



Inequalities in Food Security and Nutrition

A Life Course Perspective

Prof. dr Hilde Bras

Inaugural lecture upon taking up the post of Professor of
Sociology of Consumption and Households at Wageningen University
on 4 december 2014



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ISBN 978-94-6257-189-1

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Esteemed Rector Magnificus, dear colleagues, family, friends, ladies and gentlemen,

Introduction

The world faces major challenges to realize food security and nutrition. In 2050, a global population of nine billion people has to be fed within the carrying capacity of the earth. Not surprisingly, food security and nutrition are, as Millennium and post-2015 Sustainable Development Goals, at the top of the global agenda. United Nation's Food and Agriculture Organization speaks of food security when all people at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Food security is a precondition for nutrition security. In order to be nutrition secure, people also need to have access to appropriate care giving practices, health care services, clean water, and sanitation facilities. Malnutrition may thus result from insufficient or deficient food, but can also be the outcome of an unsanitary environment that exposes people to infections leading to poor utilization of the nutrients they consume (FAO, 2013, 1996).

What is the first image that comes to your mind when you think about food insecurity? Hunger caused by droughts and wars? Let me then shortly introduce you to the Aboubakar family of Darfur province, Sudan. In this picture they sit in front of their tent in the Breidjing Refugee Camp in eastern Chad (see Figure 1). The family consists of D'jimia Isakh Souleymane (40 years old) and her five children; on her lap Hawa (2 years old), and then, from left to right, Acha (12 years old), Mariam (5 years old), Youssouf (8 years old), and Abdel Kerim (16 years old). In front of them they have a week's worth of food. The family mostly lives on grains: 18 kg of sorghum and two kg of a corn-soy blend, added by 290 liters of water, provided by the international aid group Oxfam. This is supplemented with some dried goat meat and dried fish, five small limes, two kg of pulses, half a kg of red onions, some garlic, okra, red chili peppers, dried tomatoes, and small portions of sunflower oil, white

sugar, dried pepper, salt, and ginger (Menzel & D'Aluisio, 2008, pp. 32-33). The Aboubakars live at the edge of food security. The quantity of their food may be barely enough, but the diversity of their diet is clearly lacking. Moreover, the harsh weather conditions, disease epidemics, sanitation problems, and water shortages in the camp further jeopardize their nutrition security.



Figure 1. The Aboubakar family of Darfur province (Sudan) in front of their tent in the Breidjing Refugee Camp in eastern Chad, with a week's worth of food. Photo: Peter Menzel/Hollandse Hoogte.

The western world has seen enormous progress in food security and nutrition over the last two centuries. Lives are lengthier and parents no longer see a substantial part of their children die. During the middle of the nineteenth century about one in every four children in the Netherlands died before their fifth birthday (Van Poppel & Mandemakers, 2002). New medicines and treatments, better sanitation, and the introduction of clean water drastically lowered death rates in Europe and North America as of the third quarter of the nineteenth century (Deaton, 2013). Adult height, an indicator of nutritional status during early childhood, has increased spectacularly. A Dutch male born in 1850 became on average 1m and 66 cm tall. Today, an ordinary 34-year old Dutch man measures 1m 83, which amounts to an increase in length of 17 centimeters in 130 years (Schönbeck et al., 2013; Hatton & Bray, 2010).

The Global South has started to experience a similar process during the period since the Second World War. Even in the poorest countries, chances of dying have been

falling. The number of deaths among children younger than five years old has declined from 12 million in 1990 to 6.6 million in 2012, a reduction of almost 50% (You, Wardlaw, Newby, Anthony, & Rogers, 2013). But there are countries that have not caught up as much in reducing child mortality, most notably in west and central Africa. Moreover, about a quarter of all children under the age of five, or 162 million children, are stunted, meaning that they are too short for their age because of malnutrition. Some 56% of them live in Asia and 36% in Africa (WHO, 2013). Not only across world regions, but also within countries gaps are persisting or widening. India, for example, has experienced rapid economic growth during the last decades. While average rates of stunting and underweight have steadily declined, social disparities in childhood undernutrition have broadened or stayed the same (Subramanyam, Kawachi, Berkman, & Subramanian, 2010).

And even in a high-income society, like the Netherlands, where average life expectancy is projected to rise to 82 years for men and 85 years for women in 2030, those with the lowest level of education can expect to live 6 years shorter (RIVM, 2014). Moreover, there is a substantial group of people, 85.000 in 2013, who cannot afford sufficient nutritious food and receive assistance from food banks, and this group is growing (Neter, Dijkstra, Visser, & Brouwer, 2014; Voedselbanken.nl, 2014). The global nutrition transition that is now taking place, involving the spread of high-fat and energy-dense foods for relatively low prices, has created new inequalities in food security and nutrition, often overlapping with older disparities. Overweight and obesity have increased not only among low-income groups in Europe and America, but are also rapidly gaining ground in middle-income countries, such as Indonesia, Brazil, and Mexico, and increasingly in low-income societies as well. Hence, despite overall progress, stark inequalities in food security and nutrition remain extant (IFPRI, 2014; FAO, IFAD, & WFP, 2013).

Who gets what and why? How do inequalities vary across societies and social groups and how do patterns of inequality change over time? What causes these inequalities? And what are their consequences? These are classical sociological questions that form one of the core themes of sociology, that of social stratification (Ultee, Arts, & Flap, 1996; Macionis & Plummer, 1998; Sullivan, 2001). Stratification research has studied inequalities in all major dimensions of well-being: income, occupational status, and educational level. But food security and nutrition, and health in general, are directly constitutive of an individual's well-being (Deaton, 2013; Horton & Steckel, 2011; McGillivray, Dutta, & Markova, 2009). In order to be able to develop one's cognitive skills, to be educated, or to be effectively employed, a good nutritional status is a necessary precondition. Inequalities in food security and nutrition form an important sociological field of study (Murcott, 2002). But, what do we know about it already?

Background

In the 1970s, food security was defined at the macro level as the ability to avoid short term deficits in aggregate food stocks (Pinstrup-Andersen, 2009; Staatz, D'Agostino, & Sundberg, 1990). Economic and agricultural researchers studied aggregate levels of food supply, agricultural production, trade, and policies in order to chart national inequalities in food security. But as global food stores stabilized at more than adequate levels, it became clear that food insecurity was still occurring at the household level, even in the presence of national food security (Gittelsohn, Mookherji, & Pelto, 1998).

A new strand of research followed the introduction of the theoretical model of the household by the 'new household economics' (Becker, 1974, 1981). The household was identified as the place where daily activities are situated, decisions are made, and resources are allocated. The economist Becker and his colleagues thought of the household as a cohesive unit, having a common goal and strategy, a single 'utility function'. Family members were seen as bound by ties of affection, voluntarily pooling resources, and contributing their separate incomes to a common purse. This view gained substantial influence in the social science literature and with international agencies such as the World Bank. Based on household survey data containing measurements of a household's food consumption, a large swath of research investigated cross-household disparities in food security (Molledo et al., 2014; Pinstrup-Andersen, 2009). Using ethnographic and qualitative methodologies, a focus on household food security became also part of anthropological and development studies departing from the concepts of livelihood and livelihood strategies (Ellis, 1998; Chambers & Conway, 1991).

As a result of the rising critique on the assumption of altruism underlying neoclassical household models, bargaining models were proposed, centering on power differences and visualizing household members as bargaining for the best deal (Folbre, 1986), or alternatively, seeing household relations as 'cooperative conflict' (Sen, 1989). Seminal work by Sen (1981) on the phenomenon of the famine, for instance, highlighted the question of differential access to food by household members based on economic, social and cultural factors. Such ideas are at the basis of a large number of studies, conducted by economists, sociologists, and demographers, which focus on intra-household allocation of food and its effects on nutritional status and health (Sahn & Younger, 2009; Plassmann & Norton, 2004; Madise, Matthews, & Margetts, 1999; Behrman, 1997; Zick, 1992). Anthropologists have also intensively studied differential food allocation in households, being particularly interested in food classifications, preferences and prescriptions and their cultural meanings for serving, eating and distribution patterns (Niehof 2010; Den Hartog, van Staveren, &

Brouwer, 2006; Gumerman, 1997; Gittelsohn, 1991; Messer, 1990; Van Esterik, 1985; Goody, 1982; Den Hartog, 1973).

