IJHE

ISSN 1999-561X

International Journal of Home Economics

Volume 17 Issue 2 2024

IFHE is an international Non Governmental Organisation (INGO) in consultative status with the United Nations

IFHE

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IFHE
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Website

For more information, please visit the International Journal of Home Economics website: https://www.ifhe.org/ejournal/about-the-journal.

Frequency of publication

The International Journal of Home Economics is published twice a year. Papers for review will be accepted throughout the year to email: intjournalhomeeconomics@gmail.com.

INTERNATIONAL FEDERATION FOR HOME ECONOMICS

International Journal of Home Economics

Volume 17 Issue 2 2024

Volume 17 Issue 2 2024 Editorial

Special Issue Invitation—*You are what you eat: Feeding the future*

Theme

In 2026 the IFHE World Home Economics Day theme is "*You are what you eat: Feeding the future*". This topic highlights how dietary choices impact long-term health and societal wellbeing across all demographics and regions. The theme connects nutritional decisions to physical, cognitive, and social development—from supporting infant growth in developing nations to maintaining elderly independence in affluent societies. This provides an excellent opportunity for a Special Issue of the IJHE.

Invitation to be appointed Guest Special Issue Editor

If you are interested in serving as Special Issue Editor, following are details of the required expertise and how to nominate. An ideal special issue leader will have cross-cultural expertise in nutrition's role throughout the lifespan, understanding both immediate health impacts and long-term socioeconomic implications. They will be an active researcher with qualifications at doctoral level and experience in fields related to the topic, including interventions that promote sustainable, nutritious food choices at the household level while addressing barriers to healthy eating across diverse global contexts. If this is you, and you are willing to serve as Special Issue Editor, please send your CV and a justification for your selection to: intjournalhomeeconomics@gmail.com The Editorial Board will consider nominations and appoint the successful Guest Editor. Applications are due 1 April 2025.

Invitation to submit manuscripts to the Special Issue

The following schedule applies to all manuscripts submitted for consideration to the Special Issue:

Abstracts Due:	1 May, 2025
Responses to Authors from Guest Special Issue Editor:	30 June, 2025
Full papers Due:	30 September, 2025
Outcomes of Peer Review Process Managed by Guest Editor:	30 October, 2025
Revised Papers Approved by the Guest Editor:	15 November, 2025
Issue 18(2), Publication Date:	December 2025/January 2026

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PEER-REVIEWED PAPER

Ageing in Place: A Home Economics Perspective

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Abstract

In India, the care of older adults has traditionally been the responsibility of family members, with institutionalization or foster care considered less desirable. However, changes in demographics and culture have shifted the caregiving landscape, especially the shift from joint kinship systems to nuclear families. A safe and secure living environment is crucial for successful ageing in place. From the perspective of older adults ageing in place goes beyond the home to the wider community, with intergenerational support—both formal and informal—being vital. This paper aims to offer a comprehensive understanding of the concept of ageing in place. Given the growth of the ageing population, the role of home economists becomes increasingly important in addressing the challenges and opportunities associated with ageing in place.

KEYWORDS: **AGEING IN PLACE, ELDERLY, FAMILY AND CAREGIVERS, HOME ECONOMISTS, HOME MODIFICATIONS**

Ageing is a natural and inevitable life stage that cannot be ignored, skipped, or altered. As home economists, it is vital to understand the growing needs of the ageing population and the role we play in addressing those needs. For most older adults in India and elsewhere, ageing in place is a preferred option (Ratnayake et al., 2022). Traditionally, in India, the care of older adults has been the responsibility of family members, with institutionalization or foster care being seen as less desirable. However, demographic and cultural shifts, particularly the transition from joint kinship systems to nuclear families, have altered the caregiving landscape. The responsibility of caring for older adults in India has moved from families to institutions, creating a three-tiered system involving family, institutions, and society (Andruske & O'Connor, 2020). As societal structures evolve, caregiving responsibilities are increasingly shared between society and institutions.

A safe and secure living environment is essential for successful ageing in place. From the perspective of older adults, ageing in place extends beyond the home into the wider community, with intergenerational support—both formal and informal—being critical. Despite India's rapidly ageing population, the care infrastructure has not kept pace (Banerjee, 2020). The ageing population demands housing options that support independent living, even as health

Ahmed, A. S., & Renwick, K. (2024). Ageing in Place: A Home Economics Perspective. *International Journal of Home Economics*, *17*(2), 2-17.
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declines. However, ageing in place may not always be the most suitable or desired option for everyone (Hillcoat-Nallétamby & Ogg, 2014). Providing appropriate housing options for older adults can improve their quality of life (Gabriel & Bowling, 2004) and potentially reduce the need for caregiving services (Lagergren & Batljan, 2000), alleviating some of the financial strain on welfare systems. As the population continues to age, the assumption that older adults prefer to remain in their long-term homes may change (Peace et al., 2011).

As the ageing population grows, the role of home economists becomes increasingly vital in addressing the challenges and opportunities of ageing in place. By understanding the evolving needs of older adults and supporting them through practical solutions, home economists can help ensure that ageing in place remains a viable and supportive option for older individuals and their families. This paper aims to provide a comprehensive understanding of the concept of ageing in place. It explores how the concept has evolved, its importance for older individuals in terms of autonomy and care, and its practical implications, particularly within the Indian context. Additionally, there is a discussion about how home economists can support older adults and their families in fostering a respectful and supportive environment for ageing in place.

Perceptions of ageing

As people age, they become reluctant to move. While younger individuals may express a willingness to relocate in old age, this diminishes as they grow older, often due to declining health and the challenges associated with moving (Kulander, 2013). Older adults prefer ageing in place due to the benefits it offers, such as a comfortable environment, familiarity with the neighbourhood, and feelings of independence and autonomy (CDC, 2013; Golant, 2011). However, the role of the family becomes especially important in making relocation decisions during periods of poor health (Croucher, 2008; Sergeant & Ekerdt, 2008).

Cultural attitudes toward ageing also play a key role in how societies view older individuals. The Tsimané Amazonian forager-farmers showed that they view older people as having superior memory compared to younger individuals (Sorokowski et al., 2017). In developing countries, there is a widespread belief that an ageing population may hinder economic growth and reduce employment opportunities, potentially weakening the economy's ability to support the elderly. As societies modernize the value of an individual is seen through their ability to be a worker (Bauman, 2004), and where older adults are often seen as less valuable cultural repositories (Sorokowski et al., 2017) becoming increasingly isolated (Goll et al., 2015). Given how cultural and contextual factors influence the ageing experience, there is a need to underscore the importance of preserving positive attitudes toward ageing (Higgs & Gilleard, 2017).

Ageing—care and dependence

In their discussion of care and dependency Fine and Glendinning (2005) speak about how these terms are interrelated but arise from different positioning. Care indicates a warm emotive role, one predominately understood to be provided by women. Fine and Glendinning posit that "an increasing amount of informal care for older people are clearly shaped both by patterns of reciprocity and obligation that have built up in long-term relationships and by gender" (2005, p. 609). Dependency invokes an idea of an unequal relationship. However, while dependency enacts power-relationships they do not need to be seen as one-way engagements or permanently set rather older people are supported to adapt as they negotiate the care that they are to receive in order to manage their physical and mental limitations (Higgs & Gilleard, 2017).

The periods of dependency are inevitable across the lifespan given that there are always times when a person can be called upon to assist another. For older people, change can result in a higher level of dependency often leads to a greater divide between the elderly and their immediate families, frequently resulting in institutionalization (Nair, 2014). Notably, old age homes tend to house more women than men, suggesting that women experience higher levels of dependency. Population ageing and shifts in family dynamics present substantial challenges, particularly in developing countries like India, where the elderly population is expanding rapidly. These nations navigate a complex landscape, caught between traditional values and modern approaches. (Nair, 2014).

Family dynamics and responsibilities in Indian households

In India and many other countries, the family is a key institution, providing essential informal social security for the elderly (Bloom et al., 2010). Family connections and social networks play a vital role in supporting and engaging older adults globally (Berkman et al., 2012; Bongaarts & Zimmer, 2002). Living with family is the most common and preferred arrangement for and by elderly individuals (Gupta et al., 2009). Elder care within the family setting remains highly favored, with cultural values. These cultural practices are further reinforced by a legal framework that places the primary responsibility of elder care on families, rewarding those who fulfill their duties and penalizing those who do not (Brijnath, 2012).

In Indian culture, the marriage of the first son is often seen as the beginning of old age, especially for the mother. This is because it brings about significant changes in her role and status within the family (Sati, 1996). For the mother, the arrival of the daughter-in-law in the household typically means handing over the management of the household. For the father, it means relinquishing the position of head of the household in practice if not in name (Bhat & Dhruvarajan, 2001).

Within this joint family system, multiple generations lived together, sharing income and resources, at least in principle. In this structure, men typically handled social and economic affairs, while women managed household duties (Bhat & Dhruvarajan, 2001). Older adults expected care from their children, grounded in the concept of intergenerational reciprocation and the cultural significance of performing *seva*. Seva, meaning service, is a multifaceted concept that involves the intellectual, emotional, and physical care of elders by younger family members. Rooted in respect, seva is viewed as a form of divine worship, where caring for elders is seen as a sacred duty (Lamb, 2000).

By 2050, it is projected that 19.1% of India's population will be elderly, increasing from 9.4% in 2017, underscoring the critical need for geriatric care (UN DESA, 2017). In traditional agrarian societies like India, caring for the elderly is deeply embedded in cultural values, particularly influenced by filial piety (Gupta et al., 2012). In extended family systems characterized by multigenerational coresidence, families typically provide informal care to meet the physical, emotional, and economic needs of elderly members (Gupta et al., 2012; Kulkarni et al., 2016).

Ageing in place

The idea of "ageing in place" is based on Urie Bronfenbrenner's bioecological systems theory and Lawton's ecological model of ageing (Greenfield, 2012). Both theories focus on the relationship between individuals and their environment. The bioecological systems theory explores the connection between proximal and distal environments (physical or social) and the development of older adults. Ageing in place can be influenced by changes in various environmental layers (micro-meso-macro-chrono-exo) according to Bronfenbrenner and Morris (2006). Ageing in place refers to the ability to live safely, independently, and comfortably in one's own home and community, regardless of age, income, or ability level (CDC, 2013). The World Health Organization defines ageing in place as the process of promoting and maintaining the functional ability to enable well-being in older age (WHO Report on Ageing and Health, 2015). The key factors that contribute to ageing in place with quality are a safe and suitable living environment, sufficient income to support oneself, support from family and friends, and access to primary healthcare (Rolls et al., 2011).

Ageing at home is a multifaceted concept that necessitates adequate housing, a strong social network and access to necessary services and assistance all of which are and all of which are crucial for older individuals' overall quality of life (Horner & Boldy, 2008; Rolls et al., 2011). Specific sociodemographic characteristics for successful ageing in place include access to information, practical assistance, financial stability, social connections (including family, friends, neighbours, and pets), transportation, and safety (Kennedy et al., 2015). Personal attributes such as resilience, adaptability, and independence are also significant factors that facilitate ageing in place (Kennedy et al., 2015). This concept is linked to a sense of identity rooted in independence, autonomy, and supportive relationships within one's living environment (Wiles et al., 2012). However, there is limited evidence regarding the most impactful factors influencing the quality of ageing in place, particularly from the perspectives of older individuals themselves. Most existing studies tend to concentrate on a single aspect of health (whether physical, psychological, or social), with little literature exploring ageing through a multidimensional, health-promoting, and person-centered lens using qualitative methods (Forsyth & Molinsky, 2021).

Ageing in place includes the idea of being attached to a particular location due to the social connections, security, familiarity, and sense of identity it provides (Wiles et al., 2012). Most people prefer to remain in their homes for as long as possible because they are strongly attached to their home environment. Typically, ageing in place refers to ageing in one's home, but recent theories expand this to include emotionally significant places that support independent living outside institutional settings (Bartlett & Carroll, 2011). This emphasizes flexibility within one's living environment, rather than just staying in a familiar home (Han & Kim, 2017).

Ageing in place in India

Within the Indian context ageing in place is a term that emerged about 2010 (Vasunilashorn et al., 2012) and demonstrates, in part, shifts in responsibility of families caring for older adults. Indian society emphasizes the family system, viewing care for older adults as a cultural duty. Thus, ageing in place offers an important opportunity for maintaining independence and social connections, rather than moving into residential care (Davey et al., 2004). The concept of old age homes, though not widespread in India, is not entirely unfamiliar (HelpAge India, 2000). Traditionally, the majority of children with elderly parents prefer not to send their parents to these homes. Even if considered, many refrain from doing so to avoid societal disapproval and criticism for breaking cultural norms (Bhat & Dhruvarajan, 2001).

Parents, despite potential conflicts with their children, often choose to live with them, where residing with the eldest son remains the most favored option. As the elderly population continues to grow and with limited government support, the responsibility of caring for the elderly rests with their families (Chakraborti, 2004; Rajan et al., 2003). Old age homes generally represent a last resort for parents, particularly for those who see these institutions as preferable to living in a son's home where they feel unwelcome (Subrahmanya, 2000).

Role of ageing individuals in Indian households

Kinship ties play a crucial role in daily life, with a strong expectation that children—especially sons—will care for their parents in old age, typically through coresidence. Elderly parents living with their children often fulfill dual roles: while children provide care for their parents' health and daily needs, parents contribute by offering childcare for their grandchildren. This coresidential arrangement highlights the nonfinancial benefits of living together, which can positively influence the health of elderly individuals (Sudha et al., 2006). Moreover, multigenerational households facilitate the pooling of financial resources. In contrast, elderly individuals living alone may lack this safety net, potentially increasing poverty levels among seniors in India (Husain & Ghosh, 2011).

However, demographic shifts are beginning to alter the structure of Indian families (Krishnaswamy et al., 2008; Rajan & Kumar, 2003). As life expectancy increases, the extended dependency of elderly individuals on their children results in higher healthcare and living costs within traditional Indian family dynamics (Bosch-Farré et al., 2020). Studies have shown that family relationships are crucial and serve as a key source of support for older women and men (Bosch-Farré et al., 2020). The elderly emphasize the strong connection between their own well-being and that associated with their children and grandchildren given that family members' health, job circumstances, and financial security are significant concerns for the elderly (Bosch-Farré et al., 2020).

Historically, elderly individuals served as the foundation of the traditional social structure, but they have gradually become marginalized within families. Significant changes in intergenerational support have emerged alongside shifts in the economic landscape. Today, the elderly are increasingly viewed as a dependent segment of society (Nair, 2014). Unlike previous generations, who may have been psychologically dependent yet did not perceive themselves as such, today's elderly often find themselves compelled to rely on others for support.

Role of caregivers in supporting ageing individuals in India

Elderly care involves addressing the specific needs and requirements unique to older adults. It focuses on providing both social and personal support for seniors who require assistance with daily tasks and healthcare, while also ensuring they can age with dignity (Ejinkeonye & Anyakoha, 2017). Caregiving activities predominantly occur within households rather than in institutions, making it "private" and thus an informal process (Fine & Glendinning, 2005). Although there are several policies and legal frameworks in place (see for example the Senior Citizens Act, 2007), the provisions for social welfare benefits and assistance for the elderly remain limited. This situation reinforces interdependencies and positions family members, particularly women, as the primary caregivers (Chakraborti, 2004; Desai & Raju, 2000; Gupta et al., 2009; Navaneetham & Dharmalingam, 2012).

The emphasis on men as caregivers for the elderly in India stems from patriarchal structures that undervalue women's contributions (Fine & Glendinning, 2005) where women typically shoulder a greater share of domestic responsibilities. Although it is commonly believed that sons should be the primary caregivers for the elderly, women are typically identified as primary caregivers. In households where caregivers adhere strongly to filial piety norms, women often report a heightened sense of caregiver burden and role overload (Gupta et al., 2009), leaving them with limited options to decline the demands for elder care (Gupta et al., 2009). However, with increasing educational attainment and new employment opportunities, women's participation in traditional family roles is changing (Heath & Jayachandran, 2016; Pignatti, 2020) shifting approaches to elderly care (Johnson & Lo Sasso, 2006). As a result, female caregivers often experience a heavier burden than their male counterparts that impacts both the elderly receiving care receivers and providers due to the demands of multiple roles and responsibilities (Johnson & Lo Sasso, 2006; Bookman & Kimbrel, 2011; Crespo & Mira, 2014). Therefore, it is essential to understand how informal caregiving has evolved amid the ongoing demand for women's participation in the workforce.

Additionally, research on elderly care in India remains limited, underscoring the need for in-depth studies to examine the caregiving process and the challenges faced by female caregivers (Govil et al., 2024). The perspectives of family care providers, particularly women, are largely overlooked in the existing literature, as few studies have explored these issues within the context of changing dynamics (Govil et al., 2024).

Role of government in supporting ageing individuals in India

Governments often define old age chronologically for administrative purposes, but this doesn't accurately reflect a person's functional ability. In many developed nations, 65 years is the retirement age, while in India, the retirement age for central government employees is currently fixed at 60 years and the retirement age for state government employees in India varies from 56 years in Kerala to 60 years in most other states (Government of Kerala, 2012).

In India, there is a significant lack of policy and legislation specifically addressing elder care (Brijnath, 2012). Cultural interpretations of care, the impacts of caregiving, the coping mechanisms of caregivers, and the broader legislative environment have reinforced the belief that care should be personalized and primarily provided at home. This has contributed to the perception that old-age homes represent places where relatives are "abandoned," symbolizing a failure of familial responsibility (Brijnath, 2012).

Currently, old-age homes are still linked to notions of familial abandonment, conflict, and psychological distress. While these associations may evolve with increased migration, urbanization, changing roles of women, and improved care facilities, institutional care is still seen as a last resort, typically utilized for a limited duration. After a period of institutionalization, families often seek alternative arrangements, such as hiring paid attendants to care for their elderly at home. This preference for home care highlights the need for more resources to support families together with the need to eliminate the punitive elements of the Senior Citizens Act, 2007, as it fails to adapt to the changing dynamics of Indian families perpetuating the narrative of family decline. Research suggests that the Indian family is not "declining" but is instead adapting to new circumstances, like being responsive to social forces such as migration and urbanization, while still upholding traditional values of seva and love (Brijnath, 2012).

Living with independence

The desire for independence and an improved quality of life is commonly expressed by the elderly (Mitchell & Piggot, 2003). It is undeniable that people are living longer lives, and this trend is prevalent across the world. However, the health of older individuals varies significantly, both within and among different countries. Overall, there has been an improvement in global life expectancy, resulting in better overall health. In many regions, the number of years spent in good health, or at least without severe disability, has increased (United Nations Department of Economic and Social Affairs, 2023).

