, major players in the policy debate around the importance of stunting identified main characters that resonated with the public, vulnerable populations like women and children and those living below the poverty line. They introduced plots with causal mechanisms and morality by linking the story of development and economic growth in India to the failure to achieve similar growth as other similar emerging

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economies. Failure to invest in human capital and improvement of social indicators was illustrative of the causes of undernutrition, with stunting as a marker of these social indicators. The key actors also were able to build trust between themselves and the public with appeals to reason through statistics and evidence. With respect to the visibility and focus on stunting in India, this activity of the key actors to shape and promote these narratives was crucial in forwarding the debate and shaping the policy agenda (Nesbitt, 2017).

What can we learn from this example in India and apply to efforts to include nutrition-related NCDs in the nutrition policy agenda? Most importantly, stakeholders perceive a lack of these actors or champions that can drive narratives and be considered authoritative sources of knowledge on the issue. Shiffman and Smith define leadership in the policy community as individuals or organizations capable of uniting the policy community and acknowledged as champions for the cause. While individual champions were not described by stakeholders, during the time that the lead author was collecting data in Chennai, there was an organization that could have developed into such a leadership position. This organization brought together stakeholders from relevant sectors to pool knowledge and resources and identify narratives and strategies for addressing nutrition in the state, including nutrition-related NCDs. This coalition had the potential to provide actor power through its leadership and to wield political power through its collective evidence-based strategies for addressing nutrition and built-in consideration of effective communication platforms for other stakeholders and the public. The power of this multisectoral effort at building evidence and developing a coherent narrative could have mobilized political will through communication with these two audiences

simultaneously, as in Tamil Nadu, the public is critical in generating and maintain momentum for issues. The coalition, while enthusiastic and well-meaning, was unable to identify key actors or champions to lead their efforts or harness initial momentum as an organization and seems to have disappeared from the policy stakeholder landscape. Very few stakeholders interviewed were aware of its existence which validates the stakeholder perception of a lack of leadership.

A clear narrative with plot and causal mechanisms would also be useful in helping to bring nutrition-related NCDs to the state nutrition policy agenda. This research has illustrated the wide-ranging perspectives on causal mechanisms and target populations, making elucidation of a plot that resonates with the public almost impossible. A few national-level stakeholders alluded to the possibility of linking the narrative of development to nutrition and health outcomes, similar to the stunting narrative. It was, however, emphasized that this time there was a need to focus on the negative repercussions of development when social welfare indicators are not taken into consideration. This strategy has the potential to be successful or to backfire with the Tamil Nadu policy community and public. Success of the strategy could be tied to the historical political commitment to social welfare programs in Tamil Nadu, including those that address undernutrition. This commitment to social welfare is a crucial and entrenched part of the state's identity and political driving force. A strategy that replaces the hints at morality around individual behavior choices leading to nutrition-related NCDs with the morality of development at the cost of public welfare could become a strong political motivator within the state. The strategy has the potential to backfire as people in Tamil Nadu are proud of the relative success of

the state with respect to health and development indicators. Therefore, suggestions that such successes have not been entirely positive may be met with resistance and hostility.

Finally, the example of the establishment of political and economic commitment to addressing undernutrition in India demonstrates the importance of messaging and appeal to reason with policy makers and the public in establishing congruence with beliefs, as well as establishment of winners and losers in the policy debate. This process was begun by the then-Prime Minister Manmohan Singh in 2007, when he reacted publicly to evidence from the recently released National Family Health Survey-3 that found stunting at over 50% in India and was followed with the HUNGaMA (Hunger and Malnutrition) Report that presented more data in 2011 on a sample of districts across India, in the absence of other national data. Key actors were able to rely on presentation of evidence from these surveys and others to establish congruence with policymaker and public beliefs and build trust in themselves. With respect to nutrition-related NCDs, stakeholders in this research identified the need for disaggregated data that they could point to in crafting a narrative around an evidence-based understanding of causal mechanisms, vulnerable populations, and credible indicators. Data from the National Family Health Survey was described as crucial to providing the data that led to understanding of the burden of stunting in India and Tamil Nadu. Newly available and detailed data on geographic and demographic distribution of stunting was translated into clear communication of issue characteristics to policymakers and program implementers. Acquiring this data and translating it into concise messages will

be key in helping to bring nutrition-related NCDs onto the nutrition policy agenda.

Building trust in the key actors through reason may be difficult, as it may entail villainizing to an extent some public programs that are held dear to the political establishment and public in Tamil Nadu like the Public Distribution System. Suggestions of change to a beloved program that would promote dietary diversity could appeal to logic and reason, but also meet with resistance at the internal and external levels. While donor funding was seen by some national-level stakeholders to have contributed to the shift in focus within undernutrition to stunting in India, donors were also described through the villain lens by the key actors analyzed by Nesbitt, as drivers of development agendas at all costs. It is unclear what role or influence the global discussion on the double burden might play yet at the subnational level in India.

Frieden (2014) describes political commitment as a consequence of the effectiveness of several key components in implementation that can be applied to our context: innovation (ideas through internal and external framing strategies, as well as social constructions of target populations and issues, and issue characteristics); an evidence-based set of related, simple, and cost-effective intervention (one part of issue characteristics); effective performance management (political context); multisectoral coalitions with public- and private-sector organizations (actor power and political context); communication of accurate and timely information to policymakers and the public (ideas). Our work demonstrates the role that stakeholders can play in supporting these key components to develop enough political priority for nutrition-related NCDs that

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can then be translated into generating political commitment for their inclusion in the nutrition policy agenda. Across many administrations, Tamil Nadu has demonstrated political and economic commitment to social welfare programs and policies, including those aimed at reducing poverty and malnutrition. In Tamil Nadu, the political power and resources that have been devoted to addressing nutrition-related NCDs are different than those devoted to undernutrition. This difference suggests that undernutrition is represented in the political landscape as a social welfare issue, and that nutrition-related NCDs are not. Strategies to create political priority for addressing nutrition-related NCDs would need to harness the commitment to social welfare programs that is reputedly quite strong in the state.