Existing research has generated a wealth of knowledge on countries, households, and individuals at risk for food insecurity and malnourishment in specific contexts and at particular moments in time. Yet, what we know is quite static. Inequalities in food security and nutrition do not remain stable over time. Economic and technological development, social and demographic transformations, climate change, and historical events such as the Ebola crisis or the civil war in Sudan have an impact on people's food security and nutrition and on the inequalities therein. Important changes also occur across the life course, as people age and develop. It has now become increasingly recognized that a child's nutritional status during the first 1,000 days of life – including its intrauterine phase – set the stage for much of its health, cognitive, and social development in adolescence, adulthood, and old age (Hardgrove, Pells, Boyden, & Dorman, 2014; Lawn et al., 2014; Chan, 2014, 2013; Eggersdorfer et al., 2013; UNICEF, 2013). In order to move forward in understanding inequalities in food security and nutrition we need to incorporate time more rigorously in our research questions and designs. To what extent can a life course perspective help us to do so?



Figure 2. A poor girl in India eating watermelon along with her other family who spend their time begging on the streets. Photo: Shutterstock, image number: 30433231.

The life course perspective

The life course perspective, which originated in the 1960s as a response to the social changes of increasingly multicultural and aging western societies, is a theoretical orientation for research centering on the impact of changing societies on developing lives (Elder, Kirkpatrick Johnson, & Crosnoe, 2003; Giele & Elder, 1998; Elder, 1994). It is increasingly used by researchers in a variety of disciplines, including sociologists (Huinink & Kohli, 2014; Elder et al., 2003; Elder, 1994), economists (Behrman et al., 2013; Strauss & Thomas, 2008), nutritionists (Schlüssel, Moura da Silva, Pérez-Escamilla, & Kac, 2013; Sobal & Bisogni, 2009; Wethington & Johnson-Askew, 2009; Rothmann, Gillespie, & Johnson-Askew, 2009; Devine, 2005; Wethington, 2005; Darnton-Hill, Nishida, & James, 2004), and epidemiologists (Kuh & Ben-Shlomo, 2004; Halfon & Hochstein, 2002; Ben-Shlomo & Kuh, 2002; Wadsworth, 1997) addressing a range of demographic and social behaviors, as well as food security and nutrition conducts. The life course approach consists of five interlinked concepts.

A first principle is the idea that human development and aging, whether biological, physiological, psychological, or social, are lifelong processes. While childhood may be the most crucial developmental stage, substantial social changes occur throughout one's life, in health and nutritional status, but also in education, work, and social relationships. The idea of human agency is closely related to this. People age and persist through life by making choices and adapting to their environments in order to meet their needs. They actively make decisions and pursue certain goals: avoiding hunger, seeking work, pursuing an education, setting up a family.

A second aspect is the historical and spatial location of lives. Historical and social changes may first of all cause variation in life courses through so-called cohort effects. A birth cohort is a group of people born during the same period that experiences a historical time period during the same life phase, through which they gain a commonness that remains for the rest of their lives (Ryder, 1965). Men and women who were prenatally exposed to famine during the Dutch Hunger Winter, are found to have higher chances of obesity at age 50 than elderly who were in utero before or after the famine (Ravelli, van der Meulen, Osmond, Barker, & Bleker, 1999). Alternatively, historical change may take the form of a period effect when the influence of time is uniform across age groups. Technological changes, such as the introduction of the internet, for instance, may have the same implications for everyone in the population regardless of people's birth year. Finally, historical time influences lives through age effects, which pertain to the physiological and social effects of ageing.

Life course behaviour takes place in specific contexts that differ in culture, economic circumstances, and social institutions. There are obvious differences in life chances of those born in a western society or in China. But within Chinese society, rural and urban places are very different in the resources and restrictions to which people adapt their behaviours. Cultural contexts, and their norms, values, and practices, regulate life courses and cause particular inequalities. In India, the custom of son preference means that girls have higher chances of nutritional status deficiencies, such as being stunted, than boys do (Fledderjohann et al., 2014).

The principle of linked lives is yet another element. Human lives are interdependent; they are embedded in social relationships across the life span (Hagestad, 2003). In most societies, the family is the most basic social and economic unit, regulating production, distribution and consumption, and fulfilling a caregiving function for children, sick, disabled, and elderly. People also interact with members of other social networks. Housemates, peers, school mates, co-workers and friends are important fellow-travellers over the life course.

To denote temporality, life course researchers use the notion of transitions, or events, which are shifts between one position, or status, and another. Marriage marks for example the transition between singlehood and the married state, and in the same way we may conceptualize transitions in nutritional status or in levels of food insecurity. Duration is used to denote the time that elapses in a certain state, the number of months for instance during which an infant is malnourished. The concept of timing emphasizes the fact that the same events may affect individuals differently depending on when they occur in the life course or how long people remain in a certain state. Childbearing may have detrimental effects on women's lives when it occurs at a very early age, impeding access to education, and labor market participation. The life course consequences of undernourishment depend on at what age it occurs and how long it takes. Timing is also about the fit between one's age and historical change. How does the civil war in Sudan for instance affect the lives of D'jimia Souleymane, her adolescent son Abdel Kerim and the four younger children in different ways?

Transitions and statuses are embedded in trajectories or pathways that give them specific form and meaning. As a consequence of the stability of trajectories over time, advantage or disadvantage may accumulate as people age and develop. The life course can be envisaged as consisting of multiple trajectories in different life domains, pertaining to education, work, family formation, health, nutrition etc. Such parallel pathways are often interwoven and mutually influence each other.

A research agenda

As you may recall from my short summary in the beginning of this lecture, there is little research that examines global inequalities in food security and nutrition from a life course perspective. Conversely, the life course paradigm itself has been mainly applied to the study of human lives in Western societies (Dannefer, 2002, 2003; Hagestad, 2003, but cf. Hardgrove et al., 2014). A life course perspective to inequalities in food security and nutrition advances on previous research by incorporating time, i.e. historical time, biographical time, and timing, more carefully. Simultaneously, it helps testing whether the theoretical principles of the life course paradigm can also be fruitfully applied to analyze life courses in low-income, fragile societies. With what kinds of questions do we hope to be kept busy in the coming years?

Differential pathways of food security and nutrition

A first theme that we hope to investigate in the near future are differential patterns of food use, food security and nutritional status across the life course, starting at birth, and ideally even before that, beginning with the nutritional status of the mother before and during pregnancy. What transitions take place at what ages, and in what order, and what is the duration and severity of food insecurity episodes (Laraia, 2013)? Do we observe different, persistent food security and nutritional status trajectories, measured by individuals' height, weight, micronutrient deficiencies, and by the extent of stunting, wasting, under-, and overweight? At what ages do inequalities start to come into existence, when do they widen or abate, and under what circumstances? A recent study in Brazil found that the relationship between household food insecurity and the propensity of women's excess body weight varied by life course stage. While there was no significant association in childhood, female adolescents from households that were food insecure were about two times more likely to have excess weight compared to their food secure age peers (Schlüssel et al., 2013). Such research shows the complex, shifting inequalities in nutritional status and health as people pass through the life course (Pavalko & Caputo, 2013; Frytak, Harley, & Finch, 2003; Devine, Connors, Bisogni, & Sobal, 1998).

An important task will be to explain why trajectories develop in the way they do. What mechanisms are behind them? A departing point for such explanations is the research by the British physician David Barker who showed in a series of studies in the 1990s that poor maternal nutrition put offspring at a risk for heart disease decades later. Barker formulated this as the principle of biological programming, meaning that the nutritional circumstances of the mother, before and during pregnancy, influenced intrauterine development of the fetus, which set the parameters for health and development in later life (Godfrey & Barker, 2000; Barker,

1994). The Fetal Origins Hypothesis, much like Barker's biological programming principle, claims that nutritional and other stresses during gestation are responsible for chronic, degenerative conditions in adult health, such as heart disease or diabetes 2 (Paul, 2010; Gluckman & Hanson, 2006). Another explanation stresses the cumulative impact of childhood disadvantage over the life course (O'Rand, 1996). It centralizes the socio-economic conditions and household structure of the parental home and how this leads to compromised nutrition and health in later life (Graham & Power, 2004). Previous research has identified several household factors that may result in poor nutritional status, such as low income, low maternal education, and parent's death or migration (Wen & Lin, 2012; Ronsmans, Chowdhury, Dasgupta, Ahmed, & Koblinsky, 2010; Heaton, Forste, Hoffmann, & Flake, 2005; Bronte-Tinkew & DeJong, 2004; Ukwuani & Suchindran, 2003; Griffiths, Matthews, & Hinde, 2002). However, via what pathways such factors drive the linkages between childhood conditions and adult nutrition and health are still empirical questions.