Elderly individuals, more than any other age group, often feel a strong attachment to their homes. This connection extends beyond the physical space and includes the possessions, experiences, memories, and expectations associated with their homes (Hidalgo & Hernandez, 2001; Rowles, 2003). Additionally, they feel connected to the community and the sociocultural environment of their home. For older people, their home provides a sense of autonomy and independence (Hearle et al., 2005) and allows them to have control over their daily activities, events, body, individuality, and social status (Stones & Gullifer, 2016).

Home enables independence by creating a space that is controlled by and uniquely the domain of the individual. Therefore, “home” signifies more than just the physical structure where a person lives; it represents the independent self and facilitates an independent life. In a broader context, home encompasses both the physical and social community in which the individual resides. Consequently, the attachment to a place will differ based on the unique combination of elements such as the older person’s physical residence, the social and constructed community, and the individual’s tenure within that community (Stones & Gullifer, 2016). In comparison to those transitioning to residential aged care, individuals living at home feel more physically self-reliant, have greater control over their lives, and are free from feelings of obligation. Staying in their own homes provides a sense of historical continuity and stability. It allows them to maintain elements of their lives, such as personal projects, activities, and memories, which contribute to their self-concept and identity in later years (Mitchell & Piggott, 2003).

As individuals age and encounter various losses, such as the death of loved ones, this experience can also be viewed positively through the lens of continual development (van Baarsen, 2002; Walker, 2002). Despite the physical decline associated with ageing, most individuals prefer to remain in their own homes and communities (Fricke & Unsworth, 2001). They do not view the transition to institutional residential care as a natural or desirable step in the ageing process (McGee et al., 2005; O’Hanlon et al., 2005). For many, residential care is seen as a last resort (Campbell-Enns et al., 2020) or, at worst, an option to be avoided at all costs (Wilson, 2000). Research indicates a generally positive correlation between ageing in familiar surroundings and a heightened sense of satisfaction and contentment (Wilmoth, 2000).

Many older people are attached to their independence and prefer familiar environments (Machielse, 2016). This preference is mainly since independent living helps maintain their sense of self-reliance, self-management, and self-esteem (Milligan, 2009). Machielse (2016) suggests that older individuals should have the opportunity to live independently as their health allows and if there is sufficient housing and social support available in their living environment. In many countries, older individuals’ ability to continue living in their own homes is closely related to their financial situation and how it compares to the costs of residential and nursing home care (Chen et al., 2015). According to Horner and Boldy (2008), ageing in place can offer more appropriate care at a lower cost compared to moving to a more specialized and sheltered facility. Ageing in place is proposed as a solution to these financial challenges, which could lead to reduced expenses and improved quality of life for older individuals (International Federation of Ageing, 2011).

Home modifications and the living environment for ageing in place

Hillcoat-Nallétamby and Ogg (2014) suggest that the desire to move often stems from dissatisfaction with the home environment rather than the neighbourhood itself. To enable individuals to age in place, the built environment must either be completely transformed or significantly adapted (Martens, 2018). The built environment plays a crucial role in influencing physical abilities. Sixsmith and Sixsmith (2008) note that increasing frailty, along with barriers inside and outside the home, affects both people's independence and their capacity to age in place. Home offers older individuals much more than mere physical shelter. It nurtures their sense of self, provides continuity of history, and offers support during times of change (Gullifer & Thompson, 2006). Additionally, it connects older adults with their younger selves, linking their past experiences to their current physical and psychological states (Evans et al., 2002; Rubinstein & De Medeiros, 2003). While ageing in place can yield positive outcomes, physical dislocation may negatively impact the psychological and emotional well-being of older adults.

As individuals age, their housing choices and preferences often evolve, reflecting the effects of the ageing process on their living arrangements. Understanding these shifts is essential for providing appropriate housing options and structuring housing markets accordingly. Notably, the preference for renting in the future is significantly higher than the current rates of home ownership. Given the wide variation in individual housing preferences, it's unlikely that a single solution will adequately address the housing needs of older adults based on sociocultural, economic, physical, and cognitive health conditions, and life course trajectories (Hillcoat-Nallétamby, 2015).

As people age, they typically prefer smaller, easier-to-maintain homes. Especially for those aged 80 and older (Oswald et al., 2011). Consequently, the need for single-story homes, the absence of stairs, antislip flooring, and bathroom adaptations becomes increasingly important. Many older adults ageing in place face challenges within their home environments, such as awkwardly positioned sinks and bathtubs, heavy doors, and a lack of handrails (Gitlin et al., 2001, 2006; Iwarsson, 2005). Home modifications can help manage daily activities in these situations. Furthermore, research indicates that home adaptations, especially in bathrooms, are a major concern for older adults (Fox et al., 2017). Practical modifications, such as installing shower rails and ramps, serve as adaptive and compensatory strategies (Sheth & Cogle, 2023). However, there is still a significant gap in systematic knowledge regarding how to effectively design services that meet these needs (Gitlin, 2003; Heywood, 2004).

Ageing in place is generally viewed as a beneficial approach for older adults, enabling them to live independently or with minimal support for as long as possible. It reflects a preference among older individuals to remain in their own homes rather than transition to institutions or care facilities. However, the existing literature offers limited insights into the effects of ageing in place on individuals and their caregivers, as well as the challenges it presents for service providers and aged care communities (Horner & Boldy, 2008).

To facilitate successful ageing in place, it is essential to offer services tailored to the needs of older adults, allowing them to maintain their independence and avoid the often costly and disruptive shift to more dependent living arrangements. These services should aim to enhance individual autonomy through support, management, and necessary physical adaptations while also addressing the increasing dependency that may arise over time (Horner & Boldy, 2008). Wilken et al. (2002) underscore the dual nature of ageing in place, noting that staying in one's home is beneficial only as long as it remains a positive experience for the individual, their family, and society.

Communities often assume that most older adults prefer ageing in place, which can lead to unfair judgment of those who opt for alternative arrangements from family, friends, healthcare professionals, and even from themselves. This highlights the necessity for a flexible service approach focused on individual needs rather than on the type of accommodation or label. Understanding the desire to age in place is vital, but it is equally important to consider the potential drawbacks of remaining in one's home for too long, as these can impact residents, caregivers, staff, and services (Horner & Boldy, 2008).

Role of home economists in supporting older people and families to develop respectful ways to age in place

Home economists are dedicated to enhancing the empowerment and well-being of individuals, families, and communities by developing lifelong learning skills applicable to various living and work situations, whether paid, unpaid, or voluntary (IFHE Position Statement, 2008). However, research on holistic wellness in later life is still limited (Foster et al., 2015) and where a comprehensive, whole-person approach is crucial for promoting successful ageing (Foster et al., 2015). At its core, Home Economics seeks to improve the quality of life through practical application and service, aligning closely with the principles of gerontology.

Gerontology explores how various factors impact basic human needs, individual well-being, family strengths, and community vitality, and how they either support or challenge older adults (Nickols et al., 2009). Home economists, with their specialized knowledge, play a crucial role in addressing the concerns of families with ageing relatives, fostering improved family relationships, and enhancing the well-being of older adults (Ponzetti, 1991). As an integrative and multidisciplinary field, Home Economics has, for over a century, focused on enriching the domestic or private sphere (Thompson, 1986). It offers a knowledge system that bridges the philosophical and practical aspects of everyday life. The profession is increasingly focused on school contexts, thus considerations of ageing and later stages of the life cycle are becoming restricted to theoretical understandings. The integration of gerontology within Home Economics can significantly enrich the knowledge base used by professionals in these fields to promote healthy ageing.

As individuals age, they face numerous adjustments with minimal information related to changes in family dynamics and the home environment. Home Economics has a valuable contribution to the field of ageing because it addresses many practical aspects of daily living. The philosophy and skills central to this profession cater to the essential needs of older individuals (Sanders, 1984; Van Zandt et al., 1984). Older adults often encounter disabilities that threaten their independence, but many of these limitations can be addressed by effectively managing environmental factors. Housing and consumer studies within Home Economics focus on mitigating these environmental challenges, helping the elderly maintain independence and improve their quality of life.

By offering practical solutions and addressing the everyday challenges of ageing, Home Economics can play a vital role in helping older adults adapt to their evolving needs, thereby supporting both personal independence and familial relationships. For instance, structural modifications—such as installing access ramps for wheelchair users and safer bathroom facilities—are key components of courses like "Family Housing" or "Housing for the Elderly." Professionals in housing and interiors emphasize the importance of educating individuals about the psychological, economic, and cultural factors that affect housing needs throughout life, especially for elderly people with mobility challenges.

Home economists specializing in consumer studies focus on personal finance, decision-making, and resource management, empowering older adults and their families to make informed choices and maximize available resources. This holistic approach enhances their financial well-being and overall quality of life. Additionally, Home Economics promotes personal growth, family interaction, and intergenerational relationships. As Montgomery (1982) noted, families provide more support to older relatives than all government sources combined. Most elderly individuals maintain regular contact with family members, fostering meaningful relationships. Family holds deep cultural significance and promoting successful ageing hinges on nurturing intergenerational support systems (Ratnayake et al., 2022).

Conclusion

Ageing is a natural and inevitable process associated with the time-based deterioration of physiological functioning and capacities (Ratnayake et al., 2022). Urbanization and the shift to nuclear families have reduced care for older adults, while societal challenges include negative media portrayals and limited social support. The elderly in India face age-related expectations, such as slowing down and retiring, though many resist these norms by remaining active and engaged. Intergenerational support, promoting positive attitudes toward ageing, and creating employment opportunities for older adults is essential to combating ageism (Sivaramakrishnan et al., 2024; WHO, 2021).

The field of gerontology and the concept of ageing in place are closely linked, with home economists taking a holistic approach to addressing the needs of older adults, as mentioned by researchers. However, there is a noticeable gap in the literature regarding the role of home economics in gerontology as a holistic approach, reflecting a lack of substantial research and discussion in this area. Throughout the years, the philosophical orientation of the subject has focused on practical life skills education, with a focus on improving the everyday lives of families (McCloat & Caraher, 2018). As individuals grow older, they often fail to realize that their living environments may need to be adapted to accommodate their ageing process. The failure to make these necessary modifications can result in ageing being perceived as a burden rather than a natural and manageable part of life. This lack of foresight underscores the importance of integrating gerontology more deeply into the field of home economics. By doing so, we can ensure that individuals and communities are better prepared for the challenges of ageing in place. By slowing down and thoughtfully considering how our lives and environments will need to evolve over the next decade, we can create spaces that support ageing with dignity and ease, rather than allowing it to become an afterthought in a society driven by constant advancement.

Biographies

Ayesha Ahmed *is currently pursuing a Master of Education in Home Economics Education. A dedicated educator and researcher, she holds a Master's in Home Science (Consumer Education) and a PhD in Interior Design and Ergonomics from Professor Jayashankar Telangana State Agricultural University, India. Her teaching career began in Home Economics and design projects, where she found her passion for sharing knowledge. Her research focuses on consumer education, ergonomics, aging in place, and sustainable design. Ayesha's achievements include the Science Alumni Gold Medal for the highest CGPA in her B.Sc. (Hons.) Home Science with a specialization in Family Resource Management.* ***Email:***

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Kerry Renwick *co-ordinates the graduate home economics education program at UBC, a teaching specialisation whose content and practice are inherently linked to building and sustaining respectful relationships. Her research focuses on social justice in context of K-12 educational settings. Kerry's previous research includes health promoting schools; exploring the relationship between school gardens and mental health in youth; and teachers' practice in health and food education. She is currently the Principal Investigator on a SSHRC Partnership Development grant focused on global food literacy education. The Food Literacy International Partnership (FLIP) includes Deakin University, Australia; Sweet Briar College, USA; and Gothenburg University, Sweden.* ***Email:*** *kerry.renwick@ubc.ca*

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PEER-REVIEWED PAPER

Implementation of Home Economics Teaching at Municipal and School Level in Finland

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Abstract

*This study examines the implementation of the HE teaching at municipal and school level in Finland. It uses the framework of quality criteria for basic education as a reflective base (Ministry of Education and Culture, 2012). The study examines the factors that guide the planning of teaching, HE contents and collaboration. There were 111 responded to an electronic survey. The data was analyzed using crosstabulation, K-mean cluster and content analyses. The curriculum (national or school) is the most important factor guiding teaching (68.5%). Teachers agree to follow curriculum objectives, but contents are emphasized as desired. Teachers are collaborators with HE colleague: 1) solitary (*n = 23*), 2) independent (*n = 19*), 3) collaborators (*n = 42*) and 4) tandem (*n = 27*). In compulsory HE lessons, food is prepared every time (90.1%) and in optional HE (91.9%). During the 8th–9th grades, pupils had 2 weekly hours of teaching HE as an artistic and practical subject elective (*n = 89*). Optional HE was offered so that a specific content was defined, or as a short or long elective. Primary school (grades 1–6) HE teaching was club-like and teaching in high schools was minimal. Teachers have autonomy, schools and municipal have much freedom. HE teaching is flexible for local needs but there is no uniformity.*

KEYWORDS: **HOME ECONOMICS (HE), CONTENT, CURRICULUM, COLLABORATION**

Introduction

In Finnish HE education, a foundation is created for pupils' household skills. HE teachers support pupils' growth into consumers who can maintain the basic prerequisites of daily life at home. Pupils develop their ability to take care of other people, and they grow as active members of the family, home and society (Finnish Board of Education, 2014). It is interesting how these goals are pursued in school HE classes.

HE as a school subject has always been multidisciplinary and the aim of the subject has been to improve the quality of life of individuals, families, and households (Elorinne et al., 2017). In Finland, the contents defined for the HE teaching in the National Core Curriculum for Basic Education are broad and fragmented (Wennonen & Palojoki, 2015). HE teacher is faced with an almost impossible task to smoothly integrate into her teaching the contents of food knowledge and food culture, living and living together, and consumer and financial knowledge at home. This may be reflected in the fact that some content areas and objectives are completely

Hokkanen, J. (2024). Implementation of Home Economics Teaching at Municipal and School Level in Finland. *International Journal of Home Economics*, *17*(2), 18-35.
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omitted, or some content areas are emphasized more than others (Wennonen & Palojoki, 2015). On the other hand, this challenge also offers an opportunity to collaborate with other subject teachers to expand and deepen the contents of the teaching (Haapaniemi et al., 2019). HE has many connections with other subjects (Elorinne et al., 2017), such as mathematics (Autio et al., 2021; Brante & Brunosson, 2014; Venäläinen & Metsämuuronen, 2015), health education, chemistry (Fooladi et al., 2023; Venäläinen & Metsämuuronen, 2015), social studies, crafts, and biology (Autio et al., 2021; Venäläinen & Metsämuuronen, 2015).

HE as a discipline is characterised by cooperation. The study by Venäläinen and Metsämuuronen (2015) examined the cooperation of HE teachers with other teachers. Half of the HE teachers (*n* = 163) reported that they had one HE colleague in the same school, in a quarter of the schools they were the only HE teacher, and in a fifth of the schools there were a total of three HE teachers (Venäläinen & Metsämuuronen, 2015). HE teachers often collaborate with a HE teacher colleague (69 %) in 2013–2014. A large part of the amount of cooperation in the HE can be explained by the nature of the subject, as it is often worth purchasing ingredients and materials together and at the same time doing lesson planning. With other schoolteachers, 60% of HE teachers reported that they cooperate a little and 39% have not cooperated at all.

According to the National Core Curriculum for Basic Education (2014), the goals of HE education is practicing practical skills, cooperation and interaction skills, and knowledge management skills (Finnish Board of the Education, 2014). According to the Finnish National Education Evaluation Center, there has been challenges in the implementation of the National Core Curriculum (Saarinen et al., 2021). The obstacle to achieving the goals of the curriculum is the abstraction, open to interpretation and idealism of the goals (Saarinen et al., 2021).

An effort is made by teachers to follow the curriculum, even if it is considered idealistic. 92% of HE teachers stated that they use the National Basic Education Curriculum in their work. 91% of the teachers stated that they use the local curriculum and 9 % teach according to the textbook (Venäläinen & Metsämuuronen, 2015). In Venäläinen and Metsämuuronen’s study (2015), 85% of the HE teachers stated that they emphasize on food knowledge the most and consumer knowledge the least (15%) even though the He curriculum guidelines direct consideration of all contents equally (Finnish Board of Education, 2014; Tuomisto et al., 2017).

It has been found that there are unquestionable practices in Finnish HE education, which include, the inclusion of food preparation in the lesson despite the learning goals of the lesson, which takes time away from other content, the effort to make the pupils comfortable, and the separation of practical and theoretical teaching (Tarsa, 2014). HE textbooks and teacher’s guides also emphasize food content (Tarsa, 2014). In Finland, teachers have a great deal of pedagogical freedom to choose the contents to the lessons and there is high trust in their skills (Sahlberg & Walker, 2021). Finnish teachers’ have perceived control over teachers’ work unnecessary, due to their high professionalism, while Estonian and German teachers think that they have complete freedom to choose within limits (Erss, 2018).

In Finland, HE teachers emphasize on sustainable food education (Autio et al., 2021; Pollari et al., 2021; Sekki et al., 2021) and teach consumer education and sustainability skills in a variety of ways related to clothing, living and consumption (Autio et al., 2021). Finnish He teachers consider all aspects of HE important and emphasize on digital skills as part of HE education (Kuusisaari et al., 2021). In HE lessons the teachers' goal in the future is to reduce teacher-led lecturing and food preparation (Kuusisaari et al., 2021) and to continue integrating HE education with other content areas and school subjects (Haapaniemi et al., 2019).

In many countries, food and food preparation are part of the HE core curriculum (IFHE, 2008) or as part of similar education, such as in the US as part of Family and Consumer Studies (Poirier et al., 2017). In Norway, the curriculum strongly focuses on teaching food preparation, unlike in Finland (Tuomisto, et al., 2017) and the subject is called Food and Health (Nordgård Vik et al., 2020). In Norway, HE classes should also teach nutrition, but the goals of the curriculum are not realized, as the focus is on practical food preparation (Beinert et al., 2020). In Sweden, HE is close to Finnish teaching in terms of the basics of the curriculum, with the name being Home and Consumer education (Board of Education, 2018; Bohm, 2023). In Sweden, the subject is taught in grades 1–9 with the content of food, meals and health, consumption and personal finances, as well as the environment and lifestyle, which includes clothing maintenance and cleaning (Board of Education, 2018). Cooking is emphasized in teaching also in Sweden (Board of the Education, 2018; Lassen & Hjälmesskog 2021; Bohm, 2023).

At Finnish school food preparation and other contents are taught to all pupils as compulsory three weekly lesson per year in the 7th grade (Venäläinen & Metsämuuronen, 2015). 55% of the teachers think that the number of compulsory HE lessons is appropriate, and 45% see it being too small (Venäläinen & Metsämuuronen, 2015).