The double burden of malnutrition is increasing in low- and middle-income countries, with economic, social, and health consequences. Policies and programs to address malnutrition at the national and subnational levels reflect the priorities and framing of the problem by the stakeholder community. Previous studies have examined if and how nutrition-related NCDs have been included into national nutrition policy agendas that have historically focused on reduction of undernutrition. This study furthers knowledge about agenda-setting at the subnational level where policies are translated and actually implemented, identifying critical conditions for the development of priority, but also demonstrates the synergy between priority, coherence among the policy community, and convergence of efforts to intervene, and extending the study of framing within nutrition to the double burden of malnutrition.

Despite a prevalence of nutrition-related NCDs higher than national averages and rising rapidly, the majority of state-level nutrition stakeholders did not give priority to them, nor were they in agreement about the definition of the problem, the risk factors, target populations, or roles for stakeholders within multisectoral initiatives. In a context where there is historically a strong enabling environment for undernutrition, nutrition-related NCDs were considered by most state-level stakeholders to be an individual responsibility, effectively decreasing the value of those affected by nutrition-related NCDs and rejecting responsibility for addressing them. Efforts to orient nutrition-policy to address the double burden of malnutrition at the state level will need to alter the social construction of those affected.

6.2 Limitations

Study limitations include some hesitancy and guardedness on the part of especially state-level stakeholders in interviews. One potential cause of these behaviors could be the status of the lead author as an outsider. Whereas association with the POSHAN team likely assisted in gaining access to certain stakeholders, it is possible that they would be reluctant to discuss systemic level determinants of nutrition-related NCDs with the lead author. State-level stakeholders especially demonstrated a strong loyalty and pride in Tamil Nadu and its commitment to social programs, and status as a researcher from a Western institution may have contributed to some hesitancy on their part to discuss perceived weaknesses in the state's response to the rise in nutrition-related NCDs.

Our study highlighted the awareness and enthusiasm demonstrated by national-level stakeholders to thinking about nutrition-related NCDs as a critical concern in Tamil Nadu, compared to reluctant or inconsistent consideration from the state-level stakeholders. We suggest that this stark difference is partially the result of the influence of role and identity in shaping perspective and the representation of perspective to outsiders. National-level advocates are less constrained by their professional roles and identities; their identities are built upon challenging and moving agendas in one way or another. In contrast, the state-level stakeholders were representatives of funding agencies or government departments, implementers of government programs, or academics dependent on funding from the state government. In some cases, the academics were collaborators on government-funded evaluations of government-funded programs.

In several interviews, the lead author was impressed by the feeling that the stakeholder was either repressing information or felt constrained in the interview setting. At times, she was asked to refrain from recording or speaking when others were in the room or when doors were open, and more than once was asked to meet outside of the stakeholder's office. While she was granted an interview in these cases, it bears consideration whether this mutual reliance on the government and the stakeholder's professional responsibility and definition of identity has implications for their willingness, both conscious and unconscious, to think and communicate about topics outside of what is required by their role.

The lead author also was not fluent in Hindi or Tamil, necessitating that the interviews be conducted in English, potentially introducing another layer of

distance between the lead author and stakeholders. Considering the combined possible effects of the lead author's status as a non-Tamil speaking Western researcher, future research should be conducted ideally in person by a local researcher in the local language, outside of professional settings, and in concert with a research partner with experience in the professional context (either as a program implementer or a government employee).

Our sample of state-level stakeholders included some that may not have much actual influence on policy-making, e.g., program implementers. They may, however, have a role to play in championing the issue of nutrition-related NCDs. They could promote less punitive social construction of affected populations, shifting the focus from individual behavior choices to systemic causes. In a state like Tamil Nadu where the public holds enormous political power, program implementers could potentially act as a form of issue advocates, although they are constrained by their roles as representatives of governmental systems. Program implementers also demonstrate how political priorities from actual policymakers are understood and translated into actions. We were unable to interview as many program implementers as we would have wished to more fully try to illuminate how they understand the policies being translated to them; the severity of different forms of malnutrition; and their role in advocating for particular issues with the public.

This study may not be generalizable to subnational levels in all LMICs. India's constitutional structure allows flexibility for states to translate and implement national policies into locally relevant ones. Other LMICs may not follow a similar structure, meaning that states (or regions) are implementers of national priorities, but may not be able to act upon their own. Barriers to

addressing the double burden of malnutrition may therefore be barriers in implementation at the subnational level, rather than agenda-setting.

6.3 Implications and recommendations for future research

This study yields important insights about how subnational level nutrition stakeholders think about nutrition-related NCDs, with implications for future orientation of nutrition agendas to addressing the double burden of malnutrition. At the national and subnational levels in India, the political will and efforts to include NCDs are nascent; nutrition agendas are still dominated by attention to undernutrition within the public, government and the rest of the policy community. Nutrition-related NCDs are not prioritized enough and with enough coherence in the stakeholder community to support convergence of multisectoral efforts to address them with undernutrition through double duty actions. A strategy to raise the profile of nutrition-related NCDs to the point where nutrition policies can be oriented to double duty actions to address the double burden of malnutrition will need to deal with the critical barriers highlighted in this study: a lack of identifiable key actors, leaders or champions, and guiding institutions, unreliable indicators, perception of relatively less severity, and lack of consensus in the frame of nutrition-related NCDs (Hoey and Pelletier, 2011; Pelletier, Menon, et al., 2011).

Glasgow and Schrecker (2015) highlighted the influence that one global frame of nutrition-related NCDs that demonstrates atomistic behavioralism has had on subsequent highly visible global initiatives and action plans to address them. This frame has led to the promotion of individual behavior change as interventions and of biological indicators to monitor progress. Contrastingly, the global frame of the double burden of malnutrition usually includes biological,

environmental, and socioeconomic drivers, and as a result, suggests multisectoral efforts to implement biological and systemic interventions to address them through double duty actions (WHO, 2017; Shrimpton et al., 2016).