Figure 3. Three local girls selling bananas and peanuts in Barra river port, The Gambia. Photo: Peeter Viisimaa. iStock, image number: 16627785.

The analysis of food security and nutrition trajectories becomes particularly interesting when the interrelationships with social pathways are considered. How do food use and nutrition behavior influence cognitive development and education, labor market participation, the formation of relationships, migration, entry into

parenthood etc., and vice versa? Existing research using a life course perspective has already established that poor nutritional status at age three is linked to lower grade attainment and poorer cognitive skills in adulthood (Hoddinott et al., 2010). Poor health and nutrition impacts children's educational attainment because it reduces their time in school and their learning during that time (Glewwe & Miguel, 2008). A longitudinal study using life course data from four developing countries also showed a link with non-cognitive skills. A higher height-for-age at the age of 7-8 increased self-efficacy, self-esteem, and aspirations at the age of 11-12 (Dercon & Sánchez, 2013; see also Tough, 2012).

One linkage that we plan to investigate further in the coming years is that between food insecurity and child marriage and pregnancy. One in three girls in low- and middle income countries across the world marries before the age of 18 (UNFPA, 2012). Kristel van Anrooij, one of our students, just finished her Master thesis on the life course determinants of child marriage in the Goromonzi district in northern Zimbabwe. Her results, as well as other research, show that poverty and food insecurity in the parental home are one of the main causes of early marriage. For many poor parents, marrying off a daughter at an early age means a mouth less to feed (Van Anrooij, 2014; Hardgrove et al., 2014; Walker, 2012; Singh & Samara, 1996). Child marriage and pregnancy, in turn, directly impact these girls' and their offspring's health. Complications from pregnancy and childbirth are the main cause of death among adolescent girls aged 15-19 in developing countries (UNPF, 2012). Stillbirths and newborn deaths are 50% higher among infants of adolescent mothers than among mothers between the ages of 20 and 29 (UNFPA, 2013). Moreover, girls that marry too young do not have the time to be educated, to mature, and to develop their self-esteem and their status in their households, which would allow them to protect their and their children's nutritional status (Ramachandran, 2007; Smith, Ramakrishnan, Ndiaye, Haddad, & Martorell, 2003).

Interdependent lives

A second line of research that we want to develop further in the future concerns the influence of social relations on food and nutrition inequalities, tapping into the life course principle of 'linked lives'. The most immediate social context for most people is that of the family. Investigating to what extent and how parents transmit characteristics and behavior to their offspring, is one of the key ways through which sociologists study inequality (Blau and Duncan, 1967). When intergenerational linkages are strong, we speak of closed societies and when they are looser, of more open societies. In more open societies, other social institutions or circumstances have an impact and the family plays a less decisive role (d'Addio, 2007).

Parents may transfer traits or behaviors to offspring via biological and/or social mechanisms. An important social mechanism is that of value socialization. Preferences and attitudes, towards for instance food choice and practices, may be instilled in the younger generation through social interaction when children grow up in the parental home. Role modeling, or observational learning, entails a less conscious process. Parents and children may act in similar ways because they are exposed to comparable opportunity structures (Duncan, Freedman, Coble, & Slesinger, 1965; Murphy & Wang, 2001; Steenhof & Liefbroer, 2008). Intergenerational transmission may also be caused by genetic factors or heritabilities (Plomin, DeFries, McClearn, & McGuffin, 2008). The extent to which such heritabilities are expressed depends on the interaction with the environment. Jornt Mandemakers, assistant professor in our chair group, studies the complex interplay of genes and environment focusing on parental background, partner choice, and healthy lifestyles. Incorporating molecular genetic information in his research design, he investigates social and genetic assortative mating and gene-environment interactions in partner effects (Mandemakers, 2014). The extent of intergenerational effects on food security and nutrition and how this affects inequalities are empirical questions that have not been examined much, particularly in low-income countries (Behrman et al., 2013; Martorell & Zongrone, 2012; Bird & Higgins, 2011; Sumner, Haddad, & Climent, 2009; d'Addio, 2007).



Figure 4: Three generations of a Congolese family sitting in front of their house where they are preparing for the evening dinner, Baonga, Orientale Province, Democratic Republic of Congo. Photo: Guenter Guni. iStock, image number: 41405224.

But we need to look further than parents. Recently, stratification sociologist Robert Mare called for more attention to multigenerational effects in the study of inequalities (Mare, 2011). In large parts of the world social institutions support and legitimize such multigenerational influences. The institution of fostering in Sub-Saharan Africa, for instance, results in children spending substantial proportions of their childhood apart from one or both parents. Moreover, living arrangements often involve the co-residence of three generations (Lloyd & Desai, 1992). And even when not co-residing, children often receive support not only from the nuclear family but also from extended kin (Lloyd & Desai, 1992; Shavit & Pierce, 1991). Other social mechanisms include the need for and availability of kin other than parents in case of poverty, or when parental support is less or no longer available because of death, divorce or migration (Madhavan & Townsend, 2007). A study in India, for instance, found a significant effect of grandmother's education on child nutrition over and above the effects of parental education (Moestue & Huttly, 2008). Comparing if, how and via what mechanisms grandparents influence food security and nutrition of children is an important topic for future research.

Siblings are yet another set of relatives that have powerful effects on food security and nutrition inequalities. Sibship size determines the number of individuals among whom family resources, such as time and money, have to be distributed. The theory of the quality-quantity trade-off argues that larger families lead to resource dilution, leaving fewer resources for all children and leading to diminished child outcomes (Becker & Lewis, 1974). Empirical research has shown the negative effects of large family size for children's human capital development (Steelman, Powell, Werum, & Carter, 2002; Downey, 2001) showing for instance that children from larger families were less tall or had a lower weight-for-age than those from smaller families (Öberg, 2014; Hatton & Martin, 2010; Henderson, Millimet, Parmeter, & Wang, 2008). However, the often invoked negative sibship size-child outcome association is much less consistent in low-income countries, partly because of different cultural customs of family organization (Gurmu & Etana, 2013; Bras, Kok, & Mandemakers, 2010; Lu, 2009; Shavit & Pierce, 1991). In some cultural settings, siblings may even represent a source of support contributing positively to child outcomes (Trinitapoli, 2014; Robinson, 2013). Conversely, one might ask what the life course consequences are of having no siblings at all, as is the case for many Chinese children (Cameron, Erkal, Gangadharan, & Meng, 2013; Short, Fengying, & Mingliang, 2001; Hesketh & Zhu, 1997).

In many cultures, food is not allocated equally to all children, but distributed according to age, gender, and birth order (Conley, 2005; Mock, Magnani, Abdoh, & Kondé, 1994; Den Hartog, 1973). And even if parents invest strictly equally in all children, inequalities may arise when the most vulnerable children become victim of non-

discrimination (Hampshire, Panter-Brick, Kilpatrick, & Casiday, 2009). Later-born children have been found to have worse outcomes, including nutritional status, than their earlier-born siblings (De Haan, 2010; Eijmaes & Pörtner, 2004; Ukwuani & Suchindran, 2003; Horton, 1988) although some studies have found the opposite (De Haan, Plug, & Rosero, 2014; Emerson & Souza, 2008). A possible explanation for such sibling inequalities is that children of higher parity have to share the household's resources with a larger number of siblings when they are young, than those who were born earlier in the sibling row. Moreover, an ethic of discrimination between more- and less-valued children may translate into different customs of child care (Levine, 1987). Most studies have found parental bias favoring earlier-born children (Behrman, 1988; Horton, 1988) who are predetermined to inherit the land, or have more chances to be gainfully employed on the labor market. If an important motive for having children is old age security then the oldest children, who become economically independent first, may also be more favored (Horton, 1988). The question of how and via what mechanisms siblings influence nutrition and health is central in the PhD thesis of Tim Riswick on sibling effects on mortality chances of young children in Taiwan and the Netherlands during the late nineteenth and early twentieth century (Riswick, 2013).