HE is often chosen as an optional subject because pupils like it. Many schools' pupils would like to choose HE in the 8th and 9th grades more than the school is able to offer. The National Core Curriculum (Finnish Board of Education, 2014) limits the choice by tying the HE to the common quota of artistic and practical subjects, music, visual arts, crafts, physical education and home economics, where five weekly lesson per year is the maximum number of lessons. In many municipalities, the choice of artistic and practical subjects is limited as a regular optional subject (Rantamäki & Palojoki, 2017.) In the national HE evaluation, 8.3% of the sample pupils answered that they hadn´t had the opportunity to choose HE as an optional subject (Venäläinen & Metsämuuronen, 2015). In the national HE test, the competence of pupils who studied HE as an optional subject and did household chores at home was better than pupils who had only participated for compulsory HE teaching (Venäläinen & Metsämuuronen, 2015).

Research question

This study examines the implementation of the HE teaching at municipal and school level in Finland. It uses the framework of quality criteria for basic education as an aid to analysis (Ministry of Education and Culture, 2012) (Figure 1). The description of quality factors aims to demonstrate the research basis of quality factors and to attach them to the guidance and planning system of basic education (Ministry of Education and Culture, 2012). The study investigates how HE teachers are implementing the Finnish National Core Curriculum for Basic Education. The research question is tripartite: What is guiding their planning? What kind of emphasis do they give on different HE content areas and how they collaborate with colleagues?

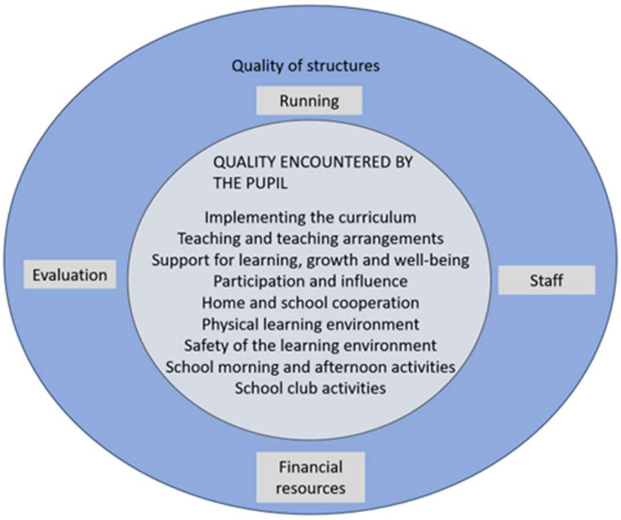

Figure 1 Reference framework for quality in basic education (Ministry of Education and Culture, 2012, p. 28)

Research data

The research material was obtained as an online survey using the Webropol program. The survey consisted of six sections and four areas are reported: 1) background information, 2) the provision of HE education, 3) organizing one's own work and 4) cooperation with a HE teacher colleague. Question concern collaboration with HE teacher colleague is the same as in Venäläinen and Metsämuuronen's (2015) teacher survey.

HE teachers who belong to the target group were contacted during March–May 2023 from the HE teachers Facebook group and through the Association of Home Economics Teachers. At the beginning of the survey, the respondents were informed about the study and asked for their consent to participate. The research informant received information about the use of the collected material for scientific research and about data protection. See background information from Table 1.

Table 1 Background information of survey respondents (n = 111)

Background Variable	*N*	%
Gender		
Women	109	98.2
Men	2	1.8
Qualification		
Home economics teacher	105	94.6
Qualification for teaching another subject	4	3.6
Nonqualified Home economics teacher	2	1.8
Work experience as Home economics teacher		
Less than 1 year	3	2.7
1-5 years	40	36.1
Over 10 years	32	28.8
Over 20 years	36	32.4
Regional administrative agencies		
Eastern Finland	30	27
Southern Finland	24	21.7
Western and Inland Finland	21	18.9
Northern Finland	13	11.7
Southwestern Finland	7	6.3
Lapland	1	0.9
Number of students in the school		
Less than 500	56	50.5
Over 500	55	49.5

The survey was answered by 111 HE teachers, who were mainly women (98.2%). In terms of teacher qualification, most HE teachers were qualified for their duties (94.6%), which is a very similar number to the report by the Finnish Board of Education (2020) (93.3%). Only two did not have a teacher's qualification at all and four had a qualification for teaching another subject. The teachers had varied work experience. There were relatively more HE teachers who responded from large population centers, where there are more schools and teachers (Statistics Finland, 2022), which is why it is challenging to compare regions with each other.

Data analysis

The data was analyzed using quantitative and qualitative methods, and the reference framework of the quality criteria for basic education has been used to structure the analyzes (Ministry of Education and Culture, 2012). The open questions regarding the course offerings of HE was analyzed with data-driven content analysis, where the classification of the analysis is based on the themes emerging from the data (Krippendorff, 2019): compulsory home economics, artistic and practical subject electives, optional home economics, primary school home economics, and high school home economics.

The data was analyzed in the SPSS27 program, and the statistical testing used key figures, cross-tabulation, χ^2 independence tests and K-means clustering. In K-means clustering, the data is divided into groups based on average values, so that the findings are as similar as possible within the group, but there are as many differences as possible between the groups (Hastie et al., 2009). The analysis requires the fulfillment of certain conditions, such as the size of the data at least 50 (Hair et al., 2010; Heikkilä, 2002; Metsämuuronen, 2008). For this study, the material was large enough. K-means clustering is a widely used analysis method, the reliability of which improves if the initial situation for clustering is clear and enough clustering repetitions are done (Fränti & Sieranoja, 2019). In this study, the answer options always, often, rarely, and never guided the selection of clusters to four, but other options were also tested.

Results

Home Economics teachers planning their lessons

HE teachers are guided by various factors when planning their teaching (Table 2). Most importantly, 68.5% of HE teachers are guided by the curriculum (national or school), 14.4% by their own expertise, 7.2% by HE textbooks, teachers' guide with their possible annual plans, and 9.9% by prevailing views on the various aspects of HE teaching.

Table 2 Home Economics teachers' (n = 111) teaching planning factors in order of importance (1 = most important, 5 = least important)

Ordinal scale	1	2	3	4	5
National Core Curriculum for Basic Education	42.4%	26.1%	11.7%	7.2%	12.6%
Schools curriculum	26.1%	30.7%	18.0%	18.0%	7.2%
Own expertise	14.4%	22.5%	43.3%	17.1%	2.7%
Home Economics textbooks, teacher's guide and their annual plans	7.2%	14.4%	17.1%	33.4%	27.9%
Prevailing views (trends) about different areas of Home Economics education	9.9%	6.3%	9.9%	24.3%	49.6%

From the point of view of the quality criteria of basic education (Ministry of Education and Culture, 2012), it is worrying if the curriculum does not guide the planning of the teaching as the most important factor. This may cause big differences in the goals, content and assessment of teaching in different parts of Finland.

A distribution of Home Economics lessons in a school year

Schools have large autonomy to arrange the HE tuition during grades 7 to 9. Based on the data, in 93% (n = 103) of the schools, compulsory HE, the three weekly lesson per year, is held in the 7th grade. The content is said to be in accordance with curriculum. From the teacher's point of view, this means that all the contents of HE should be taught to 7th graders. This certainly affects the choice of contents, because some contents related to becoming independent and moving away from home is thought to be still far from the everyday life of a 7th grader.

A few teachers explained in more detail about their school's HE teaching arrangements in open-ended answers. In the compulsory HE, one school had language-enriched (English) and language immersion (Swedish) where part of the teaching is given in a foreign language. In four schools, special education pupils were integrated into other teaching groups. In two schools, pupils in the preparatory class worked with others in a regular group. In one school, HE is taught to special education pupils by special education teachers, if they feel that managing the HE is sufficient. Not everyone experiences this way when the pupils in the special education group doesn't receive HE according to the curriculum. In one school, the HE group of special education pupils is taught by two HE teachers together.

In 46% of the schools (*n* = 51), all those who wish can take the optional courses in HE, and in 54% (*n* = 60) they cannot. 91.9% of HE teachers think that food attracts pupils to choose HE as an optional subject, and 91% also consider the pupils' wishes regarding recipes in optional courses. Many of the HE teachers said that the school limited pupils' Home Economics elective course to only one option per pupil, because HE is such a popular subject.

The lengths and contents of the optional HE vary from school to school (Table 3). In the artistic and practical subject electives, most of the HE teachers (*n* = 89) taught in accordance with the curriculum, where during the 8th–9th grades, the students had 2 weekly hours of teaching, the aim of which was to deepen what they had already learned. The optional HE had the most variation in terms of content and hours per week. It also varied, whether a specific content was defined for the teaching or whether it was just a short or long optional home economics. Among the named contents, the most popular were baking (*n* = 73), food cultures (*n* = 27), contents preparing for own home and student life (*n* = 20), hygiene passport (*n* = 16) and feast course (*n* = 10). There were also exceptions that were only offered at the respondent's school, such as technology course, interior decorators, own cookbook and digital household. These contents are very relevant in timely and connect to the young person's own world of experience.

HE was also taught in primary school and there was a total of 46 mentions of HE teaching or after school activities. In these, the person in charge varied from a HE subject teacher, a classroom teacher, a guidance or a 4H counselor. Only six of the HE teachers also taught in high school. In three high schools it was possible to complete a high school diploma. The purpose of the high school diploma in HE is to give the student the opportunity to demonstrate special competence in the subject. The high school diploma is completed with the high school diploma course (2 credits) and includes a portfolio and essay on it (Finnish Board of Education, 2022).

Table 3 Variation arranging Home Economics lessons in schools

Variation	Grades	Length (Hours)	*n*	Lesson Information
Compulsory Home Economics	7th	3	103	
	7th	2	4	
	9th			
	7th	2	1	
	8th	1		
	7th	3	1	
	9th	1		
	8th	3	1	
	7-9th	3	1	
Artistic and practical subject electives	8-9th	1	2	
		2	89	
	8th	2	10	Of these, the content is defined: Snack and treat course, Kitchen skills for many tastes, For your own home
	8th	1	2	
	9th	1	7	Of these, the content is defined: For our own home (*n* = 1), Hygiene passport (*n* = 2), Food cultures (*n* = 2)
	9th	2	6	Of these, the content is defined: Seasonal and local food course (*n* = 1), Own home, own money (*n* = 1)
	8th or 9th	2		Home economics through the eyes of a food blogger
	7th	2		Get well (including health and physical education)
Optional Home Economics	8-9th	2	24	Baking
	7th, 8th, or 9th	1	46	
		2	3	
	8th or 9th	1	52	Of these, the content is defined: Flavors from Finland and the world (*n* = 27), Hygiene passport (*n* = 13), Baking and hygiene skills (*n* = 2), Food trends and social media phenomena, Catering English. Short courses–1 hr: Refresher course, Language cafe, Party course (*n* = 7), Knowledgeable and skilled cook, Everyday heroes (*n* = 2), Snack course (*n* = 3), Sports Home Economics, Quick in the kitchen, Snacks of life (*n* = 3), Chemistry in the kitchen (*n* = 2), Pop up café (including social studies), Technology course, Food preparation and baking (*n* = 2). Long courses–2 hr: Tasty in the kitchen, Skillfully in the kitchen
		2	33	
	5th, 6th and 8th Mixed	1		Home economics and chemistry
	9th	1	22	To become a skilled cook, Café services (Home Economics and social studies) *n* = 2, Cooking and baking, Student life (*n* = 18), Sustainably on the plate, Cooking in english, Let's cook in Swedish, Parties here and elsewhere (*n* = 2), Well-being (including health education), Own business (the whole school involved), Special baking, Party course, Chef's chemistry, Cooking and Baking in English (including English)
	Special	2	2	2 hrs for students studying special class
	8th	1	4	1 hr: Trendy food, Home cook (*n* = 2), Home baker, Hygienist, Interior decorators, Handicraft cafe (*n* = 2), Senses in the food world, Bon appetite, Eat and move (including physical education), Decorating course, My cookbook, My baking book, Smårätter (Swedish language school). 2 hr: Home Economics, Away from home (*n* = 2)
		2	2	
	7th, 8th, or 9th	2		Environmental course (including biology), Digital household

Variation	Grades	Length (Hours)	*n*	Lesson Information
Primary School Home Economics	5th	1	4	Optional
	6th	1	8	
		2		Artistic and practical subject elective
	Elementary	1	12	The class teacher teaches (*n* = 1)
		2		Artistic and practical subject elective
	5-6th	1	11	The class teacher teaches (*n* = 2) Of these, the content is defined: Home economics and social studies (*n* = 1)
	4th	2	3	Cooking club
	3-4th	2		
	5-6th	2		The class teacher teaches
	3-6th	2		Let's cook and go on trips, Everyday skills
	4-6th	2		I make it myself at home, Snack Courses
	1-2nd			Little Chef Club
	Club		10	4H association included (*n* = 2) The Finnish model of a hobby: cooking (the school counselor teaches the lessons)
High School Home Economics	2 courses and a high school diploma (*n* = 3) Of these, the content is defined: My life - my finances (*n* = 1), Customs and party course (*n* = 1)			
	Hygiene passport course			
	1 course, contents according to students' wishes (budgeting)			
	A high school student bake (2 credits), International cuisine (2 credits)			

From the point of view of the quality criteria of basic education (Ministry of Education and Culture, 2012), it is worrying when pupils receive very different kinds of HE teaching, because the number of lessons and contents varies. The question arises whether there is too much variation in home economics quality. The lack of HE teaching in primary schools and high schools is also a concern and needs development.

Contents of the Home Economics lessons

HE teachers consider the learning of practical skills to be the main goal of Home Economics lessons (91.8%) and prefer practical homework that promotes pupils' learning of practical skills (81.9%). Teachers don't think that practical homework cannot be given, even though HE lessons should be free of charge, and not all homes necessarily have the resources (ingredients, tools and cleaning agents) to complete homework at home (75.6%). 49.5% of teachers give the pupils the opportunity to complete their practical homework in the HE class if the pupil cannot do so at home. Regular reading or written homework are preferred a little less often (63.9%). Reading homework is often given by 54.9% and written homework by 49.5% of teachers.

Almost all (99.1%) teachers think that in HE lessons it is important to learn self-care and everyday skills and to evaluate household information. It is important for pupils to learn in class how to listen, discuss, follow good manners, work alone and in a group, share tasks and evaluate the impact of their own behavior on the group's activities (100%). The teachers are very much in agreement with the HE education learning objectives mentioned in the National Core Curriculum. On the other hand, content-based consensus on teaching emphasis is not found in relation to the HE content areas (Tables 4 and 5). Even researching the topic is difficult, because several HE contents are present in the lessons at the same time even so that teacher is not aware that she is teaching them.

Table 4 Emphasis on content areas in compulsory Home Economics education

Content Area	Food knowledge and food culture	Housing and living together	Consumer and financial skills at home
10%		2.7%	18.0%
15%		5.4%	16.2%
20%		32.5%	30.7%
25%		19.8%	17.1%
30%		23.4%	13.5%
35%	1.8%	7.2%	
40%	11.7%	3.6%	
45%	5.4%	0.9%	0.9%
50%	30.7%		1.8%
55%	2.7%		
60%	27.9%		
65%	5.4%	0.9%	0.9%
70%	9.9%	0.9%	
75%		1.8%	
80%	1.8%		
85%	0.9%		
90%	0.9%	0.9%	0.9%
100%	0.9%		

Table 5 Emphasis on content areas in optional Home Economics education

Content Area	Food knowledge and food culture	Housing and living together	Consumer and financial skills at home
10%		28.9%	43.3%
15%		15.3%	20.7%
20%		25.2%	16.2%
25%		13.5%	10.8%
30%		9.0%	3.6%
35%	0.9%	0.9%	
40%	3.6%		
45%	1.8%	3.6%	1.8%
50%	12.6%		
55%	0.9%		
60%	19.8%	0.9%	
65%	2.7%		0.9%
70%	24.4%	0.9%	
75%	4.5%		0.9%
80%	24.3%		0.9%
85%	1.8%		0.9%
90%	1.8%		
100%	0.9%	0.9%	

The teacher's age or work experience were not found to be important for the emphasis on different teaching contents. 50.4% of HE teachers emphasize more than 50% food knowledge and food culture content area in compulsory HE lessons. The corresponding figure for optional HE education is as high as 80.1%. 75.7% of respondents emphasize housing and living together content 20–30% in compulsory HE education. Regarding the optional HE, there was a great variation in emphasis in the content area of living and living together. In the compulsory HE education, the contents of consumer and financial skills at home were emphasized very differently. In the optional HE, the typical weighting percentage in 80.2 % of teachers was 10–20%.

In compulsory HE education, food is prepared every time in 90.1% of the lessons of the HE teachers. At least every other time, food is prepared in 9% of the lessons and less often in the lessons of only one teacher (0.9%). In optional HE education, food is prepared even more often every time (91.9%), every other time 7.2% and less often 0.9%. 79.2% of the teachers consider cooking important in HE lessons because it motivates pupils to learn. However, if food is not prepared during the lesson, few teachers thaw something from the freezer for the pupils to eat (18%). 23.4% of teachers want to offer a proper meal in HE lessons and 71.2% prefer smaller tasting portions.

Collaboration with colleagues

Major number of HE teachers have more than one HE teacher colleague from their own school (74.8%, n = 83). Twenty-eight HE teachers does not have a close colleague. 12% (n = 13) of HE teachers follow the annual plan of another more experienced or HE teacher who has been at the school the longest, and 43% (n = 48) do so partially. 45% of teachers (n = 50) does not follow another teacher's annual plan. The reason for this for some is that they do not have a close colleague. It is typical for HE teachers to plan their work themselves (73%, n = 81), and not completely follow a ready-made, for example, textbook plan (1.8%, n = 2). However, 25.2% (n = 28) partially follow the prepared plan. 69% of HE teachers often collaborate with a HE colleague in terms of lesson planning.

The HE teachers could be divided into four groups by K-mean clustering in relation to the collaboration with a HE teacher colleague (Table 6). The answer options in the questions were: 1 = always, 2 = often, 3 = rarely and 4 = never. In accordance with these answer options, the solution of four clusters was also reached in the clusters. The division into clusters was statistically highly influenced by whether the HE teacher had a colleague at the same school ($df = 3$, $\chi^2(3) = 71.51$, $p = 0.001$).

Table 6 Home Economics teachers' cooperation profiles

	Clusters			
	Solitary teachers (n = 23)	Independent teachers (n = 19)	Collaborators (n = 42)	Tandem teachers (n = 27)
Discussion of Home Economics education	3.83	2.11	1.43	1.11
Discussion about raw material procurement.	3.91	2.32	1.60	1.11
Planning courses together.	3.96	2.68	1.17	1.04
Drawing up joint annual plans for compulsory Home Economics education.	3.96	2.63	1.24	1.04
Drawing up joint annual plans for optional Home Economics education	4.00	2.68	1.19	1.04
Preparing learning material together.	3.96	3.21	1.98	1.37
Planning the assessment together.	3.87	3.00	1.90	1.19
Participating in continuing education together.	4.00	3.21	3.12	2.07
Implementation of courses together.	4.00	3.89	3.69	2.78

Note. The answer options in the questions were: 1 = always, 2 = often, 3 = rarely and 4 = never. The bigger the number, the less often teachers cooperate.