While India's constitutional structure allows Tamil Nadu some freedom in policy agenda-setting that may not be transferable to some other LMIC settings, this study provides several important lessons that can be applied to other LMIC subnational settings attempting to move new issues onto the policy agenda. Our research supports previous work that has demonstrated the critical importance of consistent and coherent framing in shaping a narrative that resonates with policymakers and the public. Motivating these two audiences can support the translation of political priority to political commitment through the increased pressure brought on by a strong narrative. We have also demonstrated the usefulness of taking advantage of the political and economic commitment established through devotion of power and resources for particular issues to provide a vehicle of sorts for that narrative. Finally, this research supports previous work that examines the impact of key actors in pushing an agenda and a narrative, and the potential consequences of not devoting the time or resources to develop those key actors or champions. For nutrition policies to be oriented toward the double burden of malnutrition in settings for which policy space is already occupied by alternative public health issues, strong and charismatic protagonists must be developed who are cognizant of the power and resources present for other issues and are capable of harnessing them to the double burden, are able to communicate and promote clear messages, and are identifiable as knowledge authorities.

Future research should examine strategies to align global frames of the double burden with national and subnational frames in LMICs and include awareness of the role of social constructions of the disease, risk factors and target populations for nutrition-related NCDs on nutrition agenda setting. Future research should also attempt to discover if and why double burden framing carries greater resonance with stakeholders than framing of nutrition-related NCDs. Comparison of the two frames of malnutrition could yield additional important information about strategies to orient nutrition policy agendas toward addressing the double burden of malnutrition in LMICs.

REFERENCES

2016 Global Nutrition Report: From Promise to Impact: Ending Malnutrition by 2030.

2020 Global Nutrition Report: Action on equity to end malnutrition. Bristol, UK: Development Initiatives.

A4NH Research Flagships. https://a4nh.cgiar.org/our-research/research-flagships/

Adair, L.S., Fall, C.H., Osmond, C., Stein, A.D., Martorell, R., Ramirez-Zea, M., et al. (2013). Associations of linear growth and relative weight gain during early life with adult health and human capital in countries of low and middle income: findings from five birth cohort studies. *Lancet*, *382*(9891),525–34.

Aiyappan, A. Tamil Nadu. Encyclopedia Britannica. Encyclopedia Britannica, inc. March 18, 2020.

Bacchi, C.L. (2009). *Analysing policy: what's the problem represented to be?* Frenchs Forest, NSW: Pearson.

Béland, D. and Howlett, M. (2016). The Role and Impact of the Multiple-Streams Approach in Comparative Policy Analysis. *Journal of Comparative Policy Analysis: Research and Practice*, *18*:3, 221-227. https://doi: 10.1080/13876988.2016.1174410

Benford, R.D., Snow, D.A. (2000). Framing Processes and Social Movements: An Overview and Assessment. *Annual Review of Sociology*, *26*(1),611–39.

Black, R.E., Victora, C.G., Walker, S.P., Bhutta, Z.A., Christian, P., Onis, M.D., et al. (2013). Maternal and child undernutrition and overweight in low-income and middle-income countries. *Lancet*, *382*(9890),427–51.

Carvalho, N., Thacker, N., Gupta, S.S., Salomon, J.A. (2014). More Evidence on the Impact of India's Conditional Cash Transfer Program, Janani Suraksha Yojana: Quasi-Experimental Evaluation of the Effects on Childhood Immunization and Other Reproductive and Child Health Outcomes. *PLoS ONE, 9*(10).

Chadha, A., Mehdi, A., and Malik, G. (2007). Impact of Preventive Health Care on Indian Industry and Economy. Indian Council for Research on International Economic Relations, New Delhi Working Papers, Indian Council for Research on International Economic Relations, New Delhi, India. https://EconPapers.repec.org/RePEc:ind:icrier:198

Charmaz, K. (2006). Constructing grounded theory: A practical guide through qualitative analysis. SAGE.

Charmaz, K. (2008). Constructivist and Objectivist grounded theory. In N.K. Denzin & Y. Lincoln (Eds.) *Handbook of qualitative research* (2nd ed., pp. 509-535). SAGE.

Clark, T.W. (2002). The policy process: a practical guide for natural resource professionals. Yale University Press.

Corbin, J.M., Strauss, A.L. (2008). Basics of qualitative research. SAGE.

Corsi, D.J., Finlay, J.E., Subramanian, S.V. (2011). Global Burden of Double Malnutrition: Has Anyone Seen It? *PLoS ONE, 6*(9).

Crichton, J. (2008). Changing fortunes: analysis of fluctuating policy space for family planning in Kenya. *Health Policy and Planning, 23*(5), 339–50.

Desai, S., Vanneman, R. (2015, August 5). Enhancing Nutrition Security via India's National Food Security Act: Using an Axe instead of a Scalpel?. In India Policy Forum:[papers]. India Policy Forum. Conference. *11, 67.* NIH Public Access.

Determinants of Health. (2008). Closing the Gap in a Generation: Health equity through action on the social determinants of health (final report). World Health Organization, Geneva.

Drewnowski, A., & Popkin, B.M. (1997). The Nutrition Transition: New Trends in the Global Diet. *Nutrition Reviews, 55*(2), 31-43.

151

Dutta, M., Selvamani. Y., Singh, P., Prashad, L. (2019). The double burden of malnutrition among adults in India: evidence from the National Family Health Survey-4 (2015-16). *Epidemiology and Health*, *41*, Article e2019050. https://doi:10.4178/epih.e2019050.

Entman, R.M. (1993). Framing: Toward Clarification of a Fractured Paradigm. *Journal of Communication*, *43*(4), 51-58.

Faizi, N., Khan, Z., Khan, I.M., Amir, A., Azmi, S.A., Khalique, N. (2016). A study on nutritional status of school-going adolescents in Aligarh, India. *Tropical Doctor*. *47*(3),212–6.

FAO, IFAD, UNICEF, WFP and WHO. (2019). The State of Food Security and Nutrition in the World 2019. Safeguarding against economic slowdowns and downturns. Rome, FAO.

FAO, WHO. (2014). Second International Conference on Nutrition (ICN2). Rome Declaration on Nutrition. http://www.fao.org/3/a-ml542e.pdf

Freire, W.B., Silva-Jaramillo, K.M., Ramírez-Luzuriaga, M.J., Belmont,. P, Waters, W.F. (2014). The double burden of undernutrition and excess body weight in Ecuador. *American Journal of Clinical Nutrition*, *100*(6).

Frieden, T.R. (2014). Six components necessary for effective public health program implementation. *American Journal of Public Health*, *104*(1), 17-22.