In the fast-growing societies of Sub-Saharan Africa and South Asia with their large 'youth bulges', age peers may also play an important role (Heinsohn, 2003). How do ties with friends, school mates, co-workers, and acquaintances translate into specific food behaviors? Relevant in the context of the global nutrition transition is the question to what extent the adoption of new food stuffs and diets takes place via horizontal peer ties (Popkin, Adair, & Ng, 2012)? Similarly, we need to study influences of neighborhood relations on nutritional status. Existing research shows externalities from the education of women in the neighborhood and from the availability of sanitation facilities in the neighborhood on child nutrition (Moestue & Huttley, 2008; Alderman, Hentschel, & Sabates, 2003). In her thesis on social capital and food security, Master student Eva van Iwaarden studies how young adults in the slum area of Kibera in Nairobi manage to be food secure with the help of different kinds of relationships, such as family, peer and neighborhood ties. PhD student Theresa Tufuor similarly examines how single migrant women in the Ghanaian capital of Accra secure their livelihoods by establishing a 'moral community economy' comprising of, amongst others, food sharing among female peers and neighbors (Tufuor, Niehof, Sato, & van der Horst, forthcoming).

Comparing across time and space

Lives and relations are embedded in specific community, regional and national contexts, which intensify or abate inequalities across the life course. Economic conditions have a huge impact on health and well-being (Deaton, 2013; Boyden &

Dercon, 2012). But to understand how this works we have to dive deeper than just considering GDPs. A region's climate, physical geography, crop systems, labor market opportunities, infrastructure and communication, and the presence of endemic diseases like malaria all play a role. Essential is to look at the influence of change, also where such macro-level factors are concerned. How do agricultural innovations, like the introduction of green revolution seed technology for instance, influence people's food security and nutritional status? Does the adoption of new crops affect gendered inequalities (Boserup, 1989) and does it influence age groups in similar ways? And what are the effects of the mobile banking and internet revolution in Africa on people's food security and nutrition (Olopade, 2014; Kabiru, Izugbara, & Beguy, 2013)? Greater understanding of technological innovations and societal change on people's health and nutrition pathways is badly needed (Dangour, 2013; Dangour, Kennedy, & Taylor, 2012). SCH colleagues Hilje van der Horst and Carja Butijn are currently developing a research project on the effects of the introduction of solar cookers in Mali. These portable cooking devices run on solar energy and are meant to improve nutrition security by replacing open fires in people's homes. The idea is to examine how solar cookers and other technological innovations affect the life courses and food and nutrition security of different categories of users.



Figure 5. Dalit family in Thehe, Humla region, Nepal. Photo: Donya Sarah Madjidian.

Cultural norms strongly impact disparities in nutritional status, particularly gender-specific norms and practices. Beliefs about the distribution of food and health care according to gender are anchored in gender and family systems, which vary across ethnic, religious and socioeconomic groups (Therborn, 2004; Mason, 2001; Das Gupta, 1997, 1987; Skinner, 1997; Desai, 1992). There is a large literature documenting gender gaps in nutrition (UNICEF, 2011; Hadley, Lindstrom, Tessema, & Belachew, 2008; Darnton-Hill et al., 2005; Haddad, 1999; Backstrand, Allen, Pelto, & Chávez, 1997). Pro-male bias in food intake, however, seems to be mainly located in South Asia, varying within the region (Haddad, Peña, Nishida, Quisumbing, & Slack, 1996). Girls' and women's nutritional status more often lags behind because of differential care giving practices, such as breastfeeding, and because of less health care (Fledderjohan et al., 2014; Marcoux, 2002; DeRose, Das, & Millman, 2000; Larme, 1997). A way to improve in this debate is comparative research that attends more carefully to the effects of gender norms over the life course. During the last three months, Donya Sarah Madjdian, a Master student at our chair group, studied the relation between cultural norms and practices and food insecurity of women in two adjacent Himalayan villages in the Humla district of Nepal. One village consisted of Buddhist families practicing polyandry, with brothers living together in joint families and sharing a wife. The other village was inhabited by Hindu families, of both the Chhetri and the low-caste Dalit groups, who live in nuclear family units. Both groups practice son preference and women go on bearing children until a son is born. But the Buddhist women had much more agency than those in the Hindu community. Particularly among the Dalits, women had very little power and were often food insecure, having to eat left-overs. Among all women, food insecurity and nutritional status fluctuated over the life course. Women were particularly vulnerable during menses and in the first month after giving birth (Madjdian & Bras, under review).

The family is an important stratifying institution. But as important in shaping inequalities are governments, the law, NGOs and other institutional arrangements. The accessibility and efficiency of a society's educational system, health care services, water, and sanitation facilities directly impact people's food and nutrition security (Deaton, 2013). Policy measures, such as food subsidies and health care incentives, can play an important role in maintaining or improving the health of children and adults (Osberg, Shao, & Xu, 2009; Joshi & Schultz, 2007). Therefore, in future research we will further examine to what extent and how institutional differences and incentives impact on inequalities in food security and nutrition. The SCH group is already carrying out a large-scale project on sanitation in the Democratic Republic of Congo with development agency Oxfam. Together with colleagues from the Public Administration and Policy Group and the Marketing and Consumer Behavior Group and several Master and PhD students, we investigate, amongst others, how in

African semi-urban areas governance actors use sources of social capital to establish sustainable sanitation services (Butijn, 2013).

Conclusion

Let's go back to the Aboubakar family once more. What questions, and answers, does a life course perspective generate about inequalities in food security and nutrition? The life course perspective offers an innovative, interdisciplinary and comprehensive approach for analyzing inequalities in the life courses of individuals within their social networks and their socioeconomic, cultural and institutional contexts. It yields specific information on the age and the conditions under which children and adults are at risk of food and nutrition insecurity and on the precise impacts thereof on their social outcomes. How and via what pathways does the experience of malnourishment impact on the nutritional status and health in adulthood of the two-year old Awa? How and why does this differ from 16-year old Abdel Kerim? How do the food and nutrition trajectories of the Aboubakar children influence their educational attainment, their entry into the labor market, and their chances of marriage and family formation? Are there differences between the girls and the boys, between the older and younger children and why? How, finally, do the life course experiences of Hawa, Abdel Kerim and the others differ from those of children living in other settings, for instance in South Asia, Latin America, or Europe? Answers to such dynamic and comparative questions help governments and policy makers to design precise courses of action to reduce life course inequalities in food security and nutrition.

Word of thanks

I would like to say a few words of thanks. First of all, I thank the Board of Wageningen University, and in particular, the Rector Magnificus, Martin Kropff, for giving me their confidence. The same goes for the Director of the Social Sciences Group, Laan van Staalduinen, who has warmly introduced me into the Department. I want to thank Inge Grimm for her management advice and my colleague chairs from the sub-department of Sociology and Governance, Ewout Frankema, Maria Koelen, Arthur Mol and Katrien Termeer, for the pleasant way of working together.

I am very grateful to my inspiring colleagues of the Chair Group *Sociology of Consumption and Households*. Gerda Casimir, Chizu Sato, Carja Butijn, Stefan Wahlen, Hilje van der Horst, Hester Moerbeek and Jornt Mandemakers: you have drawn me into our chair group's field and into the hustle and bustle of education and research at Wageningen University before I even started here. I hope to continue our journey together in fruitful ways, growing as a team, and conquering new terrains in research and education.

Many thanks are also due to my PhD students Bastian Mönkediek, Yuliya Hilevych, and Paul Rotering, who work on the VIDI-project “The Power of the Family”. We have experienced many changes in the last three years, moving between universities, but we have pulled through as a team.

I wouldn't be able to stand here without the help of a lot of people that I have worked with at different universities and research institutions, amongst others in Utrecht, Amsterdam and Nijmegen, over the last twenty years. There are three colleagues that I want to thank specifically. I want to thank Harry Ganzeboom, my former promoter, who taught me the craft of empirical sociological research and who has always had confidence in me. I have been working and writing for almost 15 years now with Jan Kok and Kees Mandemakers on the fascinating life course data of the *Historical Sample of the Netherlands*. Although my research trajectory now changes direction, I hope that we will continue to find common ground.

In the ten years that I worked at the Vrije Universiteit Amsterdam, I was able to learn from both stratification sociologists and life course researchers at the *Social Inequality in the Life Course* group. I particularly want to thank Cees Elzinga and Aat Liefbroer with whom I published on pathways to adulthood in nineteenth-century Netherlands. Aat and Cees, I hope that this lecture has inspired you to collaborate again, but this time on different types of trajectories in completely different settings.