The 23 respondents belonging to the solitary teachers' group didn`t cooperate at all, as most of them do not have colleague, except for two teachers. In the independent teachers' group (*n* = 19) there are also some teachers who don`t have a close colleague (*n* = 5), but also those who do (*n* = 14). However, if you wish, you can also collaborate with a colleague in the nearby area or one who is further away in online. The collaborators group (*n* = 43) was the largest in number, where the most important forms of cooperation were the preparation of joint annual plans for compulsory and optional HE, and the planning of courses together. In the tandem teachers group were is lots of cooperation (*n* = 27) teaching, learning materials, raw material acquisitions and evaluation were planned together and there was a discussion about HE. The teachers also often participated in continuing education together.

Collaborating with an HE teacher colleague would ease the teacher's own workload. However, not all He teachers have a close colleague to work with or the desire to do so. However, 79% of teachers cooperate to some extent with their HE teacher colleague.

91% of HE teachers are happy or somewhat happy to collaborate also with other subject teachers (see table 4). In some schools, there was teaching in cooperation between different subjects, such as HE and a foreign language (English or Swedish) (*n* = 6), HE and chemistry (*n* = 4), HE and social studies (cafeteria course) (*n* = 3), HE and physical education (sports and nutrition) (*n* = 2), HE and crafts (craft café) (*n* = 2), HE and health education (well-being course) (*n* = 1), and HE and biology (environmental course) (*n* = 1). One school mentioned having an "own business" course organized by the whole school in cooperation. In some schools, subject collaboration is done well, and the contents of the HE are wider than food preparation.

Discussion

This study brought out how HE education can be implemented in different ways at municipal and school level in Finland. According to the Finnish Board of Education (2020), 477 secondary school HE teachers worked in Finland in 2019, so the survey reached about 23% (*n* = 111) of them. The survey was long (twenty questions or question batteries), which could reduce the number of respondents. There were not an equal number of respondents from different areas in Finland, so it was not possible to examine regional differences. It would be interesting to study geographical variation in more detail with a larger dataset.

The guidelines of the National Core Curriculum for Basic Education (Finnish Board of Education, 2014) and the school curriculum should be the most important factors guiding the planning of HE teachers' teaching from the perspective of the quality criteria of basic education (Basic Education Act 21.8.1998/628; Ministry of Education and Culture, 2012). This was true for more than half of the HE teachers who responded (68.5%). The expectation was that the number would be bigger, but for 14.4%, their own expertise, 7.2% for HE textbooks with possible annual plans, and for 9.9% the prevailing views on the different areas of HE were a more important factor guiding the planning. Also, in the study by Venäläinen and Metsämuuronen (2015), some of the teachers (9%) taught according to the textbook. Also, in Sweden 48% of the teachers reported using textbook when planning lessons (Lange et al., 2014). This indicates that some of the HE teachers have strong confidence in their own expertise or that the HE textbooks and teacher's guides are in accordance with the curriculum. For example, in Finland and Sweden, the content of textbooks is not checked by the government, as is done in Japan and Korea (Eriksson & Hjälmeskog, 2016; Sueun et al., 2011).

Teacher's guides have been found to bring out new pedagogical and didactic approaches (Lerkkanen, 2017; Räsänen, 2017). Despite decades of continuous criticism, textbooks and workbooks have maintained their position as the most used learning materials (Karvonen et al., 2017), reflecting the world view and learning concept typical of the era (Crawford, 2003; Karvonen et al., 2017). The materials used in teaching have a great influence on what and how one studies and learns at school (Crawford, 2003; Karvonen et al., 2017.)

HE has been very food oriented (Beinert et al., 2020; Bohm, 2023; Tuomisto et al., 2017; Venäläinen & Metsämuuronen, 2015), which was also found in this study. HE textbooks and teacher's guides have been found to place the greatest emphasis on food content (Tarsa, 2014). In compulsory HE teaching, food is prepared every time in 90.1% of the lessons of the participating HE teachers, and in optional HE 91.9%.

Regardless of the learning goal, including cooking in the lesson takes time away from the teaching of other aspects of the HE and has already been found to be an unquestioned practice (Tarsa, 2014). In this study the emphasis on cooking is supported by the idea that teaching practical skills is the main goal of HE (91.8%), teachers think that food motivates pupils to learn (79.2%) and food motivates pupils to choose HE as an optional subject (91.9%). At school, competition for optional subjects and pupils isn`t a new phenomenon (Rantamäki & Palojoki, 2017). Many schools' pupils would like to choose HE in the 8th and 9th grades more than the school's resources allow. From the point of view of learning useful everyday life skills, the optionality of HE should not be limited so much.

HE teachers are very unanimous supporters of the goals set for HE education. On the other hand, there isn`t substantive agreement on the teaching emphasis in relation to the HE content areas. However, the varying content emphasis of HE education means that the content of the teaching isn`t the same in different parts of Finland. In the national HE final exam, the best results were achieved in the administrative region of Eastern Finland and rural municipalities (Venäläinen & Metsämuuronen, 2015). In the exam, the content-based competence also tells a part of what is emphasized in the teaching. Practical skills are emphasized in the teaching because the demonstration test went well, the written tasks related to nutrition were the weakest, such as tasks related to dietary fiber, organic food, eating rhythm and folk diseases, as well as tasks related to water consumption, covering and care instructions (Venäläinen & Metsämuuronen, 2015).

Based on the data, in 93% (*n* = 103) of the schools, the compulsory three weekly lesson per year is held in the 7th grade, which has also been observed in an earlier study (97%) (Venäläinen & Metsämuuronen, 2015). The lengths and contents of the optional HE vary from school to school. Optional HE, which doesn`t belong to the elective quota for artistic and practical subjects, was offered in many ways, either so that a certain content was defined for the teaching, or it was only a short or long elective. Baking (*n* = 73) and food cultures (*n* = 27) were highlighted in the named contents. The emphasis on baking can certainly be partly explained by the fact that it is pleasant for pupils (see also Tarsa, 2014) and the basic raw materials for baking are inexpensive. The home economics electives (*n* = 20) preparing for own home and student life are important from a societal perspective.

In the artistic and practical subject electives, many HE teachers (*n* = 89) reported that the teaching was in accordance with the principles of the local curriculum, where during the 8th-9th grades the pupils had 2 weekly lessons. This is important information and maintains versatile HE skills. The problem here is, that not all pupils get in or choose HE as an artistic and practical subject or an optional subject, in which case the skills will also be weaker. The skills of pupils who studied HE as an optional subject have been found to be better than those who only studied compulsory HE, especially if the contents of the subject are still practiced at home (Venäläinen & Metsämuuronen, 2015). It can be thought that homework plays an important role in supporting pupils' interest in HE. In this study HE teachers prefer practical homework that promotes pupils' learning of practical skills (81.9%). HE teachers also give other homework: reading homework is often given by 54.9% and written homework by 49.5% of teachers. Homework has been found to be beneficial for students' learning through repetition (Gu & Kristoffersson, 2015) and if it is given often and little (McJames et al., 2024).

Primary school HE education or club activities, there were 46 mentions. In these, the leader was not always a qualified HE teacher or even a teacher, in which case the activity is more of a hobby. The teaching should be carried out by a qualified HE teacher and the teaching should have clear goals, content, and assessment. The teaching of HE in high school was very limited and it would also require measures to develop the teaching.

HE teachers often (69%) do joint planning with a HE teacher colleague. The same result was also reached in Venäläinen and Metsämuuronen's (2015) study. Most of the HE teachers found a colleague from their own school (74.8%, *n* = 83) and the amount of cooperation varied. Not everyone cooperates with a close colleague, even if there is one. This would require a more detailed investigation into the reasons. A gratifying research observation was also that 91% of

HE teachers are also happy to cooperate with other teachers. Twenty HE teachers also mentioned the cooperative teaching of several subjects in their school, which is encouraged and mandated by the National Core Curriculum for Basic Education (Finnish Board of Education, 2014). The challenges of subject collaboration are often administrative factors, teachers' personal characteristics and resources (Jong et al., 2022; Pöntinen, 2019). To pupils, subject cooperation increases the transfer effect of learning, can increase the meaning and motivation of learning, and support the comprehensive understanding of phenomena (Pöntinen, 2019). To Teachers, subject collaboration brings new skills, different perspectives to the work, and it is felt to increase enjoyment at work (Pöntinen, 2019).

Conclusions

This research has produced important information for researchers in the field, for the development of HE teacher training and HE teaching. The most important discoveries are that HE teachers have a lot of autonomy, schools and district have much freedom and HE teaching is flexible for local needs but there is no uniformity. The varying quantity and quality of teaching could be said to be the biggest development area of HE teaching in relation to the quality criteria of basic education (Ministry of Education and Culture, 2012). Basic Education Act 21.8.1998/628 obliges teachers to act according to the curriculum, but the loose curriculum is interpreted in different ways and time frames. Great confidence in a teacher's professionalism and a lot of autonomy in teaching (Sahlberg & Walker, 2021), can be seen as both risk and opportunity (Erss, 2018).

In HE teacher training and in-service training, more and more attention should be paid to perspectives that integrate the contents of the HE and cooperation with other subjects. Balanced HE education in terms of content should be taken as a goal in the new Finnish National Core Curriculum for Basic Education. It could be considered to combine the contents of the HE into one complete entity, for example as follows: sustainable living, consumption and food knowledge at home. Of course, even this solution wouldn`t remove many contents, but it would help to visualize the functions of the home, which can be taught comprehensively. Many household chores are done overlapping at home, so why not also in HE education.

Biography

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IFHE INTERNATIONAL FEDERATION FOR HOME ECONOMICS

PEER-REVIEWED PAPER

Assessment of Ultra-Processed Foods Consumption and Overall Dietary Pattern of Undergraduate Students in Ondo City, Ondo State

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Abstract

The consumption pattern of ultra-processed foods (UPFs) among several populations is reportedly alarming, and minimising it and its attendant health risks is very challenging. This study sought to investigate the observed trends in UPFs consumption and overall dietary pattern among undergraduate students in Ondo City. Descriptive survey research design was to collect data from 240 university students representing a 2% of the study's population. The data was collected using the Ultra-Processed Foods Consumption Pattern and Effects on Students' Health Questionnaire (UCPESHQ) and used to answer three research questions using mean, standard deviation, simple ranking, and percentage. One null hypothesis was tested at 0.05 level of significance using Pearson Product-Moment Correlation (PPMC). Major findings are that undergraduate students consume sweet or savoury packaged snacks often, while they usually consume 16 other UPFs. A huge proportion of them (70.3%) skip breakfast, and UPFs consumption and overall dietary pattern have a positive, significant but very low correlation (r = 0.143, ρ = 0.029). This study concluded that the consumption of UPFs by undergraduate students in Ondo City is usual (habitual); that their consumption pattern is imbalanced; and that the relationship between the two is significant and positive, though very low. Hence, it was recommended that public sensitization should be carried out to educate undergraduate students about the risks associated with the consumption of ultra-processed foods and that undergraduate students should take personal responsibility to watch their diet and care for their health.

KEYWORDS: **CONSUMPTION PATTERN, ONDO CITY, RELATIONSHIP, ULTRA-PROCESSED FOODS (UPFS), UNDERGRADUATE STUDENTS.**

Introduction

The global food system is a complex network encompassing a vast array of products, from raw, unprocessed commodities to highly manufactured consumables. Naturally occurring food commodities can be purchased from the market and consumed raw or cooked as meals. However, some of these food items undergo several stages of processing either to prepare them

Ihensekhien, I., & Oluwagbemileke, F. B. (2024). Asesement of Ultra-Processed Foods Consumption and Overall Dietary Pattern of Undergraduate Students in Ondo City, Ondo State. *International Journal of Home Economics*, *17*(2), 36-47.
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for use in other foods (as in the case of condiments) or to enhance their palatability, reduce cost, and extend shelf life (as in the case of convenience foods). The latter category, characterised by extensive industrial manipulation, is commonly referred to as ultra-processed foods (UPFs).

Ultra-processed foods (UPFs) are food and drink products subjected to various processing methods, resulting in minimal intact nutrients. These products, typically ready-to-eat or drink, are ubiquitous in modern diets. They are ready-to-eat or drink (Oguizu & Celestine, 2021). The aim of producing UPFs is to increase shelf life, accessibility, convenience, taste appeal, appearance, and consumption readiness. Nevertheless, they are typically low in fibre and micronutrients, while often being high in sodium. Examples include sweet cookies and cakes, industrialised popcorn and snacks, reconstituted meat, sweets and candies, soft drinks and industrialised fruit juices, salty crackers, fast food snacks, sweetened milk drinks, lasagna and savoury pies, instant noodles, loaves of bread, hamburgers, packaged roasted peanuts, chocolate powder, flavoured and sweetened corn starch mixtures, industrialised flour, margarine, industrialized sauces, soda, snacks, ice cream, chocolates, and sausages (Costa-Louzada et al., 2015; Monteiro et al., 2018). The ubiquity of UPFs is a matter of concern, particularly among vulnerable populations such as young adults, especially university students.

Processed and ultra-processed foods are favoured by various groups, including undergraduate students. In this study, undergraduate students refer to those pursuing regular Bachelor's degree programs. These individuals often reside on campus in halls of residence or off-campus near the university. They are likely to have limited culinary expertise and may be especially susceptible to the allure of these convenient food options. This study excludes part-time or distance learning students, the program structure, duration, and residential arrangements differ significantly.

The overall consumption pattern of UPFs among undergraduate students is alarming. Oguizu and Celestine (2021) reported daily cake consumption among 65.6% of adolescents in Aba North Local Government Area. Additionally, soft drinks, packaged breads, cookies, and instant noodles were consumed regularly by approximately 74.7%, 68.8%, 71.8%, and 59.9% of the population, respectively. Otemuyiwa & Adewusi (2012) found that many students ate twice daily, replacing the third meal with snacks. Milk and alternatives were consumed minimally (25% female, 10% male), and about 85%, 60%, and 40% did not meet the recommended dietary allowance (RDA) for protein, iron, and calcium. UPFs contribute nearly half of the daily energy intake for university students (Mescoloto et al., 2017). This dietary pattern, potentially influenced by factors such as family convenience, time constraints due to academic workload, low socioeconomic status, or inadequate nutrition education, can have adverse health effects if unchecked.

Reducing UPF consumption and associated health risks is challenging. Policy development and implementation, coupled with personal responsibility among undergraduate students, are crucial. For example, the Brazilian government's Dietary Guidelines (second edition) emphasised food quality and recommended reducing processed and ultra-processed food intake while promoting natural and minimally processed options (Mescoloto et al., 2017). Similar initiatives are needed in Nigeria. Food processing companies should minimise nutrient depletion, advertising should accurately represent UPFs, and food fortification and nutrient supplementation should be encouraged.

Ondo City, a growing metropolis in Ondo State of Nigeria, hosts several higher education institutions, including Adeyemi Federal University of Education. Its size, federal status, and large student population make it a suitable location for this study. The city's dynamic environment, including its student population, creates a favourable market for UPFs. This study aims to assess UPF consumption and overall dietary patterns among undergraduate students in Ondo City, Ondo State.

Understanding the UPF consumption patterns of undergraduate students in Ondo City offers a microcosm of a global challenge. The findings of this study can contribute to the broader discourse on the impact of ultra-processed foods on public health, particularly among young people, not only in Nigeria, but worldwide.

Statement of the Problem

Several activities compete for students' attention, including academic studies and nonacademic social activities. Many undergraduate students in several institutions of higher learning within the city are caught in the web of these activities so that they have very limited time to cook balanced meals at least once a day. They are often left with the option of eating out at restaurants and other eateries or feeding on convenience foods. The former option usually exposes students to food items that are largely overly saturated with seasonings and preservatives which are not safe for their health. The latter leaves them at the mercy of ultra-processed foods, which are usually although cheap and fast but less nutritious. The researcher had a first-hand experience of the rigor of academics, resulting neglect of nutritional needs, and the adverse effects on health in this city. It is rather painful to think of hundreds of students who are victims or even dependent on this negative nutritional trend, usually due to ignorance of the cumulative effects of such a practice. Hence, this study sought to investigate the observed trend in UPFs consumption and the overall dietary pattern of undergraduate students.

Research Objectives

The main objective of this study was to assess the consumption of ultra-processed foods (UPFs) and the overall dietary pattern among undergraduate students in the Ondo City of Ondo State. The specific objectives were to:

1. document the frequency of UPFs consumption among undergraduate students in Ondo City,
2. document the overall dietary pattern of undergraduate students in Ondo City,
3. determine if there is a correlation between the consumption of UPFs and the overall dietary pattern of undergraduate students in Ondo City, and
4. highlight the strategies to minimize the consumption of ultra-processed foods among undergraduate students in Ondo City.

Research Questions

The following research questions guided the study.

1. How frequently are ultra-processed foods consumed among undergraduate students in Ondo City?
2. What is the overall dietary pattern of undergraduate students in Ondo City?
3. What are the strategies to minimize the consumption of ultra-processed foods among undergraduate students in Ondo City?

Research Hypothesis

The following null hypothesis was tested at 0.05 level of significance.

H0: There is no significant correlation between the consumption of UPFs and the overall dietary pattern of undergraduate students in Ondo City.

Design of the Study

A descriptive survey research design was employed to investigate the consumption patterns of ultra-processed foods (UPFs) among undergraduate students. This methodological approach is well-suited for collecting quantitative data on a specific population, allowing for statistical analysis to answer the research questions. The study focused on gathering information about the frequency of UPF consumption, overall dietary patterns, and students' perceptions regarding strategies to mitigate their intake.

Area of the Study

The research was conducted in Ondo City, Ondo State, Nigeria. The city hosts three institutions offering undergraduate degrees: Adeyemi Federal University of Education, the University of Medical Sciences, and Wesley University. Given its size, population, and representativeness, Adeyemi Federal University of Education was selected as the primary study site to ensure a sufficient and diverse sample.

Population and Sample

The study population comprised all undergraduate students enrolled in regular degree programs at the Adeyemi Federal University of Education, estimated at 12,000 students based on the records of the university's Management Information System (MIS, 2021).

A sample size of 240 students was determined, representing 2% of the population. A multi-stage sampling technique was implemented. Initially, four faculties with the largest student populations were randomly selected. Subsequently, equal numbers of male and female students were purposively chosen from each selected faculty. Finally, stratified random sampling was employed to distribute the sample across faculties based on the availability of research assistants.