Garrett, J., ed.; Natalicchio, M.,ed. (2011). Working multisectorally in nutrition: Principles, practices, and case studies. IFPRI Research Monograph. Washington, D.C.: International Food Policy Research Institute (IFPRI). http://dx.doi.org/10.2499/9780896291812

Gillespie, S., and Haddad, L. (2001). Attacking the double burden of malnutrition in Asia and the Pacific. Asian Development Bank, Manila, Philippines. International Food Policy Research Institute, Washington, D.C.

Gillespie, S., and Haddad, L. (2003). The double burden of malnutrition in Asia: Causes, Consequences, and Solutions. Sage.

Gillespie, S. and Haddad L. (2014). The double burden of malnutrition in SE Asia and the Pacific: priorities, policies and politics. *Health Policy and Planning*, *30*(9), 1193-1206.

Gillespie, S., Haddad, L., Mannar, V., Menon, P., Nisbett, N. (2013). Maternal and Child Nutrition Study Group. The politics of reducing malnutrition: building commitment and accelerating progress. *Lancet*, *382*(9891), 552-569. https://doi:10.1016/S0140-6736(13)60842-9

Gillespie, S., ed.; Hodge, J., ed.; Yosef, S., ed.; and Pandya-Lorch, R., ed. (2016). Nourishing millions: Stories of change in nutrition. Washington, D.C.: International Food Policy Research Institute (IFPRI). http://dx.doi.org/10.2499/9780896295889

Gillespie, S. & van den Bold, M. (2015). Stories of change in nutrition: A tool pool. IFPRI Discussion Paper 1494. Washington, D.C.: International Food Policy Research Institute (IFPRI). http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/130077

Glaser, B. and Strauss, A. (1967). Discovery of grounded theory. Strategies for qualitative research. Sociology Press.

Glasgow, S., Schrecker, T. (2015). The double burden of neoliberalism? Noncommunicable disease policies and the global political economy of risk. *Health & Place*, *34*,279–86.

Glassman, A., Duran, D., Fleisher,. L, Singer, D., Sturke, R., Angeles, G., Charles, J., Emrey, B., Gleason, J., Mwebsa, W., Saldana, K. (2013). Impact of conditional cash transfers on maternal and newborn health. *Journal of health, population, and nutrition*, 31(4 Suppl 2),S48.

Global Alliance for Improved Nutrition. (2015). Why we need to care about the double burden of malnutrition. https://www.gainhealth.org/knowledge-centre/accountable-double-burden-malnutrition/Fworld

Global Hunger Index (2019). *2018 GHI Results*. https://www.globalhungerindex.org/results.html

Global Nutrition Summit. 2017. https://nutritionforgrowth.org/global-nutrition-summit-2017/

Goffman, E. (1974). Frame Analysis: An Essay on the Organization of the Experience. Harper Row.

Gopalakrishnan, S. (2011). Census of India 2011. Provisional Population Totals: Rural-Urban Distribution. Tamil Nadu. Paper 2, Volume 1 of 2011. Series 34. http://censusindia.gov.in/2011-prov-results/paper2/data_files/tamilnadu/Tamil%20Nadu_PPT2_Volume1_2011.pdf

Government of Tamil Nadu. (2017). https://www.tn.gov.in/tamilnadustate

Grindle, M.S., Thomas, J.W. (1991). Public choices and policy change: the political economy of reform in developing countries. The Johns Hopkins University Press.

Gross State Domestic Product at Current Prices; Base Year 2011–12, Government of India, Ministry of Statistics and Programme Implementation, http://mospi.nic.in/sites/default/files/press_releases_statements/State_wise_SDP_01_08_2019_for_uploading.xls

Gulati, S., Misra, A., Colles, S., et al. (2013). Dietary intakes and familial correlates of overwight/obesity: a four cities study in India. *Annals of Nutrition and Metabolism*, *62*, 279-90.

Haddad, L. (2011). Why India needs a national nutrition strategy. *British Medical Journal, 343,* d6687.

Haddad L, Cameron L, Barnett I. (2014). The double burden of malnutrition in SE Asia and the Pacific: priorities, policies and politics. *Health Policy and Planning, 30*(9),1193–206.

Hawkes, C., Ruel, M., Salm, L., et al. (2019). Double-duty actions: seizing programme and policy opportunities to address malnutrition in all its forms. *Lancet* Series on Double Burden of Malnutrition, *395*(10218), 142-155. https://doi.org/10.1016/S0140-6736(19)32506-1

Heaver, R. (2003). *India's Tamil Nadu Nutrition Program: Lessons and Issues in Management and Capacity Development*. Health, Nutrition, and Population Discussion Paper. The World Bank. Washington, D.C.

Heaver, R. (2005). Strengthening Country Commitment to Human Development: Lessons from Nutrition. The World Bank. Washington, D.C.

High Level Panel of Experts on Food Security and Nutrition. (2017). *Nutrition and food systems. A report by the High-Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security*. Rome.

Independent Group of Scientists appointed by the Secretary-General, Global Sustainable Development Report 2019: The Future is Now – Science for Achieving Sustainable Development, (United Nations, New York, 2019).

International Food Policy Research Institute. (2014). Global Nutrition Report 2014: Actions and Accountability to Accelerate the World's Progress on Nutrition. Washington, DC.

International Institute for Population Sciences (IIPS) and ICF. (2017). *National Family Health Survey (NFHS-4), India, 2015-16: Tamil* Nadu. Mumbai: IIPS.

Jeyaranjan, J. (2011, October 22). Women and pro-poor policies in rural Tamil Nadu: An examination of practices and responses. *Economic & Political Weekly*, 22,64-74.

Jha, R., Bhattacharyya, S., Gaiha, R. (2011). Social safety nets and nutrient deprivation: An analysis of the National Rural Employment Guarantee Program and the Public Distribution System in India. *Journal of Asian Economics*, 22(2),189-201.

Kalaiyarasan, A. (2014). A comparison of Developmental Outcomes in Gujurat and Tamil Nadu. *Economic & Political Weekly*, 69(15), 55-63.

Kim, S.H., Carvalho, J.P., Davis,. AC. (2010). Talking about poverty: News framing of who is responsible for causing and fixing the problem. *Journalism & Mass Communication Quarterly*, 87(3-4),563-81.

Kingdon, J. (2010). Agendas, alternatives and public policies, 2nd ed. HarperCollins College Publishers.