I want to thank my family for always being there for me, supporting and stimulating my academic interests and other endeavors. Thanks to my friends, older and newer ones, I have a rich and rewarding life. I hope that we can continue to travel through life together: discussing, walking, dancing, or just spending time.

And my final thanks go to my sons Pieter and Merijn, who show me every day what is the most important in life.

Ik heb gezegd.

Notes

- 1 While hunger refers to short-term physical discomfort because of life-threatening lack of food, 'hidden hunger' emphasizes micronutrient deficiencies, shortages of e.g. iron, iodine, vitamin A, and zinc. Nutritional status is often measured by children's weight and height. A child is underweight when it has a too low weight for its age. A child that is wasted has a below average weight for its length. A stunted child is too short for its age, a result of years of undernourishment. Malnutrition also includes overweight and obesity, often assessed by one's Body Mass Index (BMI) (Ghattas, 2014).

References

- Alderman, H., Hentschel, J., & Sabates, R. (2003). With the help of one's neighbors: externalities in the production of nutrition in Peru. *Social Science & Medicine*, 56, 2019-2031.
- Backstrand, J.R., Allen, L.H., Pelto, G.H., & Chávez, A. (1997). Examining the gender gap in nutrition: An example from rural Mexico. *Social Science & Medicine*, 44(11), 1751-1759.
- Becker, G.S. (1974). A Theory of Marriage. In T.W. Schultz (Ed.), *Economics of the Family: Marriage, Children, and Human Capital* (pp. 299-351). Chicago: University of Chicago Press.
- Becker, G.S. (1981). *A Treatise on the Family*. Cambridge, Mass.: Harvard University Press.
- Becker, G.S., & Lewis, H.G. (1974). Interaction between Quantity and Quality of Children. In T.W. Schultz (Ed.), *Economics of the Family: Marriage, Children, and Human Capital* (pp. 81-90). Chicago: University of Chicago Press.
- Behrman, J.R. (1988). Nutrition, Health, Birth Order and Seasonality. Intra-household Allocation among Children in Rural India. *Journal of Development Economics*, 28, 43-62.
- Behrman, J.R. (1997). Intra-household distribution and the family. In M. Rosenzweig & Stark, O. (Eds.), *Handbook of Population and Family Economics* (pp. 125-187). Amsterdam: Elsevier Science.
- Behrman, J.R., Schott, W., Mani, S., Crookston, B.T., Dearden, K., Duc, L.T., Fernald, L.C.H., & Stein, A.D. (2013). *Intergenerational Transmission of Poverty and Inequality: Young Lives*. Oxford: Young Lives.
- Ben-Shlomo, Y., & Kuh, D. (2002). A life course approach to chronic disease epidemiology: conceptual models, empirical challenges and interdisciplinary perspectives. *International Journal of Epidemiology*, 31(2), 285-293.
- Bird, K., & Higgins, K. (2011). *Stopping the intergenerational transmission of poverty: Research highlights and policy recommendations*. Manchester: Chronic Poverty Research Centre. Retrieved from: <http://www.chronicpoverty.org/>. Accessed 24 November 2014.

Blau, P.M., & Duncan, O.D. (1967). *The American Occupational Structure*. New York: Free Press.

Boserup, E. (1989). Population, the Status of Women, and Rural Development. *Population and Development Review*, 15(Supplement), 45-60.

Boyden, J., & Dercon, S. (2012). *Child Development and Economic Development: Lessons and Future Challenges*. Oxford: Young Lives. Retrieved from <http://www.younglives.org.uk/>. Accessed: 24 November 2014.

Bras, H., Kok, J., & Mandemakers, K. (2010). Sibship size and status attainment across contexts: Evidence from the Netherlands, 1840-1925. *Demographic Research*, 23(4), 73-104.

Bronte-Tinkew, J., & DeJong, G. (2004). Children's nutrition in Jamaica: Do household structure and household economic resources matter? *Social Science & Medicine*, 58, 499-514.

Butijn, C. (2013). *A User-Oriented Approach at Household Level for Developing and Marketing Appropriate Technology: On-Site Sanitation in a (Semi-)Urban Environment, the Town of Gemena, DRC*. Unpublished manuscript. Wageningen: Wageningen University.

Cameron, L., Erkal, N., Gangadharan, L., & Meng, X. (2013). Little Emperors: Behavioral Impacts of China's One-Child Policy. *Science*, 339, 953-957.

Chambers, R., & Conway, G.R. (1991). *Sustainable rural livelihoods: practical concepts for the 21st century*. IDS Discussion Papers. Retrieved from: www.ids.ac.uk/. Accessed 24 November 2014.

Chan, M. (2013). Linking child survival and child development for health, equity, and sustainable development. *The Lancet*, 381, 1514-1515.

Chan, M. (2014). Investing in early child development: an imperative for sustainable development. *Annals of the New York Academy of Sciences*, 1308, vii-viii.

Conley, D. (2005). *The Pecking Order. A Bold New Look at How Family and Society Determine Who We become*. New York: Vintage Books.

d'Addio, A.C. (2007). *Intergenerational Transmission of Disadvantage: Mobility or*

Immobility across generations? A review of the Evidence for OECD Countries. OECD Social, Employment and Migration Working papers. Paris: OECD. Retrieved from: www.oecd.org/els. Accessed 24 November 2014.

Dangour, A.D., Green, R., Häsler, B., Rushton, J., Shankar, B., & Waage, J. (2012). Linking agriculture and health in low- and middle-income countries: an interdisciplinary research agenda. *Proceedings of the Nutrition Society*, 71(2), 222-228.

Dangour, A.D., Kennedy, E., & Taylor, A. (2013). Commentary: The changing focus for improving nutrition. *Food and Nutrition Bulletin*, 34(2), 194-198.

Dannefer, D. (2002). Whose Life Course Is It, Anyway? Diversity and “Linked Lives” in Global Perspective. In R.A. Settersten Jr. (Ed.), *Invitation to the life course* (pp. 259-268). Amityville, NY: Baywood.

Dannefer, D. (2003). Toward a Global Geography of the Life Course. Challenges of Late Modernity for Life Course Theory. In J.T. Mortimer & M.J. Shanahan (Eds.), *Handbook of the Life Course* (pp. 647-659). New York: Kluwer Academic/Plenum Publishers.

Darnton-Hill, I., Nishida, C. & James, W.P.T. (2004). A life course approach to diet, nutrition and the prevention of chronic diseases. *Public Health Nutrition*, 7(1A), 101-121.

Darnton-Hill, I., Webb, P., Harvey, P.W.J., Hunt, J.M., Dalmiya, N., Chopra, M., Ball, M.J., Bloem, M.W., & De Benoist, B. (2005). Micronutrient deficiencies and gender: social and economic costs. *The American Journal of Clinical Nutrition*, 8(Suppl), 1198S-1205S.

Das Gupta, M. (1987). Selective Discrimination against Female Children in Rural Punjab, India. *Population and Development Review*, 13(1), 77-100.

Das Gupta, M. (1997). Kinship Systems and Demographic Regimes. In D.I. Kertzer & T. Fricke (Eds.), *Anthropological Demography* (pp. 36-52). Chicago: University of Chicago Press.

de Haan, M. (2010). Birth order, family size, and educational attainment. *Economics of Education Review*, 29, 576-588.

de Haan, M., Plug, E. & Rosero, J. (2014). Birth Order and Human Capital Development. Evidence from Ecuador. *The Journal of Human Resources*, 49(2), 359-392.

Deaton, A. (2013). *The Great Escape. Health, Wealth, and the Origins of Inequality*. Princeton: Princeton University Press.

Den Hartog, A.P. (1973). Unequal distribution of food within the household: A somewhat neglected aspect of food behavior. *FAO Nutrition Newsletter*, 10(b), 8-17.

Den Hartog, A.P., van Staveren, W.A., & Brouwer, I.D. (2006). *Food habits and consumption in developing countries. Manual for field studies*. Wageningen: Wageningen Academic Publishers.

Dercon, S., & Sánchez, A. (2013). Height in mid childhood and psychosocial competencies in late childhood: Evidence from four developing countries. *Economics and Human Biology*, 11, 426-432.

DeRose, L.F., Das, M. & Millman, S.R. (2000). Does Female Disadvantage Mean Lower Access to Food? *Population and Development Review*, 26(3), 517-547.