Instrument for Data Collection

A structured questionnaire titled "Ultra-Processed Foods Consumption Pattern and Effects on Students' Health Questionnaire" (UCPESHQ) was developed as the primary data collection instrument. The questionnaire was informed by established frameworks such as the Diet and Behaviour Score (DABS) by Richards and Smith (2015) and the NOVA Food Classification System put forward by the Centre for Epidemiological Studies in Health and Nutrition (2016). It has seven sections, "A" through "G". Section A asked for the demographic information of the respondents, such as faculty, gender, and level. Section B measured the frequency of consumption of the 20 most common UPFs among undergraduate students on a 5-point rating scale. Section C contained six "Yes" or "No" items that measured the overall dietary pattern of the respondents. Section D asks 15 "Yes" or "No" items about their self-reported ailments (SRA) and medically diagnosed ailments (MDA). Section E contained four items to record the clinical features of undergraduate students (skin, eyes, hair, and mouth). Section F contained two items to measure the anthropometry of the respondents by range (weight and height). The last section contained seven 4-point Likert-scale question items on the strategies for minimising the consumption of UPFs.

Content and face validity of the questionnaire were established through expert review by one nutritionist, two food scientists, and two home economics educators. Reliability analysis using the split-half method yielded a correlation coefficient of 0.708, indicating a high degree of internal consistency (α = 0.01).

Data Collection Procedures

A total of 240 questionnaires were administered to undergraduate students with the assistance of six trained research assistants. Data collection involved questionnaire completion, anthropometric measurements, and clinical observations. To ensure data quality, a rigorous training session was conducted for research assistants, covering research objectives, questionnaire administration, and measurement techniques. A WhatsApp group was utilised for efficient communication and coordination among the research team.

Data Analysis

The collected data was subjected to statistical analysis to address the research objectives. Descriptive statistics, including mean, standard deviation, and frequency distributions, were employed to characterise the sample and describe UPF consumption patterns. An inferential statistic, namely particularly Pearson Product-Moment Correlation (PPMC), was used to examine relationships between variables at the 0.05 significance level. The decision rules were based on Tables 1 to 3.

Ethical Considerations

This study was excepted from obtaining ethical approval under the Nigerian Code for Health Research Ethics (NCHRE) published by the Federal Ministry of Health (2007). This is because it uses survey procedures to measure a public behaviour. The researchers sought the consent of participants before administering the survey instrument to them. The information obtained were recorded anonymously and confidentially.

Table 1 Statistical Real Limits of Responses to Research Question One

Response Category	Point	Limit	Decision
Everyday	5	4.50-5.00	Always
Once in three days	4	3.50-4.49	Often
Once per week	3	2.50-3.49	Usually
Once per month	2	1.50-2.49	Sometimes
Never	1	0.50-1.49	Never

Note. Source: Researchers (2023)

Table 2 Statistical Real Limits of Responses to Research Question Three

Response Category	Point	Limit	Decision
Strongly agree (SA)	4	3.50-4.00	Agreed
Agree (A)	3	2.50*-3.49	Agreed
Disagree (D)	2	1.50-2.49	Disagreed
Strongly Disagree (SD)	1	0.50-1.49	Disagreed

Note. * = 2.50, the cut-off point accepted as "agreed". Source: Researchers (2023)

Table 3 Statistical Real Limits of Correlation Values (Hypothesis)

Ranges of Correlation Coefficient	Decision
± 0.80-1.00	Very High
± 0.60-0.79	High
± 0.40-0.59	Moderate
± 0.20-0.39	Low
± 0.00-0.19	Very Low

Note. ± depicts the direction of the correlation, which is either positive or negative. Source: Researchers (2023)

Findings and Discussion

Research Question 1: How frequently are ultra-processed foods consumed among undergraduate students in Ondo City?

This study investigated how frequently undergraduate students consume 20 UPFs. Table 4 reveals that they consume sweet or savoury packaged snacks often, while they usually consume 16 UPFs, and sometimes consume three (namely, pies, pasta, and pizza dishes; infant formulas & drinks, and meal replacement shakes; and distilled alcoholic beverages). On average, they usually consume UPFs ($\bar{x}$ = 2.90). The SD ranged from 1.105 to 1.527 and was 1.243 on average, indicating that the responses are moderately dispersed from the mean.

Table 4 Mean and Standard Deviation of the Frequency of UPFs Consumption among Undergraduate Students in Ondo City

SN	UPF	$\bar{x}$	SD	Decision	Rank
1	Sweet or savoury packaged snacks	3.52	1.113	Often	1
2	Confectionery (chocolate and candies)	2.88	1.114	Usually	12
3	Mass-produced packaged breads and buns	3.48	1.105	Usually	2
4	Margarine and other spreads	2.72	1.140	Usually	14
5	Cookies (biscuits), pastries, cakes, and cake mixes	3.43	1.255	Usually	3
6	Breakfast cereals (such as cornflakes), energy bars	2.90	1.325	Usually	11
7	Pies, pasta, and pizza dishes	2.49	1.263	Sometimes	18
8	Poultry/fish nuggets and sticks	3.08	1.470	Usually	8
9	Sausages, burgers, hotdogs and other reconstituted meat products	2.56	1.265	Usually	16
10	Powdered and packaged 'instant' soups	2.58	1.527	Usually	15
11	Instant noodles	3.25	1.213	Usually	6
12	Instant sauces	2.84	1.345	Usually	13
13	Energy and sports drinks	3.30	1.268	Usually	5
14	Milk drinks, fruit yoghurts, and fruit drink	3.37	1.154	Usually	4
15	Cocoa/chocolate drinks	2.91	1.187	Usually	10
16	Sweetened juices	2.93	1.147	Usually	9
17	Carbonated soft drinks, soda, cola	3.23	1.271	Usually	7
18	Distilled alcoholic beverages such as whisky, gin, and rum.	1.98	1.308	Sometimes	20
19	Ice cream and frozen desserts	2.50	1.105	Usually	17
20	Infant formulas & drinks and meal replacement shakes	1.99	1.288	Sometimes	19
Average		2.90	1.243	Usually	

Note. $\bar{x}$ = Mean; SD = Standard Deviation. Source: Researchers (2023)

The findings above are corroborated by some previous studies in Nigeria. For instance, Oguizu and Celestine (2021) reported that 65.6% and 71.8% of the adolescents in Aba North Local Government Area consumed cakes and cookies (biscuits) every day, much like cake and cookies rank the third most consumed UPFs in this present study. Also, soft drinks, packaged breads, and instant noodles are consumed by 74.7%, 68.8%, and 59.9% of adolescents from time to time, respectively. In this present study, these three had the respective ranks of 7th, 2nd, and 6th. These findings are congruent with those of Otemuyiwa and Adewusi (2012).

The high prevalence of UPF consumption among undergraduate students in this study is consistent with broader trends in dietary habits among young people globally. The dominance of packaged snacks, often high in unhealthy fats, sodium, and added sugars, aligns with concerns raised by public health organisations worldwide. For instance, the Touvier et al. (2023) and Lane et al. (2024) have highlighted the role of unhealthy diets, characterised by excessive consumption of processed foods, as a major risk factor for chronic diseases such as obesity, heart disease, and type 2 diabetes.

Research Question 2: What is the overall dietary pattern of undergraduate students in Ondo City?

The data analysed by this study shows the pattern of undergraduate students' diet in Ondo City. Table 5 indicate that more than half of undergraduate students in Ondo City (53%) do not take up to three meals in a day, though the response is close to the margin. Specifically, a huge proportion of them (70.3%) skips breakfast, more than half of the respondents said that they skip lunch (54.7%), while a very little proportion skip dinner (22%). Finally, they usually snack between meals (66.1%) and may drink up to three litres of water per day (56.8%). The standard deviation of their responses ranges from 0.415 to 0.500, showing that their responses cluster around the central tendency.

Table 5 Description of the Overall Dietary Pattern of Undergraduate Students in Ondo City

SN	Item	%Yes	%No	$\bar{x}$	SD	Decision
1	Take up to three meals per day	47.0	53.0	1.47	.500	No
2	Skip breakfast	70.3	29.7	1.70	.458	Yes
3	Skip lunch	54.7	45.3	1.55	.499	Yes
4	Skip dinner	22.0	78.0	1.22	.415	No
5	Snack between meals	66.1	33.9	1.66	.474	Yes
6	Drink up to three litres of water per day	56.8	43.2	1.57	.496	Yes

Note. % = Percentage; $\bar{x}$ = Mean; SD = Standard Deviation. Source: Researchers (2023)

The findings of this study are close to those of Otemuyiwa and Adewusi (2012), who upon investigating the food choice and meal consumption pattern among undergraduate students in two universities in Southwestern Nigeria, reported that most students ate twice a day, substituting snacks for the third meal. Moreover, the dietary patterns observed in this study among undergraduate students in Ondo City are indicative of a broader trend of irregular meal consumption among young adults, particularly those engaged in higher education. Skipping meals, especially breakfast, has been associated with various health consequences, including impaired cognitive function, increased risk of obesity, and type 2 diabetes. A study by López-Gil et al. (2022) found that young individual who regularly skip breakfast tend to have higher body mass indexes and consume more unhealthy foods throughout the day.

The prevalence of snacking between meals highlights the importance of food choices in mitigating the negative impacts of irregular meal patterns. While snacking itself is not inherently unhealthy, the consumption of nutrient-poor snacks high in added sugars, unhealthy fats, and sodium can contribute to weight gain and chronic disease risk (Calcaterra et al., 2023). There is the need for healthier food environments that promote access to and consumption of nutritious snacks. The finding that a significant proportion of students consume at least three litres of water per day is encouraging, as adequate hydration is essential for overall health. However, it is important to consider the quality of the water consumed, as access to safe drinking water remains a challenge in many parts of the world, especially in Africa (World Health Organisation, WHO, 2023).

The present study provides valuable insights into the dietary habits of undergraduate students in Ondo City, but it is important to acknowledge its limitations. The cross-sectional design precludes drawing causal inferences about the relationship between meal patterns and health outcomes. Longitudinal studies are needed to investigate the long-term consequences of irregular meal consumption and inform the development of effective interventions.

Research Question 3: What are the strategies to minimize the consumption of ultra-processed foods among undergraduate students in Ondo City?

This study identified some strategies for minimising the extent to which undergraduate students in Ondo City consume UPFs. Table 6 reveals that the topmost three strategies suggested by undergraduate students to minimise the consumption of ultra-processed foods among them are the organisation of public sensitisation programmes to educate students about the risks associated with the consumption of ultra-processed foods, the taking of personal responsibility by students to watch their diet and care for their health, and effective implementation of the government-made policies by agencies such as the Standard Organisation of Nigeria (SON) and the National Agency for Food and Drug Administration and Control (NAFDAC). The standard deviation of the responses ranged from 0.564 to 0.650, indicating that their responses are moderately dispersed from the central tendency.

Table 6 Mean and Standard Deviation of the Strategies to Minimise the Consumption of UPFS among Undergraduate Students in Ondo City

SN	Strategies	$\bar{x}$	SD	Rank	Decision
1	Legislative policies should be put in place to check the proliferation of ultra-processed foods.	3.45	.650	6	Agreed
2	The operations of agencies such as SON and NAFDAC should ensure the effective implementation of the government-made policies	3.55	.600	2.5	Agreed
3	Undergraduate students should take personal responsibility to watch their diet and care for their health	3.55	.564	2.5	Agreed
4	Food processing companies should be modest in their use of nutrient-depleting foods processing mechanisms	3.46	.650	5	Agreed
5	Advertising media should be truthful in their popularisation of ultra-processed foods	3.53	.581	4	Agreed
6	Food fortification and nutrients supplementation should be reasonably encouraged	3.40	.650	7	Agreed
7	Public sensitization programmes should be carried out to educate undergraduate students about the risks associated with the consumption of ultra-processed foods	3.57	.569	1	Agreed

Note. $\bar{x}$ = Mean; SD = Standard Deviation. Source: Researchers (2023)

The findings of this study underscore the multifaceted approaches to addressing the challenge of excessive UPF consumption among undergraduate students. There is a strong endorsement of public sensitisation programs, which aligns with the growing recognition of the role of education in promoting healthy dietary behaviors (Scazzocchio et al., 2021). Targeted interventions can increase the awareness of the health risks associated with UPFs and empower individuals to make informed food choices.

This study also found an emphasis on personal responsibility among undergraduates for their diet and health, which is consistent with broader public health efforts to foster individual agency in health promotion (Personal Development, Health and Physical Education, PDHPE, 2024). It is, however, crucial to acknowledge that individual behaviours are shaped by the broader food environment. The availability and affordability of healthy food options, as well as effective food labelling, are essential for supporting healthy dietary choices of individuals.

The respondents in this study called for an effective implementation of government policies, highlighting the need for a coordinated approach to addressing the UPF challenge. Regulatory measures, such as those implemented in Brazil through the Dietary Guidelines (Mescoloto et al., 2017), can play a significant role in shaping the food environment and promoting healthier food options for young people. This is particularly important in the context of the global proliferation of ultra-processed foods, which often contain excessive amounts of added sugars, unhealthy fats, and sodium.

The foregoing findings of this study are in line with broader policy recommendations aimed at reducing UPF consumption. For example, the WHO (2024) has called for comprehensive strategies that address multiple levels of influence, including individual behaviour, social and environmental factors, and government policies. The moderate dispersion of responses to the proposed strategies suggests a need for further exploration of factors influencing the acceptability and effectiveness of different approaches. Conducting tailored interventions and longitudinal studies can help to evaluate the impact of interventions over time and identify factors that influence behaviour change.

Research Hypothesis: There is no significant correlation between the consumption of UPFs and the overall dietary pattern of undergraduate students in Ondo City.

The findings of this study, as presented in Table 7, show that there is a positive, significant but very low correlation between the consumption of UPFs and the overall dietary pattern of undergraduate students in Ondo City. Hence, the null hypothesis is rejected.

Table 7 PPMC of the Relationship between UPFs Consumption and Overall Dietary Pattern of Undergraduate Students in Ondo City

Variables	$\bar{x}$	**SD**	**r**	**ρ**	**Decision**
UPFs	57.87	14.064	.143	.029	Positive, significant but very low correlation
Consumption Pattern	9.17	1.062			

Note. $\bar{x}$ = Mean; SD = Standard Deviation; ρ = Significance of correlation. Source: Researchers (2023)

The finding of a positive, yet weak, correlation between UPF consumption and overall dietary pattern among undergraduate students in this study is intriguing. The low magnitude of the significant relationship suggests that other factors may be mediatory or intervening in shaping dietary habits within this population. Such factors may include socioeconomic status, food availability, cultural influences, and individual preferences. This finding aligns with the complex interplay between various determinants of dietary behaviour outlined by the WHO (2024).

Similar studies have explored the relationship between UPF consumption and overall dietary quality. For example, a study by Fahimeh et al. (2022) found that higher consumption of UPFs is associated with poorer diet quality and lower nutrient intake among adolescents. The strength of this relationship may vary across different populations and cultural contexts. Similarly, the measured correlation does not imply causation. Further research, such as longitudinal studies, is needed to elucidate the underlying mechanisms and to determine the directionality of the relationship.

Conclusion

This study concluded that the consumption of UPFs by undergraduate students in Ondo City is habitual; their consumption pattern is imbalanced; and there is a significant, albeit weak, positive relationship between the two. These findings indicate that the students' dietary habits are not conducive to optimal health.

Recommendations

Based on the findings of this study, the following are recommended:

1. Legislative policies should be enacted to curtail the proliferation of ultra-processed foods.
2. The operations of agencies such as the Standard Organisation of Nigeria (SON) and the National Agency for Food and Drug Administration and Control (NAFDAC) should be strengthened to implement government nutrition policies.
3. Advertising media should accurately represent the nutritional value of ultra-processed foods.
4. Food processing companies should minimise the use of nutrient-depleting processing methods.
5. Public sensitisation programs should be organised to educate undergraduate students about the health risks associated with consuming ultra-processed foods.
6. Undergraduate students should prioritise healthy eating habits and personal well-being.
7. Food fortification and nutrient supplementation should be reasonably encouraged.

Suggestions for Further Studies

Building upon the findings of this study, future research could explore the following:

1. The relationship between ultra-processed food consumption, consumption patterns, and the health status of undergraduate students in Ondo City or other regions.
2. The relationship between ultra-processed food consumption and consumption patterns among students of different age groups in Ondo City or other areas.

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PEER-REVIEWED PAPER

Effects of Children’s Eating Habits on Parental Anxiety and Views on Child-Rearing

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Abstract

This study investigates the relationship between parents’ perception of their children’s eating behaviors, dietary anxiety, and their child-rearing views. A survey was conducted with 349 parents raising children aged 3 and older at four preschool facilities in Japan. Factor analysis was performed on eating behaviors and child-rearing views. Subsequently, correlation analysis and logistic regression were performed to identify factors related to parental dietary anxiety. Finally, regression analysis explored the moderating effect of social support on dietary anxiety and child-rearing views. Parents’ awareness of picky eating, manners, and play eating behaviors is associated with dietary anxiety. This anxiety positively relates to feelings of burden and irritation and negatively affects fulfillment in child-rearing views. Specifically, recognizing picky eating may lead to dietary anxiety. Having supportive confidants can mitigate these effects. Firstly, the correlations between dietary behaviors and parental anxiety imply the importance of caring children’s eating habits, especially with picky eaters. Secondly, having supportive confidants may help maintain a positive outlook on child-rearing, even when dietary anxiety arises. The importance of supporting parents’ concerns about their children’s dietary habits through social services such as nurseries and kindergartens has been acknowledged.

KEYWORDS: PARENTS’ ANXIETY, YOUNG CHILDREN’S EATING, YOUNG CHILDREN’S EATING BEHAVIORS, VIEWS ON CHILD-REARING, QUESTIONNAIRE SURVEY

Introduction

In recent years, mothers raising infants and young children in Japan have become increasingly concerned and burdened with child-rearing due to the increasing incidence of nuclear families, declining birthrate, and diversification of families. Kubo (2015) indicated the difficulty of balancing work and child-rearing for mothers with children in preschool and explicitly identified the childcare environment, inadequate childcare for sick children, and children recovering after illnesses as impediments to balancing work and child-rearing. Azuma et al. (2009) also indicated that mothers experience difficulties and anxiety when raising children and indicated factors, such as mothers’ lack of confidence in their own ability to raise children, questioning their tendency to rely on their own efforts. Additionally, Johya (2015) pointed out that mothers

Ito, Y. & Kamada, M. (2024). Effects of Children’s Eating Habits on Parental Anxiety and Views on Child-Rearing. *International Journal of Home Economics*, *17*(2), 48-61.
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with lesser requirement for help do not actively seek support even when they find it difficult to raise their children; therefore, it is necessary for supporters to provide careful involvement and proactive information even to mothers who ostensibly do not require them. Thus, previous studies have shown that many Japanese parents are concerned about child-rearing, and it is an urgent issue to consider support for parents.