Kohli, N., Nguyen. P.H., Avula, R., Tran, L.M., and Menon, P. (2017). *Improving Nutrition in Jharkhand: Insights from Examining Trends in Outcomes, Determinants and Interventions between 2006 and 2016.* POSHAN Policy Note #8. New Delhi: International Food Policy Research Institute.

Kozuki, N., Katz, J., Lee,A.C.C., Vogel, J.P., et al. (2015). Short maternal stature increases risk of small-for-gestational-age and preterm births in low- and middle-income countries: individual participant data meta-analysis and population attributable fraction. *Journal of Nutrition, 145,*2542–50.

155

Kulkarni, V.S., Kulkarni, V.S., Gaiha, R. (2017). "Double Burden of Malnutrition" Reexamining the Coexistence of Undernutrition and Overweight Among Women in India. *International Journal of Health Services.*, *47*(1),108-33.

Lachat, C., Otchere, S., Roberfroid, D., Abdulai, A., Seret, F.M., Milesevic, J., Xuereb, G., Candeias, V., Kolsteren, P. (2013). Diet and physical activity for the prevention of noncommunicable diseases in low-and middle-income countries: a systematic policy review. *PLoS medicine*, *10*(6).

Lamstein, S., Pomeroy-Stevens, A., Webb, P., Kennedy, E. (2016). Optimizing the Multisectoral Nutrition Policy Cycle: A Systems Perspective. *Food and Nutrition Bulletin*, *37*(4S), S107-S114.

Lapping, K., Frongillo, E.A., Studdert, L.J., Menon, P., Coates, J., Webb, P. (2012). Prospective analysis of the development of the national nutrition agenda in Vietnam from 2006 to 2008. *Health Policy and Planning*, *27*, 32–41.

Lapping, K., Frongillo, E.A., Nguyen, P.H., Coates, J., Webb, P., Menon, P. (2014). Organizational factors, planning capacity, and integrational challenges constrain provincial planning processes for nutrition in decentralizing Vietnam. *Health Policy and Planning*, *35*(3), 382-391.

Levinson, F. J. and Balarajan, Y. (August, 2013). 'Addressing Malnutrition Multisectorally: What have we learned from recent international experience?', UNICEF Nutrition Working Paper, UNICEF and MDG Achievement Fund, New York.

Leroy, J.L., Frongillo, E.A. (2019). Perspective: what does stunting really mean? A critical review of the evidence. *Advances in Nutrition. 10*(2),196-204.

Maxwell, J.A. (2011). Realist Approach for Qualitative Research. Sage.

Mejia Acosta, A. and Fanzo, J. (2012). Fighting maternal and child malnutrition: analysing the political and institutional determinants of delivering a national multisectoral response in six countries. A synthesis paper, Institute of Development Studies, Brighton, UK.

Menon, P., Frongillo, E.A., Pelletier, D.L., et al. (2011). Assessment of epidemiologic, operational, and sociological domains for mainstreaming nutrition. *Food and Nutrition Bulletin, 32,* 2(supplement), S105-S114.

Menon, P., Mani, S., and Nguyen, P.H. (2017). How are India's Districts Doing on Maternal, Infant and Young Child Nutrition? Insights from the National Family Health Survey-4. POSHAN Data Note #1. New Delhi, India: International Food Policy Research Institute.

Menon, P., Mani, S., and Nguyen, P.H. (2017). How are India's Districts Doing on Nutrition-Related Non-Communicable Diseases? Insights from the National Family Health Survey-4. POSHAN Data Note #2. New Delhi, India: International Food Policy Research Institute.

Menon, S., Peñalvo, J.L. (2020). Actions Targeting the Double Burden of Malnutrition: A Scoping Review. *Nutrients, 12*(1), 81.

Michaud-Letourneau, I. and Pelletier, D.L. (2017). Perspectives on the coordination of multisectoral nutrition in Mozambique and an emerging framework. *Food Policy, 70*, 84-97.

Misra, A., Vikram, N.K. (2004). Insulin resistance syndrome (metabolic syndrome) and obesity in Asian Indians: evidence and implications. *Nutrition, 20*(5),482-91.

Mobile Medical Units (MMUs). National Health Mission. Ministry of Health & Family Welfare, Government of India. http://nhm.gov.in/nrhm-components/health-systems-strengthening/mmus.html

Monteiro, C.A., Moura, E.C., Conde, W.L., Popkin, B.M. (2004). Socioeconomic status and obesity in adult populations of developing countries: a review. *Bulletin of the World Health Organization, 82*,940-6.

Muraleedharan, V.R., Dash, U., Gilson, L. (2011). from Chapter 6. pp.159–192. From Balabanova, D., McKee, M., and Mills, A. (eds). *'Good health at low cost' 25 years on. What makes a successful health system?* London School of Hygiene and Tropical Medicine.

National Health Portal: Janani Suraksha Yojana. Government of India. https://www.nhp.gov.in/janani-suraksha-yojana-jsy-_pg

National Nutrition Strategy (September 2017). NITI Aayog. http://niti.gov.in/writereaddata/files/document_publication/Nutrition_Strategy_Booklet.pdf

NCD Global Monitoring Framework. https://www.who.int/nmh/global_monitoring_framework/en/

Nilsson, M., Griggs, D., Visbeck, M. (2016). Policy: map the interactions between Sustainable Development Goals. *Nature*, *534*(7607), 320-2.

Nisbet, M.C. (2009). Communicating Climate Change: Why Frames Matter for Public Engagement. *Environment: Science and Policy for Sustainable Development*, *51*(2),12-23.

Nisbett, N.A. (2017). Narrative Analysis of the Political Economy Shaping Policy on Child Undernutrition in India. *Development and Change, 48*,312–338.

Palinkas, L.A., Horwitz, S.M., Green, C.A., et al. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research, 42,* 533-544.

Patashnik, E. (2008). Reforms at risk: what happens after major policy changes are enacted. Princeton University Press.

Patton, M.Q. (2002). Qualitative Research & Evaluation Methods (3rd ed.) Sage.

Pelletier, D., Menon, P., Ngo, T., Frongillo, E., and Frongillo, D. (2011). The Nutrition Policy Process: The Role of Strategic Capacity in Advancing National Nutrition Agendas. *Food and Nutrition Bulletin*, *32,* S59-69. https://doi:10.1177/15648265110322S203.