Desai, S. (1992). Children at Risk: The Role of Family Structure in Latin America and West Africa. *Population and Development Review*, 18(4), 689-717.

Devine, C.M., Connors, M., Bisogni, C.A., & Sobal, J. (1998). Life-Course Influences on Fruit and Vegetable Trajectories: Qualitative Analysis of Food Choices. *Journal of Nutrition Education*, 30(6), 361-370.

Devine, C.M. (2005). A Life Course Perspective: Understanding Food Choices in Time, Social Location, and History. *Journal of Nutrition Education*, 37(3), 121-128.

Downey, D.B. (2001). Number of Siblings and Intellectual Development. The Resource Dilution Explanation. *American Psychologist*, 56(6/7), 497-504.

Duncan, O.D., Freedman, R., Coble, J.M., & Slesinger, D.P. (1965). Marital fertility and size of family of orientation. *Demography*, 2, 508-515.

Eggersdorfer, M., Kraemer, K., Ruel, M., Van Ameringen, M., Biesalski, H.K., Bloem, M., ... Mannar, V. (Eds.). (2013). *The Road to Good Nutrition. A global perspective*. Basel: Karger.

Ejrnaes, M., & Pörtner, C.C. (2004). Birth Order and the Intrahousehold Allocation of Time and Education. *The Review of Economics and Statistics*, 86(4), 1008-1019.

Elder, G.H. (1994). Time, Human Agency, and Social Change: Perspectives on the Life

Course. *Social Psychology Quarterly*, 57(1), 4-15.

Elder, G.H. Jr., Kirkpatrick Johnson, M., & Crosnoe, R. (2003). The Emergence and Development of Life Course Theory. In J.T. Mortimer & M.J. Shanahan (Eds.), *Handbook of the Life Course* (pp. 3-16). New York: Kluwer Academic/Plenum Publishers.

Ellis, F. (1998). Household Strategies and Rural Livelihood Diversification. *The Journal of Development Studies*, 35(1), 1-38.

Emerson, P.M., & Souza, A.P. (2008). Birth Order, Child Labor, and School Attendance in Brazil. *World Development*, 36(9), 1647-1664.

FAO. (1996). *Rome Declaration on World Food Security and World Food Summit Plan of Action*. Rome: FAO.

FAO, IFAD, & WFP. (2013). *The State of Food Security in the World 2013. The multiple dimensions of food security*. Rome: FAO.

Fledderjohann, J., Agrawal, S., Vellakkal, S., Basu, S., Campbell, O., Doyle, P., Ebrahim, S., & Stuckler, D. (2014). Do Girls Have a Nutritional Disadvantage Compared with Boys? Statistical Models of Breastfeeding and Food Consumption Inequalities among Indian Siblings. *PloS ONE*, 9(9), e107172.

Folbre, N. (1986). Hearts and Spades: Paradigms of Household Economics. *World Development*, 14(2), 245-255.

Frytak, J.R., Harley, C.R., & Finch, M.D. (2003). Socioeconomic Status and Health over the Life Course. In J.T. Mortimer & M.J. Shanahan (Eds.), *Handbook of the Life Course* (pp. 623-643). New York: Kluwer Academic/Plenum Publishers.

Ghattas, Hala (2014). *Food Security and Nutrition in the context of the Global Nutrition Transition*. Rome: FAO.

Giele, J.Z., & Elder, G.H. Jr., (Eds.). (1998). *Methods of Life Course Research. Qualitative and Quantitative Approaches*. Thousand Oaks: Sage Publications.

Gittelsohn, J. (1991). Opening the box: intrahousehold food allocation in rural Nepal. *Social Science Medicine*, 33(10), 1141-1154.

- Gittelsohn, J., Mookherji, S. & Pelto, G. (1998). Operationalizing household food security in rural Nepal. *Food and Nutrition Bulletin*, 19(3), 210-222.
- Glewwe, P., & Miguel, E.A. (2008). The impact of child health and nutrition on education in less developed countries. In D. Rodrick & M.R. Rosenzweig (Eds.), *Handbook of Development Economics* (pp. 3561-3606). Amsterdam: Elsevier.
- Gluckman, P., & Hanson, M. (Eds.). (2006). *Developmental Origins of Health and Disease*. Cambridge: Cambridge University Press.
- Goody, J. (1982). *Cooking, Cuisine and Class. A Study in Comparative Sociology*. Cambridge: Cambridge University Press.
- Graham, H., & Power, C. (2004). *Childhood disadvantage and adult health: a lifecourse framework*. London: Health Development Agency. Retrieved from: www.hda.nhs.uk/evidence. Accessed 24 November 2014.
- Griffiths, P., Matthews, Z. & Hinde, A. (2002). Gender, family, and the nutritional status of children in three culturally contrasting states of India. *Social Science & Medicine*, 55, 775-790.
- Gumerman, G. (1997). Food and Complex Societies. *Journal of Archaeological Method and Theory*, 4(2), 105-138.
- Gurmu, E., & Etana, D. (2013). Household structure and children's nutritional status in Ethiopia. *Genus*, 69(2), 113-120.
- Haddad, L. (1999). Women's Status: Levels, Determinants, Consequences for Malnutrition, Interventions, and Policy. *Asian Development Review*, 17(1-2), 96-131.
- Haddad, L., Peña, C., Nishida, C., Quisumbing, A., & Slack, A. (1996). *Food security and nutrition implications of intrahousehold bias: A review of the literature*. Washington, D.C.: Food Consumption and Nutrition Division.
- Hadley, C., Lindstrom, D., Tessema, F., & Belachew, T. (2008). Gender bias in the food insecurity experience of Ethiopian adolescents. *Social Science & Medicine*, 66, 427-438.
- Hagestad, G.O. (2003). Interdependent Lives and Relationships in Changing Times: A Life-Course View of Families and Aging. In R.A. Settersten Jr. (Ed.), *Invitation to the Life Course: Toward New Understandings of Later Life* (pp. 135-160). Amityville, NY: Baywood.

- Halfon, N., & Hochstein, M. (2002). Life Course Health Development: An Integrated Framework for Developing Health, Policy, and Research. *The Millbank Quarterly*, 80(3), 433-479.
- Hampshire, K.R., Panter-Brick, C., Kilpatrick, K., & Casiday, R.E. (2009). Saving lives, preserving livelihoods: Understanding risk, decision-making and child health in a food crisis. *Social Science & Medicine*, 68, 758-765.
- Hardgrove, A., Pells, K., Boyden, J., & Dornan, P. (2014). *Youth Vulnerabilities in Life Course Transitions*. New York: UNDP Human Development Report Office. Retrieved from: <http://hdr.undp.org/>. Accessed 24 November 2014.
- Hatton, T.J., & Bray, B.E. (2010). Long run trends in the heights of European men, 19th-20th centuries. *Economics and Human Biology*, 8(3), 405-413.
- Hatton, T.J., & Martin, R.M. (2010). Fertility decline and the heights of children in Britain, 1886–1938. *Explorations in Economic History*, 47(4), 505–519.
- Heaton, T.B., Forste, R., Hoffmann, J.P., & Flake, D. (2005). Cross-national variation in family influences on child health. *Social Science & Medicine*, 60, 97-108.
- Heinsohn, G. (2003). *Söhne und Weltmacht: terror im Aufstieg und Fall der Nationen*. Zürich: Orell Füssli.
- Henderson, D.J., Millimet, D.L., Parmeter, C., & Wang, L. (2008). Fertility and the health of children: A nonparametric investigation. In T.B. Fomby, R.C. Hill, I. Jeliazkov, J.C. Escanciano, & E. Hillebrand (Eds.), *Modelling and Evaluating Treatment Effects in Econometrics* (pp. 167-195). Bingley: Emerald Group Publishing.
- Hesketh, T., & Zhu, W.X. (1997). The one child family policy: the good, the bad, and the ugly. *BMJ*, 314, 1685-1687.
- Hoddinott, J., Maluccio, J., Behrman, J.R., Martorell, R., Melgar, P., Quisumbing, A., Ramirez-Zea, M., Stein, M.A., & Yount, K. (2010). *The impact of malnutrition over the life course*. Washington, D.C.: IFPRI.
- Horton, S. (1988). Birth Order and Child Nutritional Status: Evidence from the Philippines. *Economic Development and Cultural Change*, 36(2), 241-354.
- Horton, S., & Steckel, R.H. (2011). *Malnutrition. Global economic losses attributable to*

malnutrition 1900-2000 and projections to 2050. Assessment Paper. Copenhagen Consensus on Human Challenges. Retrieved from: <http://www.copenhagenconsensus.com/>. Accessed 24 November 2014.