For parents, daily eating habits provide an opportunity to observe and communicate with their children. However, it has been reported that many parents find it difficult to be involved in their children's eating behavior, as eating is a daily routine accompanied by individual preferences and physiological behaviors, such as picky eating and food intake. Ooka et al. (2013) reported that, approximately 20% of parents do not enjoy eating with their young children because of problems related to their eating behavior, such as play eating, uneven eating, and low food intake. Ooka et al. (2009) also indicated that many parents have various questions regarding their young children's oral and eating habits. These challenges for parents, regarding their infants' and young children's eating habits, are also reflected in the significant proportion of descriptions of eating habits in parents' contact notes with nursery school teachers (Hayashi, 2009). Mothers' behaviors greatly affect their children's food intake and other factors during mealtimes (Moore et al., 2007). Therefore, it can be inferred that mothers are more likely to feel stressed about their children's food intake and eating behaviors.

However, a study has been conducted on the collaboration of teachers and parents, explicitly demonstrating that the aspect of communication in a contact book focusing on children's meals, which is a daily part of childcare, led to a change in parents' awareness of child-rearing (Ito, 2017). Further, it has been pointed out that parents of children with dietary challenges demonstrate high child-rearing anxiety and are mentally unstable (Hasegawa & Imada, 2004). Therefore, it is possible that parents' anxiety about their children's eating is not limited to the eating situation, but also affects parents' outlook toward child-rearing. It can be inferred that parents' anxiety about their children's eating is not limited to the eating situation.

Kubo and Igari (2009) pointed out the possibility that human connections may reduce hardships, as, beyond themselves, about half of the mothers relied most on their husbands for child-rearing. Given that previous studies have pointed out the necessity and significance of someone to turn to for one's concerns on child-rearing (Imai & Anme, 2001), it will be necessary to examine the relationship between parents' anxiety about their children's eating habits and the associated sense of burden about child-rearing, as well as their relationship with their closest people, who can be consulted on childcare.

Therefore, this study investigates the relationship between parents' perception of their children's eating behaviors, dietary anxiety, and their child-rearing views.

This study was conducted on children aged 3 years. While young children learn to enjoy eating with good manners and communication (Ito, 2013a), adults need to ensure that they can simultaneously engage in multiple acts of "eating," "enjoying," and "learning" (Ito, 2013b). Therefore, we thought that by focusing on mealtime situations in early childhood (ages three and above), the actual situation of eating guidance by teachers would be more prominently represented.

Methods

Survey methods

A questionnaire survey was administered to 349 parents, raising young children aged 3 years and older, from October 2019 to January 2020. The survey was conducted at four public, private, and nationally certified kindergartens and nursery schools, where cooperation was obtained. In the case of siblings attending the same preschool, the parents were asked to complete a questionnaire for one of the siblings. The parents, who completed the questionnaires, included 12 fathers and 337 mothers; the 349 children were divided across four age-groups as follows: 22 3-year-olds, 100 4-year-olds, 120 5-year-olds, and 105 6-year-olds (2 missing value).

Survey content

The survey asked parents about their child's age, gender, and other attributes. It also evaluated parental attitudes toward child-rearing (16 items), children's eating behaviors (22 items), availability of social support for parenting (7 items), and anxiety regarding children's dietary topics.

To assess parental attitudes toward child-rearing, the authors critically evaluated the questionnaire items for content validity and clarity, ensuring a concise item pool aligned with the objective of capturing mothers' perspectives on child-rearing. Item development was informed by Stern's (1995/2000) delineation of four central themes encountered in motherhood—life growth, primary relatedness, supporting matrix, and identity reorganization—as well as empirical studies on Japanese mothers' child-rearing consciousness (Kumano, 2016; Sumida & Nakada, 2000) and the Benesse Education Research and Development Institute's (2011) survey on maternal child-rearing attitudes. For survey items related to eating behavior, we used items from Ito and Nanakida (2014): "Eating Behaviors I Want My Child to Acquire."

A 5-point scale (1: Not at all (not applicable at all); 3: Neither; 5: Very much (applicable very much)) was used to obtain responses regarding views on child-rearing and children's behavior in eating situations. For the item related to social support resources, we asked "How often do you consult with them when you feel anxious about child-rearing?" (1: Not at all, 3: Neither, 5: Much, and if no siblings, Not applicable). Finally, for anxiety regarding their children's dietary topics, the respondents were asked, "Do you have any anxiety about your children's eating?" (1: no, 2: yes). These items were modified by the four directors of the surveyed certified kindergartens and nursery schools to ensure that they were appropriate and that there were no missing items.

Parental consciousness regarding child-rearing and children's eating behaviors was assessed using a 5-point Likert scale (1: not at all, 3: neutral, 5: very much). To evaluate the availability of social support, parents reported the frequency of consultations regarding child-rearing concerns with potential confidants, such as spouses, grandparents, friends, and early childhood educators, on a scale of 1 (never) to 5 (often). Regarding dietary anxieties, parents were asked, "Do you have concerns about your children's eating habits?" with a binary response option of 1 (no) or 2 (yes). The directors of the four certified kindergartens and nursery schools reviewed the questionnaire items to ensure their relevance and thoroughness.

Analysis method

For missing data, pairwise deletions were performed in each analysis. HAD (Ver. 16) was used for factor analysis. This statistical package is distributed free of charge by Yuji Shimizu, a Japanese social psychologist (Shimizu, 2016; see http://norimune.net/had).

Ethical considerations

This study used an anonymous questionnaire survey, and parental cooperation was voluntary. There were no conflicts of interest and no incentives, such as gratuities. As part of the informed consent procedure, we first explained the purpose and outline of the study directly to the preschool children and requested their cooperation. At that time, privacy guidelines for this study were presented, and, if consent for research cooperation was obtained, a survey of parents was requested.

The cover letter of the questionnaire stated the purpose and outline of the research: that this is an anonymous questionnaire, that the responses will be stored and statistically processed such that personal information cannot be identified, that cooperation in the survey is voluntary, and that consent for cooperation is deemed to have been obtained through the response to the survey.

The answered questionnaires were collected by the researcher after the participants individually deposited them in a strictly sealed special envelope in a survey collection box located at each park. The whereabouts of the principal investigator were indicated on the questionnaire, the inquiries were fully explained, and cooperation was requested when consent was obtained.

Results

Factor analysis of parents' "views on child-rearing."

An exploratory factor analysis was conducted to examine parents' views on child-rearing (Table 1). To determine the factor structure, we followed the guidelines set forth by Hori (2005). We considered the Kaiser criterion, which suggests retaining factors with eigenvalues greater than 1, the Minimum Average Partial (MAP) criterion in the scree test, and the outcomes of the parallel analysis. We adopted a structure that allowed for a theoretical interpretation of the factor content and ensured that a sufficient number of items (at least three in this study) loaded significantly on each factor.

The scree test indicated that the eigenvalues derived from the data correlation matrix were 5.00, 1.98, 1.28, and 0.97, respectively, for the first four factors, respectively. The Kaiser Criterion suggests a three-factor solution. Parallel analysis showed eigenvalues of 1.40, 1.32, 1.25, and 1.20 for a randomly generated correlation matrix, which supported a three-factor interpretation when compared with the actual data. The MAP test yielded values of 0.27, 0.21, and 0.24 for the first three factors, respectively, indicating a two-factor solution. However, considering these analyses and the theoretical coherence of the items within each factor, a three-factor interpretation was deemed most appropriate. The model's goodness-of-fit was confirmed with a chi-square value of $\chi^2(75) = 179.769$, comparative fit index (CFI) of .933, and root mean square error of approximation (RMSEA) of .065.

The first factor was named "Irritation" (MacDonald's ω = .78), as it describes feelings toward children, such as, "I feel annoyed and irritated with my child" and "I occasionally consider directing my frustration toward my child." The second factor was named "Burden" (ω = .79), which refers to the parents' own situation due to child-rearing, such as "I feel that parenting prevents me from having time for myself" and "Parenting prevents me from finding time to enjoy with my spouse." The third factor represents positive attitudes toward children and child-rearing, such as "I feel that caring for a child is a joyful and happy experience" and "At times, I am struck by the sheer adorableness of my child," and was named "Fulfilment" (ω = .76). The reliability coefficient ω, for the three factors, showed a value of .70 < that was acceptable for the scale structure; hence, the mean value of the items belonging to each factor was calculated as the scale score and used in the subsequent analysis.

Table 1 Exploring Factor Analysis of Parents' Views on Child-rearing (Promax. ML)

Interpretive Translation of Items	Irritation	Burden	Fulfilment
I feel annoyed and irritated with my child	**.895**	-.068	.044
I occasionally consider directing my frustration towards my child	**.806**	-.004	.036
I am uncertain about how to interact with my child	**.443**	.116	-.138
I worry whether my child will grow up properly	**.405**	.054	-0.43
I feel that parenting prevents me from having time for myself	-.082	**.827**	.037
Parenting prevents me from finding time to enjoy with my spouse	-.140	**.736**	.063
I feel that I have to endure various things because of parenting	.207	**.616**	-.017
Parenting responsibilities prevent me from dedicating myself to my job	.085	**.476**	.053
I feel exhausted due to child-rearing	.130	**.449**	-.043
My close ones do not understand the difficulties of parenting	.075	**.391**	.102
I feel that caring for a child is a joyful and happy experience	.115	-.040	**.884**
At times I am struck by the sheer adorableness of my child	.029	.039	**.682**
I find playing with my child to be very enjoyable	-.057	.026	**.655**
I feel that parenting helps me grow and makes me proud	-.021	.059	**.480**
I feel that my parenting is good enough	-.175	-.029	**.468**
Inter-Factor correlation Irritation	(.780)	.589	-.481
Burden		(.791)	-.394
Fulfilment			(.761)

Note. The diagonal matrix represents MacDonald's ω. These items were written by Japanese, and were translated into English for this paper.

Factor analysis of parents' attitudes toward their children's eating behavior.

An exploratory factor analysis was performed to examine parents' attitudes toward their children's eating behaviors, employing the same evaluative criteria mentioned above. The scree test suggested a two-factor solution according to the MAP criterion (values: 0.16, 0.16, and 0.17), whereas the Kaiser criterion indicated a six-factor structure (eigenvalues: 6.22, 1.81, 1.41, 1.31, 1.09, 1.05, and 0.99). A parallel analysis utilizing a random correlation matrix proposed a four-factor solution (eigenvalues: 1.51, 1.42, 1.35, 1.30, and 1.24). Considering these findings, along with the theoretical interpretability of the subfactors and the requirement that at least three items load significantly on a single factor, a three-factor structure was deemed the most appropriate.

In an exploratory factor analysis, based on maximum likelihood (ML) and promax rotation, items with extremely low loadings (less than .35) on any factor were excluded from the analysis. Ultimately, 14 items and three factors were extracted, as shown in Table 2. The first factor represents nonplay eating behaviors, such as "Maintains focus while eating" and "Eats with proper posture," and was named "Play Eating" (ω = .84). Similarly, the second factor represents actual eating behaviors, such as "Does not overfill mouth with food at once" and "Chews food well before swallowing," and was termed, "Manners" (ω = .74). The third factor, which included behaviors, such as "Eating without leaving any leftovers" and "Willing to eat disliked foods," as well as "Consumes an appropriate amount of food," was called, "Picky Eating" (ω = .80).

The reliability coefficients (ω) for the three factors were found to be adequate, each exceeding the threshold of .70. The mean values of the items corresponding to each factor were computed for further analysis. To facilitate interpretation of the analysis, the scale scores underwent an inverse linear transformation, resulting in higher mean values that reflect a negative orientation.

Table 2 Exploring Factor Analysis of Children's Eating Behaviors (Promax, ML)

Interpretive Translation of Items	Play eating	Manners	Picky eating
Maintains focus while eating	**.861**	-.126	-.026
Eats with proper posture	**.720**	.009	-.031
Focuses on eating without engaging in play	**.697**	.082	-.008
Remains seated during meals	**.663**	-.073	.144
Does not play with food	**.428**	.344	.009
Does not overfill mouth with food at once	-.101	**.684**	.002
Chews food well before swallowing	-.147	**.615**	.048
Not making noise while eating	.034	**.570**	.053
Does not talk with food in mouth	.232	**.432**	-.091
Keeps clean habits (e.g., do not eat dropped food)	.116	**.427**	-.058
No spills or food messes	.238	**.412**	-.005
Eat without leaving any leftovers	.026	-.080	**.955**
Willing to eat disliked foods	.014	.002	**.713**
Consumes an appropriate amount of food	-.029	.311	**.415**
Inter-Factor Correlation Play eating	(.839)	.639	.338
Manners		(.741)	.275
Picky eating			(.801)

Note. The diagonal matrix refers to McDonald's omega (ω). Scale scores reported below are linearly transformed in reverse order when calculated, meaning higher scores correspond to more negative implications. These items were written by Japanese, and they were translated into English for this paper.

Social support resources for parenting

Considering whom one could consult for childcare, the survey initially identified seven potential resources: spouses, grandparents, siblings, friends, community members, and early childhood educators. Subsequent analysis of the survey data revealed that respondents without siblings frequently selected "1: do not consult at all" or "3: neutral." Additionally, "community members" and "local childcare support staff" were not distinctly conceptualized, leading to potentially ambiguous responses. Consequently, this report focused on four sources of consultation: spouses, grandparents, friends, and early childhood educators.

Descriptive statistics

Table 3 presents Spearman's rank correlation matrix and summary statistics for each variable. "Anxiety in Children's Eating" is represented as a dummy variable (0 for "no," 1 for "yes"), and "Child Gender" is also coded as a dummy variable (0 for "female," 1 for "male").

It is noteworthy that a substantial proportion of parents (51%, as indicated by the mean score) reported anxiety about their children's eating habits. The analysis did not reveal any significant correlations between anxiety about children's eating and variables, such as age (r = .06) or social support resources (r = -.02–.08). In contrast, adhering to Cohen's (1988) criteria, significant correlations were found between anxiety about young children's eating and three child-rearing attitude factors: Irritation (r = .19), Burden (r = .22), and Fulfillment (r = -.11), although the effect sizes were small (.20 < δ)(.10< $|r|$ <.24). Additionally, modest correlations were observed for children's eating behaviors in terms of Play Eating (r = .14) and Manners (r = .16), with a notably larger effect size for Picky Eating (r = .44), suggesting a substantial correlation (.80 < δ)($|r|$ >.37). Small-to-moderate effect size correlations (r = .11–.27) were also detected between children's eating behavior and parental attitudes regarding child-rearing (Irritation, Burden). Conversely, a negative correlation of intermediate magnitude (r = -.26 to .19) was observed between eating behavior and parental fulfillment.

While the age of the child did not show a direct correlation with anxiety about children's eating, this study primarily involved developing children in kindergarten (M = 4.89, SD = 0.93), and a small yet negative correlation was generally observed between age and "views on child-rearing" (Irritation, Burden) as well as eating behaviors. This finding suggests that developmental factors in children may act as confounding variables. Regarding gender differences, the study found that although the effect size was small, girls exhibited a slightly higher sense of burden (r = 0.11), while boys showed more concern regarding play eating, and manners (r = -0.16).

Table 3 Spearman's rank correlation matrix and summary statistics

	Attributes of children		**Anxiety**	**Views on child rearing**			**Eating behavior**			**People who can be consulted on childcare**					
	Age	Gender	N/Y	Irritation	Burden	Fulfilment	Play eating	Manners	Picky eating	Spouses	Grandparents	Friends	Educator	Mean	(SD)
Attributes of children															
Age	1.00													4.88	(0.93)
Gender (0 female, 1 male)	-.04	1.00												0.51	(0.50)
Anxiety in Childrens Eating															
N/Y (0 No, 1 Yes)	-.06	.04	1.00											0.45	(0.50)
Views on child rearing		.													
Irritation	-.10^{+}	.06	.19**	1.00										3.12	(0.83)
Burden	-.09^{+}	.11*	.22**	.52**	1.00									2.87	(0.74)
Fulfilment	.03	-.06	-.11*	-.42**	-.30**	1.00								4.36	(0.51)
Eating Behavior															
Play eating	-.11*	-.16**	.14*	.24**	.17**	-.19**	1.00							2.61	(0.85)
Manners	-.09^{+}	-.16**	.16**	.27**	.23**	-.26**	.59**	1.00						2.52	(0.65)
Picky eating	-.23**	-.01	.44**	.11*	.13*	-.19**	.36**	.29 **	1.00					2.66	(0.82)
Social Support resource															
Spouses	-.04	-.03	.01	-.14*	-.14**	.17**	-.10^{+}	-.14**	-.04	1.00				4.40	(0.93)
Grandparents	-.11*	.00	-.02	.03	-.05	.14**	-.05	-.16**	-.12*	.22**	1.00			3.77	(1.14)
Friends	.01	.06	.06	.10^{+}	.09	.12*	-.08	-.12*	-.02	.14*	.14**	1.00		3.77	(1.13)
Early Childhood Educator	-.09	-.01	.08	.03	.01	.13*	.02	-.09	-.04	.21**	.21**	.22**	1.00	3.53	(1.05)

** $p < .01$, * $p < .05$, $^{+}$ $p < .10$

Relationship between anxiety about children's eating and eating behaviors (logistic regression analysis)

Correlation analysis indicated that Picky Eating was significantly associated with parental anxiety about their children's eating habits, and there is a possibility that Play Eating and poor behavior are also related. To further investigate these relationships, logistic regression analysis was conducted to assess the occurrence of anxiety about children's eating habits. Based on previous findings, the child's age and gender were included as control variables, while recognition of eating behaviors (Play Eating, Manners, Picky Eating) served as explanatory variables in the regression model. Estimated odds ratios are listed in Table 4.

The approximate multiple correlation coefficient, a goodness-of-fit index for the model, was *R2M&Z* = .27, and the percentage of correct group discrimination in the model was 68.8%. The odds ratio for Picky Eating was significant (*OR* = 4.1, 95%CI [2.8, 6.1]). The results implied that the proportion of parents feeling anxious about their children's eating was about four times higher if their child's Picky Eating score was one point higher in the linear model, given that age, gender, and other eating behaviors were controlled.

The pseudo R-squared, serving as a goodness-of-fit indicator for the model, was *R2M&Z* = .27 The model accurately classified the groups, with a success rate of 68.8%. A significant odds ratio was observed for Picky Eating (*OR* = 3.85, 95%CI [2.6, 5.6]), suggesting that the likelihood of parental anxiety about children's eating habits increases approximately four-fold when the Picky Eating score of a child increases by one unit, given that age, gender, and other eating behaviors are held constant.