Pelletier, D.L., Frongillo, E.A., Gervais, S., Hoey, L., Menon, P., Ngo, T., Stoltzfus, R., Ahmed, A., Ahmed, T. (2011). Nutrition agenda setting, policy formulation and implementation: Lessons from the Mainstreaming Nutrition Initiative. *Health Policy and Planning*. doi: 10.1093/heapol/czr011

Popkin, B.M. (1994). The nutrition transition in low-income countries: an emerging crisis. *Nutrition reviews*, *52*(9),285-98.

Popkin, B.M. (1996). Understanding the nutrition transition. *Urbanisation and health newsletter*, *30*,3.

Popkin, B.M. (2003). The nutrition transition in the developing world. *Development policy review,21*(5-6),581-97.

Popkin, B.M. (2006). Global nutrition dynamics: the world is shifting rapidly toward a diet linked with noncommunicable diseases. *Journal of Clinical Nutrition, 84*(2),289–98.

Popkin, B.M, Adair, L.S, Ng, S.W. (2012). Global nutrition transition and the pandemic of obesity in developing countries. *Nutrition reviews, 70*(1),3-21.

Popkin, B.M. (2017). Relationship between shifts in food system dynamics and acceleration of the global nutrition transition. *Nutrition Reviews, 75*, 73–82.

Popkin, B., Corvalan, C., Grummer-Strawn, L.M. (2020) Dynamics of the double burden of malnutrition and the changing nutrition reality. *Lancet Series, 395*(10217), 65-74.

Pradeilles, R., Baye, K., & Holdsworth, M. (2019). Addressing malnutrition in low- and middle-income countries with double-duty actions. *Proceedings of the Nutrition Society, 78*(3), 388-397. doi:10.1017/S0029665118002616

Prentice, A.M. (2006). The emerging epidemic of obesity in developing countries. *International Journal of Epidemiology*, 35(1), 93-9.

Program Implementation Plan. 2012-13. State Health Society Tamil Nadu. http://www.nrhm.gov.in/pip/pip12_13.pdf

Ramachandran, P. (2006). The double burden of malnutrition in India. *FAO: Food and Nutrition Paper (84):* The double burden of malnutrition – Case studies from six developing countries.

Ramachandran P. (2019). School mid-day meal programme in India: Past, present, and future. *The Indian Journal of Pediatrics, 1*,1-6.

Ramakrishnan, U., Lowe, A., Vir, S., et al. (2012). Public health interventions, barriers, and opportunities for improving maternal nutrition in India. *Food and Nutrition Bulletin, 33*(2), S71-S92.

Ravishankar, A.K. (2012). Is India shouldering a double burden of malnutrition? *Journal of Health Management, 14*(3),313-28.

Research on ICDS: An Overview (1996-2008) Volume 3. (2009). National Institute of Public Cooperation and Child Development. http://nipccd.nic.in/reports/icdsvol3.pdf.

Road map for SUN. (2010). http://scalingupnutrition.org/wp-content/uploads/pdf/SUN_Road_Map.pdf

Scaling Up Nutrition: Guidance Note: 22ⁿᵈ SUN Movement Country Network Meeting (25-29 January 2016). http://docs.scalingupnutrition.org/wp-content/uploads/2015/12/Concept-Note-on-National-Targets-and-Commitments-to-Actions.pdf

SUN Movement and Strategy and Road Map. (2016). http://sun-csn-assets.s3.amazonaws.com/resources/files/000/000/005/original/SUNRoadmap.pdf

Schneider, A., Ingram, H. (1993). Social construction of target populations: Implications for politics and policy. *American Political Science Review*, *87*(2),334-47.

Sengupta, A., Angeli, F., Syamala, T..S, Van Schayck, C.P., Dagnelie, P. (2014). State-wise dynamics of the double burden of malnutrition among 15–49 year-old women in India: how much does the scenario change considering Asian population-specific BMI cut-off values?. *Ecology of Food and Nutrition*, *53*(6),618-38.

Shankar, B., Agrawal,. S, Beaudreault, A.R., Avula, L., Martorell, R., Osendarp, S., Prabhakaran, D., Mclean, M.S. (2017). Dietary and nutritional change in India: implications for strategies, policies, and interventions. *Annals of the New York Academy of Sciences*, *1395*(1),49-49.

Shiffman, J. (2007). Generating political priority for maternal mortality reduction in 5 developing countries. *American Journal of Public Health*, *97*(5), 796–803. https://doi.org/10.2105/AJPH.2006.095455

Shiffman, J. and Smith, S. (2007). Generation of political priority for global health initiatives: a framework and case study of maternal mortality. *Lancet*, *370*,1370–9.

Shrimpton, R.; Mbuya, N.V., Provo, A.M. (2016). The Double Burden of Malnutrition in East Asia and the Pacific : Evidence and Lessons for a Multisectoral Response. Health, Nutrition and Population Discussion Paper;. The World Bank, Washington, DC. https://openknowledge.worldbank.org/handle/10986/26102 License: CC BY 3.0 IGO.

Srinivasan, V. (2010). *Understanding Public Services in Tamil Nadu: An Institutional Perspective* [Doctoral dissertation, University of Syracuse, New York].

Swaminathan, S. et al. The burden of child and maternal malnutrition and trends in its indicators in the states of India: The Global Burden of Disease Study 1990–2017.

Swinburn, B.A., Kraak, V.I., Allender, S., et al. (2019). The Global Syndemic of Obesity, Undernutrition, and Climate Change: The Lancet Commission report. *Lancet, 393*, 791–846.

Tamil Nadu State Human Development Report (2017). http://www.spc.tn.gov.in/TNHDR2017/chapter1.pdf

The Eat Right Movement. Eat Right India. (https://eatrightindia.gov.in/index)

Thow, A.M., Kadiyala, S., Khandelwal, A., et al. (2016). Toward Food Policy for the Dual Burden of Malnutrition: An Exporatory Policy Space Analysis in India. *Food and Nutrition Bulletin, 37*(3), 261-274.

UNICEF (2019). The State of the World's Children 2019. Children, Food and Nutrition: Growing well in a changing world. UNICEF, New York.