Huinink, J., & Kohli, M. (2014). A life-course approach to fertility. *Demographic Research*, 30(45), 1293-1326.

IFPRI. (2014). *Global Nutrition Report 2014: Actions and Accountability to Accelerate the World's Progress on Nutrition*. Washington, DC: IFPRI.

Joshi, S., & Schultz, T.P. (2007). *Family Planning as an Investment in Development: Evaluation of a Program's Consequences in Matlab, Bangladesh*. Center Discussion Papers. Economic Growth Center, Yale University. Retrieved from: <http://www.econ.yale.edu>. Accessed 24 November 2014.

Kabiru, C.W., Izugbara, C.O., & Beguy, D. (2013). The health and well-being of young people in sub-Saharan Africa: an under-researched area? *BMC International Health & Human Rights*, 13, 11.

Kuh, D., & Ben-Shlomo, Y. (2004). *A life course approach to chronic disease epidemiology*. Oxford: Oxford University Press.

Laraia, B.A. (2013). Food Insecurity and Chronic Disease. *Advances in Nutrition. An International Review Journal*, 4, 203-212.

Larme, A.C. (1997). Health care allocation and selective neglect in rural Peru. *Social Science & Medicine*, 44(11), 1711-1723.

Lawn, J.E., Blencowe, H., Oza, S., You, D., Lee, A.C.C., Waiswa, P., Lalli, M., Bhutta, Z., Barros, A.J.D. Christian, P., Mathers, C., & Cousens, S.N. (2014). Every Newborn: progress, priorities, and potential beyond survival. *The Lancet*, 384, 189-205.

Levine, N.E. (1987). Differential Child Care in Three Tibetan Communities: Beyond Son Preference. *Population and Development Review* 13(2), 281-304.

Lloyd, C.B., & Desai, S. (1992). Children's living arrangements in developing countries. *Population Research and Policy Review*, 11, 193-216.

Lu, Y. (2009). Sibship Size, Family Organization, and Education in South Africa: Black-White Variations. *Research in Social Stratification and Mobility*, 27(2), 110-125.

- Macionis, J.J., & Plummer, K. (1998). *Sociology. A Global Introduction*. Harlow: Prentice Hall.
- Madhavan, S., & Townsend, N. (2007). The social context of children's nutritional status in rural South Africa. *Scandinavian Journal of Public Health Supplement*, 69, 107-117.
- Madise, N.J., Matthews, Z., & Margetts, B. (1999). Heterogeneity of Child Nutritional Status between Households: A Comparison of Six Sub-Saharan African Countries. *Population Studies*, 53(3), 331-343.
- Madjidian, D.S., & Bras, H. (under review). Gender, family, and intra-household allocation of food. A comparison between two villages in the Hidden Himalaya, Humla district, Nepal. *Economic History of Developing Regions*.
- Mandemakers, J. (2014). *Social and genetic determinants of a healthy lifestyle: Clarifying the role of education and the partner*. Research proposal prepared for the Netherlands Organization for Scientific Research, VENI scheme.
- Marcoux, A. (2002). Sex Differentials in Undernutrition: A Look at Survey Evidence. *Population and Development Review*, 28(2), 275-284.
- Mare, R.D. (2011). A Multigenerational View of Inequality. *Demography*, 48(1), 1-23.
- Martorell, R., & Zongrone, A. (2012). Intergenerational Influences on Child Growth and Undernutrition. *Paediatric and Perinatal Epidemiology*, 26(Supplement 1), 302-314.
- Mason, K.O. (2001). Gender and Family Systems in the Fertility Transition. *Population and Development Review*, 27, 160-176.
- McGillivray, M., Dutta, I., & Markova, N. (2009). Health inequality and deprivation. *Health Economics* 18, S1-S12.
- Menzel, P., & D'Aluisio, F. (2008). *What the World Eats*. Berkeley: Tricycle Press.
- Messer, E. (1990). Intra-household allocation of resources: perspectives from anthropology. In B.L. Rogers, & N.P. Schlossman (Eds.), *Intra-household resource allocation: Issues and methods for development policy and Planning* (pp. 51-62). New York: The United Nations University.
- Mock, N.B., Magnani, R.J., Abdoh, A.A., & Kondé, M.K. (1994). Intra-household

correlations in maternal-child nutritional status in rural Guinea: implications for programme-screening strategies. *Bulletin of the World Health Organization* 72(1), 119-127.

Moestue, H., & Huttly, S. (2008). Adult education and child nutrition: the role of family and community. *Journal of Epidemiological Community Health*, 62, 153-159.

Moltedo, A., Troubat, N., Loshin, M., & Sajaia, Z. (2014). *Analysing Food Security Using Household Survey Data*. Washington D.C.: The World Bank.

Murcott, A. (2002). Nutrition and inequalities. A note on sociological approaches. *European Journal of Public Health*, 12, 203-207.

Murphy, M., & Wang, D. (2001). Family-level continuities in child-bearing in low-fertility societies. *European Journal of Population*, 17(1), 75-96.

Neter, J.E., Dijkstra, S.C., Visser, M., & Brouwer, I.A. (2014). Food insecurity among Dutch food bank recipients: a cross-sectional study. *BMJ Open* 4, e004657.

Niehof, A. (2010). *Food, diversity, vulnerability and social change. Research findings from insular Southeast Asia*. Mansholt publication series (Vol. 9). Wageningen: Wageningen Academic Publishers.

Öberg, S. (2014). Long-term changes of socioeconomic differences in height among young adult men in Southern Sweden, 1818-1968. *Economics and Human Biology*, 15, 140-152.

Olopade, D. (2014). *The Bright Continent: Breaking Rules and Making Change in Modern Africa*. Boston, MA: Houghton Mifflin Harcourt.

Osberg, L., Shao, J., & Xu, K. (2009). The growth of poor children in China 1991-2000: Why food subsidies may matter. *Health Economics*, 18(Supplement), S89-S108.

O'Rand, A.M. (1996). The Precious and the Precocious: Understanding Cumulative Disadvantage and Cumulative Advantage over the Life Course. *The Gerontologist*, 36(2), 230-238.

Paul, A.M. (2010). *Origins. How the Nine Months Before Birth Shape the Rest of Our Lives*. Alexandria, Australia: Hay House.

Pavalko, E.K., & Caputo, J. (2013). Social Inequality and Health Across the Life

Course. *American Behavioral Scientist*, 57(8), 1040-1056.

Pinstrup-Andersen, P. (2009). Food security: definition and measurement. *Food Security*, 1, 5-7.

Plassmann, V.S., & Norton, M.J.T. (2004). Child-Adult Expenditure Allocation by Ethnicity. *Family and Consumer Sciences Research Journal*, 33(1), 475-497.

Plomin, R., DeFries, J.C., McClearn, G.E., & McGuffin, P. (2008). *Behavioral Genetics*. New York: Worth Publishers.

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

Ramachandran, N. (2006). *Women and Food Security in South Asia: Current Issues and Emerging Concerns. Research Paper, UNU-WIDER*. New York: United Nations University. Retrieved from: <http://hdl.handle.net/10419/63421>. Accessed at 24 November 2014.

Ravelli, A.C., Van der Meulen, J.H.C., Osmond, J.H., Barker, D.J., & Bleker, O.P. (1999). Obesity at the age of 50 years in men and women exposed to famine prenatally. *American Journal of Clinical Nutrition*, 70, 811-816.

RIVM. (2014). *Een gezonder Nederland. Kernboodschappen van de Volksgezondheid Toekomst Verkenning 2014*. Bilthoven: RIVM.

Riswick, T. (2013). Gevangen tussen cultuur en biologie. De invloed van gender en adoptie op kindersterfte in de Taiwanese familie in Hai-shan, 1906-1945. [Captured between culture and biology. The influence of gender and adoption on child mortality in the Taiwanese family in Hai-shan, 1906-1945]. In K. Matthijs, P. Puschmann, H. Bras, & A. Janssens (Eds.), *Gender in/en historische demografie. Jaarboek 2013* (pp. 71-102). Leuven: Acco.