Table 4 Logistic regression analysis of anxiety related to eating behaviors

Variable	Odds Rate	95% Confidence Interval		VIF
		Low	High	
Age	1.16	.88	1.52	1.06
Gender	1.40	.84	2.32	1.04
Play eating	.85	.58	1.24	1.60
Manners	1.41	.87	2.29	1.52
Picky eating	3.85 **	2.63	5.63	.120
$R^2_{M\&Z}$	.274 **			

** $p < .01$, * $p < .05$, $^+ p < .10$

Note. The criterion value represents the presence of anxiety in the child's eating behavior.

Relationship between anxiety about children's eating habits, social support, and views on childcare

In the preceding correlation analysis, a small yet significant correlation was identified between anxiety regarding children's eating habits and parental attitudes toward childcare. Multiple regression analysis was subsequently performed to explore the relationship between anxiety about young children's eating habits and parents' child-rearing views, as well as to determine whether the availability of social support resources moderates this effect. To streamline the analytical model, the aggregate score from the four measures of social support resources was calculated as the total "Support" score (Mean = 15.47, *SD* = 2.73).

In the multiple regression model, the dependent variables were parents' views on child-rearing, specifically Irritation, Burden, and Fulfillment. Children's age and gender (coded as 0 for male and 1 for female) were included as control variables. Additionally, the total support score and presence of anxiety about children's eating habits (coded as No: 0, Yes: 1) were integrated as explanatory variables, along with their interaction terms. Dummy variables were treated as categorical, and each variable was centered on the mean within the model. To correct any deviations from the assumptions of multiple regression, and reduce the risk of estimation errors, a robust bootstrap estimation method was utilized. The results of the multiple regression analysis are presented in Table 5.

The results indicate that the multiple correlation coefficients for the individual multiple regression analyses pertaining to the three aspects of child-rearing, namely Irritation, Burden, and Fulfillment, ranged from 0.06 to 0.08. According to Cohen (1988), the goodness of fit for each model was small, with R-squared values between 0.02 and 0.13. However, the models demonstrated explanatory power that should not be overlooked.

Table 5 Result of multiple regression analysis on parents' view of child-rearing

Criteria Value	Irritation	Burden	Fulfilment
Control Value			
Age	-.08 +	-.08	.03
Gender	.05	.08	.-.04
Explanatory Variable			
Support	.00	-.02	.22 **
Anxiety in the children's eating (N/Y)	.18 **	.24 **	-.12 *
Support *Anxiety	-.15 **	-.07	.14 *
R^2	.06 **	.08 **	.07 **

** *p* < .01, * *p* < .05, + *p* < .10

In the analysis of Irritation as a dependent variable, the standardized coefficient for the presence of anxiety about children's eating was significant (*β* = .18, 95%CI [-.08, .28]), as was the interaction term (*β* = -.15, 95%CI [-.25, -.05]). Regarding Burden, the standardized coefficient for the presence of anxiety about children's eating habits was also significant (β = .24, 95%CI [.13, .34]). For Fulfillment, the total number of consultations (*β* = .22, 95%CI [.11, .35]), the presence or absence of anxiety about young children's eating (*β* = -.12, 95%CI [-.21, -.004]), and the interaction term (*β* = .14, 95%CI [.01, .27]) were all significant predictors.

In a multiple regression model with interaction terms, the main effect of an explanatory variable is captured by its regression coefficient, assuming that the other variables in the interaction term are averaged (with categorical values set to zero). For instance, when accounting for children's age and gender and normalizing the total support score, parents who expressed anxiety about their children's eating habits tended to have more negative perceptions of parenting. Specifically, these parents were more likely to report feelings of

Irritation and Burden, and less likely to feel Fulfillment, compared to those without such anxieties. Moreover, the total support score also correlated with a sense of parental fulfillment.

Subsequently, given the significance of the coefficient of the interaction term in the model in which Irritation and Fulfillment were the dependent variables, a simple slope analysis was performed. This analysis was based on one standard deviation from the mean, in accordance with the method outlined by Aiken and West (1991). For the variable, Irritation, as depicted in Figure 1, the multiple regression analysis revealed that anxiety about children's eating habits was a significant predictor when the total Support score was low (β = .55, *SE* = .13, p < .001), indicating a strong relationship. However, this relationship was not observed at higher levels of total Support (β = .05, *SE* = .12, p = .70), suggesting no significant association under these conditions. Similarly, for the variable, Fulfillment, the multiple regression analysis indicated that anxiety about children's eating habits was a significant negative predictor when the Total Support score was low (β = .55, *SE* = .13, p < .001). However, this relationship was not evident at higher levels of Total Support (β = .05, *SE* = .12, p = .70), suggesting that the effect of anxiety diminishes as support increases.

The findings consistently demonstrate that concerns regarding young children's dietary habits adversely affect parental attitudes toward childcare in contexts of limited support. Conversely, a buffering effect was noted that diminished the impact of diet-related anxiety as the availability of support increased.

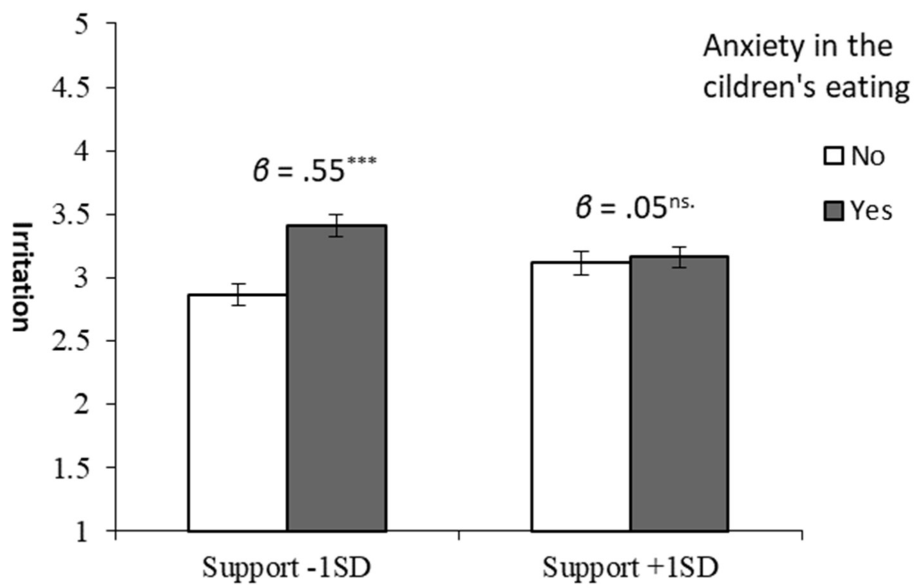

Figure 1 Simple slope analysis of Irritation

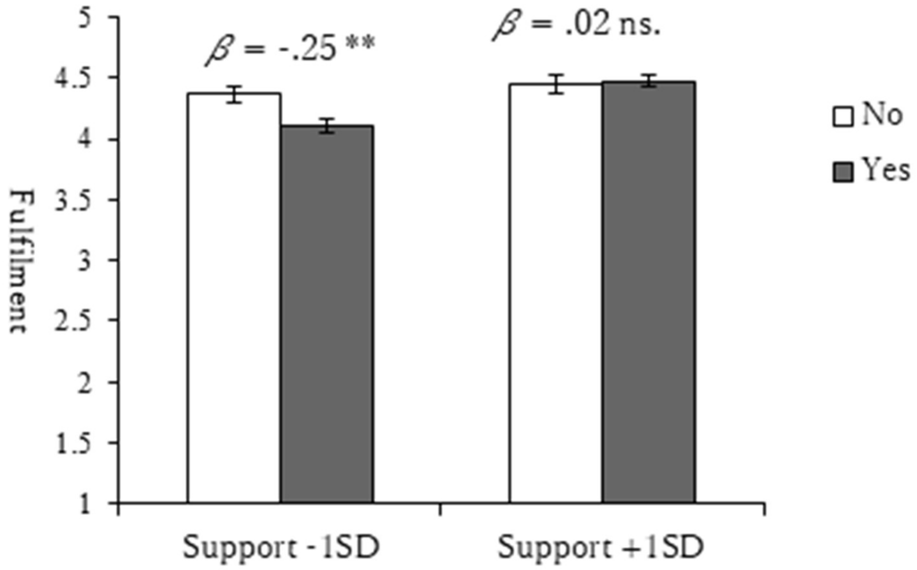

Figure 2 Simple slope analysis of Fulfilment

Conclusions

In this study, a questionnaire survey was conducted among parents to examine the factors influencing their anxiety about young children's eating, in relation to their views on child-rearing and their children's eating behaviors. The results revealed the following.

First, parents' anxiety about their children's eating was related to their children's eating behaviors of picky eating, manners, and play eating (Table 3). Parents who are particular about their children eating in a clean, neat, and well-mannered way are more likely to feel burdened and irritated in relation to child-rearing. In other words, it was suggested that the assumption that they "have to do" something regarding eating may be driving parents into a corner. Therefore, kindergarten and nursery teachers need to view children's development from a long-term perspective and offer advice and support that lightens parents' feelings. This suggests the need for kindergarten and nursery teachers to reaffirm the importance of attending to anxiety about children's eating habits and providing careful support to parents.

Among the eating behaviors that influenced parents' anxiety about young children's eating, picky eating was a particularly strong factor (Table 4). With regard to picky eating, parents' attempts to feed their children with foods they dislike or novel foods often do not go as far as they would like because of the physiological nature of eating. It is thought that, for parents, the worry that their child was not eating the meal they had prepared and that they did not know how to get their child to eat may have led directly to irritation and anxiety.

Second, looking at the relationship between parents' anxiety about young children's eating and their "views on child-rearing," it was demonstrated that anxiety tended to increase "burden" and "irritation" in child-rearing, while reducing "fulfilment" (Table 5). In other words, the results indicate that parents' anxiety about their children's eating does not stop with their children's eating but may extend to their worries over child-rearing.

These relationships were affected differently, depending on whether the parents had people they could consult. It was observed that when parents had someone to talk to, they felt fulfilled in their child-rearing, but when they did not have someone to talk to, their “views on child-rearing” tended to be negative over anxiety about their children’s eating (Figures 1 and 2). This result indicates that having a person with whom parents can consult may help them feel positive about child-rearing, even if they are anxious about young children’s eating.

In particular, as eating is an activity that takes place not only at home, but also in nurseries and kindergartens, teachers may need to be sensitive to parents’ anxiety about their children’s eating habits, and may need to support them.

Finally, we present the limitations of this study. Parents’ anxiety about young children’s eating is related to children’s eating behavior and their views on child-rearing; it was found that even if parents have anxiety about their children’s eating, if they have someone to talk to, they will not feel negative about child-rearing and will feel fulfilled. In future work we will examine, in detail, what kind of actions and words, from whom, and in response to which queries of parents regarding their children’s food would reduce anxiety about young children’s eating, considering that the development of an environment, wherein parents are comfortable with consultations, is an important issue to be addressed.

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PEER-REVIEWED PAPER

Teachers' Pedagogical Challenges and Solutions in Finnish Adult Education Home Economics Online Courses

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Abstract

The aim of this research was to examine the pedagogical tools, methods and prerequisites that teachers use to enable the learning of food preparation skills in adult education online courses organised by Finnish adult education centres (AECs) and The Martha Association (hereinafter, the Marthas). By applying the sociocultural approach, this study examined these pedagogical challenges and solutions from the perspective of embodied, material and social mediations. The data used in this study were obtained from six online interviews with home economics teachers in three AECs and two Martha clubs. The data were analysed using a theory-driven qualitative content analysis. The results can be summarised by three key elements: the challenge of achieving teachers' triple proficiency, teachers' pedagogical responsibility and understanding the specific nature of the social interaction in online courses. Teachers need a new kind of proficiency that emphasises their digital skills, the strong role of their experiential knowledge and their multilevel accessible social interaction. The results highlight the need for teachers' continuous development to find pedagogical solutions. However, organisations are also responsible for providing facilities and teacher support. Pedagogically well-planned and conducted online courses are important for participants who cannot attend ordinary face-to-face courses.

KEYWORDS: **HOME ECONOMICS PEDAGOGY, ONLINE EDUCATION, ADULT EDUCATION, EMBODIED KNOWLEDGE, SOCIOCULTURAL PERSPECTIVE**

Introduction

Recent years have highlighted the importance of research that could support the use of information and communication technology (ICT) in a pedagogically reasonable way by home economics teachers. Pendergast et al. (2012) argued over a decade ago that ICT brings opportunities, in addition to challenges, to home economics, as it provides new constantly

Lehtiniemi, P., Kokko, S., Syrjäläinen, E., & Palojoki, P. (2024). Teachers' Pedagogical Challegnes and Solutions in Finnish Adult Education Home Economics Online Courses. *International Journal of Home Economics, 17*(2), 62-76.

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developing channels to teach. Digital learning environments have many benefits such as the option to participate in courses without place restrictions (Palovaara Søberg & Müller, 2021). However, in home economics education, ICT has not been intensively used in many countries before the COVID-19 pandemic (e.g. Carrillo & Assunção Flores, 2020; Sundqvist et al., 2020; Taar & Koppel, 2021).

Before the pandemic, experiential studies have been conducted, including promoting part of the learning of food preparation through podcasting (Surgenor et al., 2016) or promoting home economics through videos (Matthews & Macaskill, 2015). However, in the bigger picture, home economics (e.g. food preparation skills) is mostly taught face-to-face for several reasons. For example, Phua et al. (2011) studied the behavioural intention to use the internet as a teaching-learning tool in home economics in Malaysia. They noticed that teachers' attitudes towards the internet, its perceived usefulness, ease of use and enjoyment correlated positively to their willingness to use the internet in their teaching practice. Many teachers had good intentions to use the internet but they needed more encouragement and training to actually start using ICT as a pedagogical tool (Phua et al., 2011).

More recently, in Finland, Sundqvist et al. (2020) studied home economics teachers' beliefs, frequency and purpose of ICT use in lower secondary education. The data used in their study were collected in 2016, before the COVID-19 pandemic. Their results revealed that the use of ICT for learning purposes was rather infrequent among home economics teachers and that the most frequently used digital device was a data projector. Many practical skills teachers used ICT only to support face-to-face learning (e.g. Sundqvist et al., 2020) even though ICT played a strong role in various functions in Finnish society before the COVID-19 pandemic. The situation was similar in other countries such as Estonia (Taar & Koppel, 2021).

Previous research (Phua et al., 2011; Sundqvist et al., 2020; Taar & Koppel, 2021) has shown that home economic teachers did not find ICT very useful or were not confident enough to use it in their teaching, especially in online environments. Among the most important factors that influenced their decision not to use ICT was their belief that teaching online would be pedagogically challenging in home economics because of the strong role of embodied and material mediations in teaching practical skills (e.g. Sundqvist et al., 2020). According to Renwick (2015), teaching home economics requires teachers not only to produce something but also to know how and why something can be produced in a particular way. Therefore, it is pedagogically challenging to combine this practical knowledge of food preparation with online environments.

However, the COVID-19 pandemic forced all teachers to adapt to the requirements of remote teaching (Kouhia et al., 2021). Kouhia et al. (2021) argued that the digital environment and remote teaching highlight the role of the teacher as a course facilitator. Aquino and Briones (2022) studied ninth-grade students' food preparation skills in remote learning and observed that they needed the teacher's guidance quite frequently. They concluded that online teachers should be provided constant training, coaching and mentoring in virtual teaching and sufficient facilities and equipment to manage online courses in the school context (Aquino & Briones, 2022). Thus, understanding how teachers can support learning in home economics online courses has become crucial, both in schools and in adult education.

ICT plays a significant role in people's lives, and many are increasingly accustomed to using it in their everyday lives. The demand to use ICT as a teaching tool is also increasing. However, the nature of food preparation as a practical skill challenges home economics teachers to search for new pedagogical solutions to their online courses. Although many studies have investigated distance education, studies focusing on pedagogical challenges and solutions applied to online courses in home economics and food preparation skills are still lacking, especially in adult education. To fill this knowledge gap, this study was aimed at determining how Finnish home economics teachers support the development of food preparation skills in their online courses. The research context of this study is nonformal adult education in Finland, which is provided by Finnish adult education centres (AECs) and The Martha Association (hereinafter, the Marthas). Both AECs and the Marthas provide unique learning environments that are tailor-made for adult learners. However, turning from ordinary home economics classroom learning to online courses presents additional challenges.

Conceptual framework of this study

Lev Vygotsky (1978) argued that an individual's development cannot be separated from the social and cultural contexts in which it is situated. This means mental processes can only be understood when social interactions, material tools and psychological tools such as the language, signs and symbols that mediate them are acknowledged (Glăveanu, 2020; Verenikina, 2003; Vygotsky, 1978). For this research, the sociocultural approach to teaching and learning deepens the comprehension of the nature of the teaching and learning of food preparation skills in home economics and provides a focus on the aspects to be considered when teaching and learning online among adult learners.

All artefacts manufactured or created by people are influenced by the cultural development of the surrounding society (Verenikina, 2003). Material tools and other artefacts such as recipes are essential for learning food preparation skills in home economics. De Léon (2003) indicated that a physical place for cooking is a highly structured environment that requires several tools and ingredients. He argued that the person working in the kitchen must pay attention to various things such as timing and coordination simultaneously (de Léon, 2003). According to De Léon, food preparation is a combination of using tools, handling ingredients and understanding the cultural heritage of a particular meal.

In addition to the key role of material tools in the learning of food preparation skills, the role of embodied actions such as hand movements, senses and perception, is crucial in the learning process. As Sutton (2009) pointed out, a person preparing a meal should have knowledge ranging from "melting, stirring, handling different substances, to finding the relevant ingredients and utensils within the layout of the kitchen." These sensory components can be learned only through experience, "from the kinesthetic of various cooking procedures, chopping, mixing, etc. to the use of the tongue and nose as 'tools' to mark the progress of the dish and make the constant judgments and adjustments that are part and parcel of skillful cooking" (Sutton, 2009). Patel (2008) calls this embodied thinking, referring to how body movements, handling of tools and materials and actions in space are related to thinking processes. That is, as Baurley et al. (2020) described, learners' embodied knowledge is bound in both their experiences and the material and environmental contexts in which they cook.

Actively and analytically used senses are also central to thinking and learning practical skills. Trubek and Belliveau (2009) argued that the kitchen creates “an ideal framework for multisensory learning, because of its smells, sounds, sights, textures and tastes.” For example, when baking bread, experts know the right consistency of the dough by touching it. They know the correct hand movements to shape the dough into bread and can see and smell the right moment when the bread is ready to be removed from the oven. Therefore, the senses not only enable the gathering of information but also provide a real-time analysis of the process (Patel, 2008).