United Nations Decade of Action on Nutrition: Towards Country-Specific SMART Commitments for Action on Nutrition. http://www.fao.org/3/a-i6130e.pdf

Universal PDS won't be tampered with, says T.N. Food Minister. The Hindu, July 31, 2017. http://www.thehindu.com/news/national/tamil-nadu/universal-pds-wont-be-tampered-with-says-tn-food-minister-r-kamaraj/article19397954.ece

Unknown author. (2020, January 2). Is rural India 100% open defecation-free like Swachh Bharat data concludes? *The Hindu*. https://www.thehindu.com/data/data-mismatch-is-rural-india-100-open-defecation-free-like-swachh-bharat-data-concludes/article30460909.ece

Unknown author. (2017). Strategic Action Plan to reduce the double burden of malnutrition in the South-East Asia Region 2016–2025. World Health Organization. https://apps.who.int/iris/handle/10665/253377.

Unknown author. n.d. Rajiv Gandhi Scheme for Empowerment of Adolescent
    Girls (RGSEAG-SABLA). (https://icds.tn.nic.in/sabla.html)

Victora, C.G., Adair, L., Fall, C., et al. (2008). Maternal and child undernutrition:
    consequences for adult health and human capital. *Lancet, 371*, 340-57.

Vora, K.S., Koblinsky,. SA., and Koblinsky, M.A. (2015). Predictors of maternal
    health services utilization by poor, rural women: a comparative study in
    Indian States of Gujarat and Tamil Nadu. *Journal of Health, Population and
    Nutrition*, *33*(9).

Walt, G. and Gilson, L. (1994). Reforming the health sector in developing
    countries: the central role of policy analysis. *Health Policy and Planning, 9,*
    353–70.

Weaver, D.H. (2007). Thoughts of Agenda Setting, Framing, and Priming. *Journal
    of Communication*, *57*,142-147.

Willet, W., Rockström, J., Loken, B., et al. (2019). Food in the Anthropocene:
    the EAT-Lancet Commission on healthy diets from sustainable
    food systems. *Lancet, 393*, 447–92.

World Bank. (2006). Repositioning Nutrition as Central to Development : A
    Strategy for Large Scale Action. The World Bank: Washington, DC.
    https://openknowledge.worldbank.org/handle/10986/7409 License: CC
    BY 3.0 IGO

World Food Programme. (2017). The cost of the double burden of malnutrition.
    https://docs.wfp.org/api/documents/WFP-0000110372/download/

World Health Assembly Resolution A68/8. Outcome of the Second International
    Conference on Nutrition. (24 April 2015).
    http://apps.who.int/gb/ebwha/pdf_files/WHA68/A68_8 - en.pdf

World Health Organization – WHO Comprehensive Implementation Plan. 2014.
    https://apps.who.int/iris/bitstream/handle/10665/113048/WHO_NMH
    _NHD_14.1_eng.pdf?ua=1

World Health Organization (2014). WHO Global Status Report on non-
    communicable diseases.

World Health Organization (2017). Double-duty actions. Policy brief.

World Health Organization The double burden of malnutrition fact page. https://www.who.int/nutrition/double-burden-malnutrition/en/

World Health Organization (2017). The double burden of malnutrition. Policy brief.

World Health Organization (2011). Global status report on noncommunicable diseases.

World Health Organization Commission on Ending Childhood Obesity. (2016). Report of the commission on ending childhood obesity.

World Health Organization. (2004). Appropriate body-mass index for Asian populations and its implications for policy. *Lancet, 363*(9403),157–163.

Yates-Doerr E. (2016). Chapter 13: Complex carbohydrates: the relevance of ethnography in nutrition education. Abbots, Emma-Jayne, and Lavis, Anna, eds. Critical Food Studies : Why We Eat, How We Eat : Contemporary Encounters between Foods and Bodies. Routledge.

Yates-Doerr E. (2015). Intervals of confidence: Uncertain accounts of global hunger. *Biosocieties. 10*(2), 229-246.

Yates-Doerr E. (2012). The Opacity of Reduction: Nutritional Black-Boxing and the Meanings of Nourishment. *Food, Culture, and Society, 15*(2), 293-313.

Yin, R.K., Campbell, D.T. (2018). Case study research and applications: design and methods. SAGE.

APPENDIX A

INTERVIEW GUIDE

(STATE NUTRITION AND HEALTH POLICY ACTORS)

Hello, my name is Shilpa Vimalananda. I am a student at the University of South Carolina. Thank you for agreeing to this interview. I am here to learn about how different people think about the health of people in Tamil Nadu. Tamil Nadu is a state that has performed better than most states in India with respect to health and development indicators, and provides an opportunity to understand what contributes to that performance. Given your role as _____, I would like to know your thoughts on these issues. To help me document well, I will be asking some questions and taking notes. As I would like to get all of your inputs accurately recorded, it would be helpful if I could record our conversation. Please feel free to ask questions at any point during the interview.

Do you agree for the interview to be audio-recorded?

Do you have any questions for me before we begin?

<u>Interview Questions:</u>

<u>I would like to ask you questions about the health of people in Tamil Nadu.</u>

1. What are the current main health challenges faced by the people of Tamil Nadu? Has that changed over the last 10 years?

- *probe about sanitation here if they bring it up. If not, discuss after question*

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2. Data show major improvements in addressing malnutrition in India, however anemia and stunting burden are still high across the country. We see a similar situation in Tamil Nadu. Why do you think we are still seeing these problems in Tamil Nadu?

3. Rates of heart disease, diabetes, hypertension, and obesity have been rising in India. Do you think this is an issue in Tamil Nadu as well?

    a. If yes, why do you think we are seeing these problems in Tamil Nadu?

    b. If yes, what do you think are or might be the most effective ways to prevent and treat health problems like overweight/obesity, diabetes, hypertension and heart disease in Tamil Nadu?

    c. If no, why do you think we are not seeing these problems in Tamil Nadu?

4. The most recent NFHS-4 data show that some places in Tamil Nadu have high rates of stunting, wasting, or underweight at the same time as high rates of problems like heart disease, diabetes, hypertension, and obesity. For example, one district[1] has 30% stunting of children under 5 and about 30% overweight or obesity in adults. Another district[2] has more than 30% underweight in children under 5 and 13% high blood sugar in men. Do you think these kinds of problems are related? Why or why not?

    a. Do you think that there are or could be policies or other actions that can be used to address both kinds of issues?

    b. If so, what are they? If not, why not?

    c. If so, to whom should they be targeted?

    d. If so, who do you think *should* take responsibility for addressing both problems simultaneously? Why?