Robinson, C. (2013). Younger Siblings Can Be Good for Your Health: An Examination of Spillover Benefits from the Supplemental Nutrition Program for Women, Infants, and Children (WIC). *Journal of Family and Economic Issues*, 34, 172-184.

Ronsmans, C., Chowdhury, M.E., Dasgupta, S.K., Ahmed, A., & Koblinsky, M. (2010). Effect of parent's death on child survival in rural Bangladesh: a cohort study. *The Lancet*, 375, 2024-2031.

Rothmann, A.J., Gillespie, A.M.H., & Johnson-Askew, W.L. (2009). Decision Making in Eating Behavior: Interacting Perspectives from the Individual, Family, and Environment: An Introduction. *Annals of Behavioral Medicine*, 38(Suppl 1), S1-S3.

Ryder, N. (1965). The Cohort as a Concept in the Study of Social Change. *American Sociological Review*, 30(6), 843-861.

Sahn, D.E., & Younger, S.D. (2009). Measuring intra-household health inequality: Explorations using the body mass index. *Health Economics*, 18, S13-S36.

Schlüssel, M.M., Moura da Silva, A.A., Pérez-Escamilla, R., & Kac, G. (2013). Household food insecurity and excess weight/obesity among Brazilian women and children: a life-course approach. *Cadernos Saúde Pública*, 29(2), 219-226.

Schönbeck, Y., Talma, H., van Dommelen, P., Bakker, B., Buitendijk, S.E., HiraSing, R.A., & van Buuren, S. (2013). The world's tallest nation has stopped growing taller: the height of Dutch children from 1955 to 2009. *Pediatric Research*, 73(3), 371-377.

Sen, A.K. (1981). *Poverty and famines: an essay on entitlement and deprivation*. Oxford: Clarendon Press.

Sen, A.K. (1989). Cooperation, Inequality, and the Family. *Population and Development Review*, 15(Supplement), 61-76.

Shavit, Y., & Pierce, J.L. (1991). Sibship Size and Educational Attainment in Nuclear and Extended Families: Arabs and Jews in Israel. *American Sociological Review*, 56(3), 321-330.

Short, S.E., Fengying, Z., Siyuan, X., & Mingliang, Y. (2001). China's One-Child Policy and the Care of Children: An Analysis of Qualitative and Quantitative Data. *Social Forces*, 79(3), 913-943.

Singh, S., & Samara, R. (1996). Early marriage among women in developing countries. *International family planning perspectives*, 22(4), 148-175.

Skinner, G.W. (1997). Family Systems and Demographic Processes. In D.I. Kertzer, & T. Fricke (Eds.), *Anthropological Demography. Toward a New Synthesis* (pp. 53-95). Chicago: The University of Chicago Press.

Smith, L.C., Ramakrishnan, U., Ndiaye, A., Haddad, L., & Martorell, R. (2003). *The*

Importance of Women's Status for Child Nutrition in Developing Countries. Washington, D.C.: IFPRI.

Sobal, J., & Bisogni, C.A. (2009). Constructing Food Choice Decisions. *Annals of Behavioral Medicine*, 38 (Suppl 1), S37-S46.

Staatz, J.M., D'Agostino, V.C., & Sundberg, S. (1990). Measuring food security in Africa: conceptual, empirical and policy issues. *American Journal of Agricultural Economics*, 72, 1311-1317.

Steelman, L.C., Powell, B., Werum, R., & Carter, S. (2002). Reconsidering the Effects of Sibling Configuration: Recent Advances and Challenges. *Annual Review of Sociology*, 28(1), 243-269.

Steenhof, L., & Liefbroer, A.C. (2008). Intergenerational transmission of age at first birth in the Netherlands for birth cohorts born between 1935 and 1984: Evidence from municipal registers. *Population Studies*, 62(1), 69-84.

Subramanyam, M.A., Kawachi, I., Berkman, L.F., & Subramanian, S.V. (2010). Socioeconomic Inequalities in Childhood Undernutrition in India: Analyzing Trends between 1992 and 2005. *PloS ONE*, 5(6), e11392.

Sullivan, T.J. (2001). *Sociology. Concepts and Applications in a Diverse World*. Boston: Allyn and Bacon.

Sumner, A., Haddad, L., & Climent, L.G. (2009). Rethinking Intergenerational Transmission(s): Does a Wellbeing Lens Help? The Case of Nutrition. *IDS Bulletin*, 40(1), 22-30.

Therborn, G. (2004). *Between Sex and Power: Family in the World 1900-2000* London: Routledge.

Tough, P. (2012). *How children succeed. Confidence, curiosity and the hidden power of character*. London: Arrow Books.

Trinitapoli, J., Yeatman, S., & Fledderjohann, J. (2014). Sibling support and the educational prospects of young adults in Malawi. *Demographic Research*, 30, 547-578.

Tufuor, T., Niehof, A., Sato, C., & van der Horst, H. (forthcoming). Extending the Moral Economy Beyond Households: Gendered Livelihood Strategies of Single

Migrant Women in Accra, Ghana. *Women's Studies International Forum*.

Ukwuani, F.A., & Suchindran, C.M. (2003). Implications of women's work for child nutritional status in sub-Saharan Africa: a case study of Nigeria. *Social Science & Medicine*, 56, 2109-2121.

Ultee, W., Arts, W., & Flap, H. (1996). *Sociologie: vragen, uitspraken, bevindingen*. Groningen: Wolters-Noordhoff.

UNFPA. (2012). *Marrying too young. End child marriage*. New York: UNFPA.

UNFPA. (2013). *Motherhood in Childhood. Facing the challenge of adolescent pregnancy. State of the World Population 2013*. New York: UNFPA.

UNICEF. (2011). *Gender Influences on Child Survival, Health and Nutrition: A Narrative Review*. New York: UNICEF.

UNICEF. (2013). *Improving Child Nutrition. The achievable imperative for global progress*. New York: UNICEF.

van Anrooij, K. (2014). *Understanding child marriage. Causes, perceptions and consequences of child marriage among women in the Goromonzi district in Zimbabwe*. Unpublished manuscript. Department of Social Sciences, Wageningen University.

Van Esterik, P. (1985). Intra-Family Food Distribution: Its Relevance For Maternal and Child Nutrition. In M.C. Latham (Ed.), *Determinants of Young Child Feeding and Their Implications for Nutritional Surveillance* (pp. 73-149). Ithaca: Cornell University.

van Poppel, F., & Mandemakers, K. (2002). Sociale verschillen in zuigelingen- en kindersterfte in Nederland: 1812-1912. *Bevolking en Gezin*, 31(2), 5-39.

Voedselbanken.nl. (2014). *Feiten en cijfers voedselbanken Nederland. Augustus 2014*. Retrieved from: <http://voedselbankennederland.nl/nl/infobulletin.html>. Accessed 20 November 2014.

Wadsworth, M.E.J. (1997). Health inequalities in the life course perspective. *Social Science & Medicine*, 44(6), 859-869.

Walker, J. (2012). Early marriage in Africa - Trends, harmful effects and interventions. *African Journal of Reproductive Health*, 16(2), 231-240.

Wen, M., & Lin, D. (2012). Child development in Rural China: Children Left behind by Their Migrant Parents and Children of Nonmigrant Families. *Child Development*, 83(1), 120-136.

Wethington, E. (2005). An Overview of the Life Course Perspective: Implications for Health and Nutrition. *Journal of Nutrition Education*, 37(3), 115-120.

Wethington, E., & Johnson-Askew, W.L. (2009). Contributions of the Life Course Perspective to Research on Food Decision Making. *Annals of Behavioral Medicine*, 38(Supplement 1), S74-S80.

WHO. (2013). *World Health Statistics 2013*. Geneva: World Health Organization.

You, D., Wardlaw, T., Newby, H., Anthony, D., & Rogers, K. (2013). Renewing the promise of survival for children. *The Lancet*, 382, 1002-1004.

Zick, C.D. (1992). Do Families Share-and-Share-Alike? The Need to Understand Intrahousehold Resource Allocations. *Journal of Family and Economic Issues*, 13(4), 407-419.

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Prof. dr Hilde Bras

'Despite overall progress in global wellbeing, stark inequalities in food security and nutrition remain extant. How can we better understand who is at risk of hunger, malnutrition and food insecurity? And what are the consequences for people's lives? A life course perspective offers a lens for assessing and explaining food use and nutrition trajectories, and their effects on life course outcomes, within the changing social networks and wider socioeconomic and cultural contexts of people's lives.'