Now I am going to ask you some questions about programs and interventions in Tamil Nadu.

---

[1] Tirunelveli

[2] Tiruvannamalai

5. Tamil Nadu has seen improvements in the coverage of several interventions during pregnancy, delivery and infancy between 1990s and 2005, but in the last one decade there has been a decline in the use of antenatal care, a big drop in the coverage of neonatal tetanus, and in postnatal care of women. There has been decline in child immunization as well. What do you think are the drivers for such changes?

    a. The Maternity Benefit Scheme is a conditional cash transfer scheme for women below the poverty line that provides incentive to each woman to attend antenatal care, receive a tetanus vaccine, deliver in a clinic, and have child immunization. How is the Maternity Benefit Scheme working in Tamil Nadu?

    b. (optional, if they do not talk about this earlier) The amount of incentive in Tamil Nadu rose in the last 10 years from Rs.500 to Rs.12000, yet we see a reverse trend in antenatal care and child immunization. Why might this be happening?

        i. Are there other reasons besides the Maternity Benefit Scheme?

6. Data show that institutional deliveries have increased to near 100% over the last decade and breastfeeding counseling has also increased, but both early initiation of breastfeeding and exclusive breastfeeding are still close to only 50%. Why might that be?

7. How has the universal Public Distribution Program been working in Tamil Nadu?

    a. How has the PDS in Tamil Nadu changed over time?

    b. Do you think that the PDS has influenced dietary behavior in Tamil Nadu?

    c. Another program that offers subsidized food in the state is the Amma Unavagam (canteens) program? What role has that program played in Tamil Nadu? Do you think it has influenced dietary behavior?

8. While there have been major improvements in sanitation over the last two decades, open defecation is still over 50% in the state. Can you think of any programs that have been effective in decreasing open defecation or improving hygiene?

   a. What are some reasons that progress in decreasing open defecation has not been more rapid as with other indicators of development (like increasing access to electricity and decreasing the number of families below the poverty line)?

9. Can the changes that we have discussed in health and nutrition be attributed to any other specific actions (or changes in policies or programs) taken? If so, which actions and by whom were then taken?

Is there anything else you think that you would like to add about the health and nutrition challenges in Tamil Nadu?

Is there anyone else that you recommend that I speak to about these issues?

Is there any documentation that you are aware of, relevant to these issues that I should look at?

Thank you for sharing your experiences and insights from working to improve people's health in Tamil Nadu. The information you have shared with us will be valuable in understanding the perspectives of those whose work may influence health and nutrition policy and programs.

It is possible, if you agree, that I may need to contact you again to follow-up on something that we discussed or if another question arises. Is it alright if I contact you again in the near future?

(If yes): Would you prefer to be contacted via telephone, email, or another method?

(If no): I understand, and thank you for your participation during this interview.

APPENDIX B

INTERVIEW GUIDE

(NATIONAL NUTRITION AND HEALTH POLICY ACTORS)

Hello, my name is Shilpa Vimalananda. I am a PhD student at the University of South Carolina. I am studying the way that malnutrition is framed in India, how those frames are reflected in health and nutrition policy and program discourse, and how we can learn from the successes in framing undernutrition in policy discourse in the last 3 decades. Thank you for agreeing to this interview.

Given your expertise, I would like to ask you to talk to me about the way the discussion around malnutrition has changed over time and how that has been reflected in policies and programs.

Do you agree for the interview to be audio-recorded?

Do you have any questions for me before we begin?

<u>Interview Questions:</u>

1. How is undernutrition currently framed in India? Has that frame changed over time?

2. How is the rise in diet-related NCDs framed in India? Has that frame changed over time?

3. The most recent NFHS-4 data show that some places in India have high rates of stunting, wasting, or underweight at the same time as high rates of problems like heart disease, diabetes, hypertension, and obesity.

   a. Do you think these kinds of problems are related? Why or why not?

    b. Do you think that there are or could be policies or other actions that can be used to address both undernutrition and diet-related NCDs?

        i. If so, what are they? If not, why not?

        ii. If so, to whom should they be targeted?

        iii. Who do you think *should* take responsibility for addressing all forms of malnutrition?

    c. How has the way that people think about co-occurring undernutrition and diet-related NCDs changed over time?

    d. Do you see differences in frames of co-occurring undernutrition and diet-related NCDs used by different types of policy actors or disciplines?

    e. Which frame(s) do you see as most likely to inform successful policies to address all forms of malnutrition?

    f. Which frame(s) do you see as least likely to inform successful policies to address all forms of malnutrition?

4. In your experience with programs and interventions targeting undernutrition in India, can you tell me a story of success?

    a. What factors led to that success?

    b. What kinds of frames were constructive in achieving that success?

    c. What can we learn from the way undernutrition has been framed in India that we can apply to addressing all forms of malnutrition?

5. Do you do any work in Tamil Nadu?

    a. (If so, follow up with specific questions about trends in undernutrition, NCDs, double burden, and programs/interventions)

    b. (If not, end interview)

Is there anything else that you would like to add about frames of undernutrition, diet-related NCDs, or the co-occurrence of both forms of malnutrition in India?

Is there anyone else that you recommend that I speak to about these issues?

Is there any documentation that you are aware of, relevant to these issues that I should look at?

Thank you for sharing your experiences and insights. The information you have shared with me will be valuable in understanding the perspectives of those whose work may influence health and nutrition policy and programs.

It is possible, if you agree, that I may need to contact you again to follow-up on something that we discussed or if another question arises. Is it alright if I contact you again in the near future?

(If yes): Would you prefer to be contacted via telephone, email, or another method?

 (If no): I understand, and thank you for your participation during this interview.

APPENDIX C

FIELD NOTE TEMPLATE

Participant #: __

Date:

Location:

Data Collector:

    1. Environment
Language spoken:

Area description:

Who is present?

Additional information:

    2. Description of the study participant
Gender:

Occupation:

Organization:

Additional descriptive information:

    3. Methodological observations + reflections

    4. Analytical observations