By preparing a meal, learners gain more skills in preparing that particular meal. In this internalisation process from external to internal, the tools modify and transform the learners’ thought processes as they begin to use these new tools to express their thinking (Hedegaard, 2004; Kozulin, 2002; Vygotsky, 1978). According to the sociocultural theory, this learning occurs in social interactions with others such as teachers or more capable pairs (Hall, 2007; Kozulin, 2002; Vygotsky, 1978). Both material and psychological tools are social by nature (Kozulin, 2002). Social interaction is often emphasised in adult nonformal courses. As Rothes et al. (2014) suggested, some adults may participate in a certain course mostly for social motives such as meeting new people. The interaction between participants sharing the learning situation determines the meaningfulness of the learning process (Hall, 2007).

The sociocultural theory was originally developed to understand child development and learning (Vygotsky, 1978). However, the same learning process also applies to adults who are learning new skills (Rosser-Mims et al., 2017; Shah & Rashid, 2017). In this article, our focus is on adult learning in the context of nonformal food preparation courses.

Aims and methods

Aim and research question

The aim of this study was to examine teachers’ pedagogical challenges and solutions in the online learning environment in home economics online courses in Finnish adult education.

The research question is as follows:

1. What pedagogical tools, methods and prerequisites do teachers use to enable the learning of food preparation skills in adult education online courses?

Research context

The context of this research is courses for teaching food preparation skills in AECs and the Marthas in Finland. AECs are educational institutions chiefly maintained by local authorities (Ministry of Education and Culture, 2024). AECs are available to everyone, regardless of age or educational background. Learning is largely self-motivated and, as a rule, is not aimed at achieving a formal qualification. The courses are paid, but the course fees remain highly reasonable, as the central government and local authorities subsidise them. Classes are offered for a wide variety of subjects. The most popular courses are in crafts and home economics. The choice of a course on offer varies between centres, and each centre is responsible for designing its own curriculum to ensure that it best reflects the demand in its locality. AECs have become an integral part of the Finnish liberal adult education system. Every year, more than one in ten Finns, a total of more than 600,000 people, attend courses in AECs (Kansalaisopistot.fi).

The Marthas is a Finnish nonprofit organisation that is well known for its dedication to educating the public in matters of home economics. Founded in 1899, the Marthas offer advices on food, nutrition, gardening, environment, family finances and consumer issues. It provides cultural and civic education, engages in advocacy work in Finland and is active in the field of cooperation with women's NGOs in Africa. Home economics is the Marthas' main activity. In addition, they participate in various campaigns in collaboration with other organisations and the authorities. Adult education is an important field of activities and implemented in study groups. The themes vary from human relations, women and development, gardening and environment to cooking and healthy eating. The Marthas is a member of the International Federation for Home Economics. They work on an organisational basis both in rural areas and towns. The current membership count is 38,500, most of whom are women. Members are organised into 1000 local clubs headed by elected leaders. The organisation is divided into 13 districts. Each district association has an executive director, employed home economics specialists and elected board members. The central association Marttaliitto (The Martha Association) has its headquarters in Helsinki. The funding comes from different sources such as dues, paid courses and organised happenings. The organisation has been receiving state subsidies since 1907 for the expenses incurred by home economics counselling (The Martha Association, 2024). Except for club members, they also organise food preparation courses for everyone interested.

In this study, we focused on courses for food preparation skills that are offered to the public. Despite the different organisational bases, the approaches to these food preparation courses are similar. Both AECs and the Marthas emphasise the learning of different food preparation techniques and skills and healthy eating. In addition, social interactions and new experiences are important for the adults participating in the courses (Kansalaisopistot.fi, 2024; The Martha Association, 2024). As Sutton (2009) observed, the kitchen is "a mix of practices that blur the distinctions between the social and the technical." Many of the goals defined already in Finnish home economics basic education at the school level, such as to support the growth of individuals into responsible consumers, to develop the ability to maintain the preconditions of everyday life or to contribute as active members of the family and society (Finnish National Agency for Education, 2024) are important, along with the learning to prepare a particular meal.

In the face-to-face food preparation courses, the main target is to learn a particular skill such as baking pastry or learning to cook, for example, Asian or Italian cuisine. The main motivation for many participants is to gather together to learn how to cook. The cooking is often done in pairs and when the meals are ready, participants eat and discuss how they experienced the food preparation process. The course offers many ways of learning. The teacher supervises and shows the critical points in the cooking process. The participants support each other when they are preparing food. After the food preparation, they sit together around the same table, reflect on the preparation process and taste different dishes, deepening their learning experience.

Data collection

The data gathering started by searching for all the available food preparation online courses in the service of the Finnish Association of Adult Education Centres, an umbrella organisation for AECs in Finland. They provide information on all the online courses in different AECs in Finland. To obtain more detailed information about the courses, the 30 major AEC course offerings were identified in their course programmes. As a result, we found that very few AECs continue to offer food preparation online courses, and the highest proportion of the courses are available in larger AECs in the capital district. The three largest AECs in the cities of Helsinki, Espoo and Vantaa were selected because they offered the most number of online courses. In these cities, teachers had more experience in teaching online courses. The teachers teaching online courses in those AECs were asked by email for their willingness to be interviewed. Four teachers were interviewed, including one from an AEC in Espoo, one from an AEC in Vantaa and two from AEC in Helsinki.

As the number of teachers from AECs who were available for the interview was quite small, teachers from the Marthas were also asked to participate. In this study, that decision turned out to be good, as it deepened the analysis and brought interesting new perspectives to the research. Two more teachers from the Marthas were interviewed, one from the capital district and another from North Carelia. Altogether, the data were obtained from six interviews of four teachers in three AECs and two teachers from the Marthas in two locations. All the interviewed teachers had teacher's qualifications and had been teaching several online courses since March 2020. None of them taught in online courses before the COVID-19 pandemic and, at that time, had to transfer their teaching to online mode suddenly and in a short time.

The interview guide was designed on the basis of the results of previous research (Lehtiniemi et al., 2023) and the literature reviewed in this study. The guide consisted of 23 open-ended questions. The interviews were interactive, semistructured conversations, where the interviewee's experiences and reflections influenced the course of the interview. The interviews were conducted in October and November 2023. Each interview lasted approximately 60 minutes. The interviews were conducted online via Zoom and audio recorded. This data collection method was time-saving and made it easier to arrange times for interviews. The questions were divided into five critical sets from the point of view of this study: demographic information, questions about the learning environment and the facilities available for the teacher, the pedagogic methods that the teachers used in online teaching and the methods of support that the teachers used in social interactions during the online course. Finally, the interviewees were free to share experiences, thoughts and wishes about the development of teaching food preparation skills online in the future.

Data analysis

We began our qualitative theoretical thematic analysis (Schreier, 2012) by transcribing the recorded audio data. On the basis of a previous study (Lehtiniemi et al., 2023) and the theory that emphasised the role of material tools, embodied actions and social interactions during the data processing, three main dimensions (material, embodied and social) were formed and used as bases for the categories. The transcribed data were read several times and encoded within the three categories. After that, the data were systematically reviewed by marking meaningful aspects of the material with different colours. This task was repeated several times to ensure that the data were coded correctly. The data were then presented in a table, with fragments marked with the same colour in their own columns, and the teachers' answers were coded IN1–IN6. After reading the fragments in the table again, meaningful elements concerning the same issue were divided into groups, forming subcategories.

Results

In this section, we focus especially on the pedagogical tools, methods and prerequisites that teachers use to enable the learning of food preparation skills in adult education online courses and to achieve the pedagogical goals of the course. The results are discussed according to the material, embodied and social dimensions of food preparation skills. These dimensions are intertwined in the learning process, but as they play different roles, examining them separately clarifies their role as a whole.

Table 1 Pedagogical tools, methods and prerequisites in teaching food preparation skills online

	Material Dimension	Embodied Dimension	Social Dimension
Tools	**ICT equipment, digital competence and conditions as a pedagogical tool** • Importance of proper technical supplies • Importance of teachers' and learners' digital competence and support • Appropriate teaching conditions for online teaching (e.g. settings, lightning and working environment) **Appropriate food preparation tools and ingredients** • Equipment found in every home • Ingredients that are easy to find in grocery stores	**Sensory Awareness** • Pedagogical use of cameras to support sense of sight • Description and metaphors as a substitute for the sense of sight, touch and smell • Short videos and clips to support learning	**Multi-channel interactions throughout the course** • Carefully thought-out and advance instructions via email or special internet platforms • Interactions using chat, photos and camera during the course • Discussions at the beginning of the course and when the dishes are ready • Collecting feedback after the course
Method	**Adaptation of home circumstances in planning and pedagogical solutions** • Planning the course according to the tools and ingredients found at home • Taking clarity, price and availability of food ingredients into account in recipes used and the feasibility of using the recipes at home	**Topic selection** • Selecting the most suitable meals for online teaching • Considering the best ways to teach a particular topic online **Simultaneous food preparation** • Supporting learning through simultaneous food preparation with students • Awareness of the exact timing of the course • Taking all participants into account by taking an easy-to-follow teaching pace	**Multi-level social interactions** • Teacher's leading role in implementing teaching events • Families' and friends' roles in preparing food at home • Organised courses for special occasions and groups • Differentiation of food preparation stages by taking into account household members
Prerequisites	**Challenge of teachers' triple proficiency** • Strong knowledge of teaching food preparation skills • Knowledge of technical facilities that can be used as pedagogical tools • Knowledge of pedagogically reasonable ways of integrating the teaching of food preparation into the online setting	**Teacher's experiential knowledge** • Strong pedagogical approach/experience in teaching food preparation skills • Knowledge of the critical points of each food preparation stage • Ability to foresee potential critical points in the preparation of the food in question • Understanding which food preparation processes can be implemented in a distance learning environment	**Accessibility of participation** • Using common platforms to ensure accessibility • Enabling participation, networking and social support for learning regardless of location • Enabling the participation of people with reduced mobility • Enabling the participation of families with small children

In the material dimension, the tools that teachers used in teaching were divided into four subcategories: ICT equipment, competencies and conditions as a pedagogical tool; appropriate food preparation tools and ingredients; sensory awareness; and multi-channel interactions throughout the course (Table 1).

ICT equipment plays a vital role in successful online teaching and learning experiences. The teachers stressed the importance of using proper equipment: "Everything is specifically based on what the students see, so it would be important to make sure that the equipment is decent" (IN2). However, proper equipment is not yet enough; both teachers and students must have sufficient digital competence. Even when planning the lesson, teachers must be aware of the platforms or programs that best support the teaching of food preparation and are easy to use and accessible to students. They must take into account the functionality of the equipment and advise students on its use. In this study, the teachers were not in an equal position; the support for online teaching varied significantly depending on the organisation. Some organisations had strongly invested in the development of online education, and others had established projects to support organising online courses after the COVID-19 pandemic, as one interviewee disclosed: "We have had such an online food course project, and instructions were very precise as to what to pay attention to and what are involved" (IN6). In some cases, organisations offered technical support even to students who participated in the courses. On the other hand, many teachers received very little support and hoped for a stronger contribution to continuing education for teachers and support in the use of ICT equipment from their own organisation so that they could start teaching online more easily. One teacher observed that "in particular, the technical issues are probably the most important, as well as what many people think about and whether they could start teaching online even if they don't have enough technical skills" (IN1).

In addition to the functionality of the ICT equipment and teacher competencies, the teaching environment must be optimally organised for online teaching. Online teaching is very much based on visual sense, the quality and locations of the cameras are critical for learning, and the importance of proper lighting was emphasised, as in the following statement: "When we taught online there in the old kitchen, the dimness of the premises, the colours and textures of the food did not show correctly" (IN5). In addition, the kitchen layout is also important for teaching. The settings of the food preparation tools and ingredients had to be easily accessible to ensure smooth teaching and learning experiences.

When planning online teaching, the appropriate food preparation tools and ingredients must be considered. Teachers must plan the course based on the fact that students participate in the courses from their own homes. The food ingredients must be easily obtainable, and no special equipment should be needed for the meal preparation to ensure that it is easy to prepare at home, as reflected in following answer: "We have tried to ensure that the raw materials are affordable and the recipes are simple so that they are available or more accessible to everyone in everyday life" (IN5).

In the embodied dimension, the fact that not all the participants are in the same location is a special challenge for the teachers, as engaging the senses and embodied actions is difficult when teaching online. Thus, teachers use sensory awareness tools to overcome this challenge. This requires teachers' ability to find the best possible tools to take notice of and replace all the senses needed in learning to prepare a certain meal, including the pedagogical use of cameras, descriptive words/sentences and metaphors and small videos and clips.

The sense of sight is emphasised; hence, the pedagogical use of cameras, small videos and clips plays an important role in supporting learning. In the pedagogical use of cameras, the cameras should be placed in such a way that provides the best possible view of the food preparation process and the food being prepared to the students at a distance. One teacher suggested, “You had to think very carefully that the camera is in just the right place, that the camera looks just close enough to, for example, a bowl of dough” (IN3). The teachers preferred using two cameras whenever possible, one showing a picture directly from the top of the food preparation bowl or pan and the other providing a more general view of the space. In this way, the students would have the best view of both the tools used in the food preparation and the composition of the food or dough being prepared. “I have two cameras and I switch between them. The smaller webcam then always zooms in on what I’m doing with my hands at that moment,” one teacher explained (IN2).

In addition, the use of short videos and clips can also be a good way to support learning. They can be used at the beginning of the course or sent to students before or after the course. According to a teacher,

> If there are challenging techniques to demonstrate, then may be some videos are needed. For example, short video clips before the actual course can already provide some kind of preview of how to do a technique and so the students can easier follow teaching in the course (IN2).

However, teachers support students’ learning not only with a video but also by verbalising simultaneously everything they do. One teacher said that “you have to be able to describe the making process in detail” (IN3). Here, metaphors and descriptive words also play important roles. By using language as a pedagogical tool, teachers must also think about the quality of students’ equipment and that they may have trouble following the video. Here, verbalising plays a vital role in learning and makes it possible to convey tacit knowledge. Another teacher explained that

> you have to describe the process in great detail, and some verbalised tacit information is related to the process. Somehow keeping in mind that even though I have the cameras and the idea for shooting all the time, these don’t necessarily get through to the homes and it could be that they are completely dependent on my speech (IN4).

In the social dimension, the interactions that occur during the online course are multichannel. Teachers can interact in many ways. The tools used here were the precise instructions sent through email or special webpage before the course, interaction via chat, cameras and photos during the course and feedback after the course. Before the actual course, the teachers sent thorough and well-considered instructions to students: “There is a shopping list and recipes in order of preparation and what is needed. I have thought a lot about the everyday life of the course participants when I have prepared the instructions” (IN5). This is important for orientation to the course. The students can do shopping beforehand to get all the ingredients needed and search all the tools that need to be ready on the working table before the course. They can also email the teacher if they want to clarify something in the instructions.

During the course, teachers support learning by asking how students are doing, answering questions and encouraging students to ask and show their dishes, as one teacher disclosed in the interview: "I ask students working in their home kitchens straight questions about how they are doing" (IN4). Teachers cannot see what students do at home unless somebody asks something. Even then, they give advice via camera or photos. Not all students want to talk or open their cameras, but in those cases, sending messages or photos via chat is a good way to communicate. "Not everyone has opened their cameras, but then they can put pictures to chat, so that I can see a little where things are going," one teacher explained (IN6).

After the course, students can give feedback on the course, which is an important part of course communication. This may be the only way teacher can get to know what the students think about the course. Feedback is an important tool in course development.

Methods of teaching food preparation skills online

The teachers' pedagogical methods were divided into four subcategories: adaptation of home circumstances to the planning and pedagogical solutions, topic selection, simultaneous food preparation and multilevel social relations (Table 1).

In the material dimension, adaptation of home circumstances to the planning and pedagogical solutions means that when planning the teaching of the course, it is important to be aware of clarity and the price and availability of the ingredients, and the recipes used in the course must be applicable to home conditions. Sometimes, it can be a little bit challenging, as one teacher expressed: "It is perhaps somehow always a challenge to think about what can reasonably be done at home" (IN3). However, preparing food at home could also make it easier for the participants to cook or bake after the course. "On the good side, I think that when the food preparation takes place in their own kitchen, then maybe the instructions will remain in their everyday lives more easily" (IN1).

The choice of dishes to be prepared plays an important role in planning a successful course. In the embodied dimension, this planning process is called in this study topic selection. Some meals are easier to prepare online than others. Multistep meals and those that demand precise techniques can be challenging to teach online. In addition, if the meal preparation demands special tools or ingredients that are difficult to find in grocery stores, they would be easier to prepare in face-to-face courses in organisations' well-equipped kitchens.

In this study, to support embodied learning, one of the most important pedagogical methods for teaching online that differs from face-to-face teaching is simultaneous food preparation. This means that teachers support students' learning by showing all food preparation by preparing the food simultaneously with the students. Together with the verbalisation of every movement performed, this forms the body of the teaching. In this way, missing sensory experiences can be replaced. In addition, teachers must be aware of the correct timing and prepare food at a sufficiently slow pace, taking into account students' different skill levels. As on teacher mentioned, "it helps a lot that the teacher proceeds slowly enough; it is much easier to follow" (IN6). Here, a challenging task for the teacher is giving advice from a distance. In critical moments, teachers cannot come near the student to support learning, as reported by one interviewee: "In an online course, the teacher is not able to come close to the student to teach and show the work by hand" (IN4).

In the social dimension, one important result of this study shows that the concept of social interaction can be expanded from what it has been in traditional face-to-face teaching. Online courses are teacher led. On the other hand, according to the students' feedback, participants of an online course do not necessarily wait for interactions with other students. They come to the course primarily to learn the skills of preparing certain meals and are satisfied with this.

In online courses, social interactions cover the interactivity of the course itself, but the sense of community can also increase by the interactions that take place at home during the course. We call these multilevel social interactions. The fact that social relations also happen behind the screen at home is an integral aspect of the online course. Often, more than one person participates in the meal preparation, as described in the following: "Quite often, the diamond of social interaction is right there at home, where students are cooking with family or friends, and they want that experience with their loved ones" (IN5). Pedagogically, this means that teachers should orientate and consider everyone present in the experience. That is, as a teacher explained, "If there are more than one person, I try to give tips about what the others can do" (IN6). There are also special courses organised for friends or occasions with family and friends. In these cases, the course is planned for several people from the beginning.

Prerequisites for teaching food preparation skills online

The prerequisites for a successful online course in the material dimension are overcoming the challenge of teachers' triple proficiency, experiential knowledge and accessibility of participation (Table 1). The challenge of achieving teachers' triple proficiency consists of three main components: Teachers must possess a strong knowledge of how to teach food preparation skills, how to use technical facilities in the best possible way as pedagogical tools and to find pedagogically reasonable ways to teach food preparation skills online.

The senses and hands play important roles in food preparation. One prerequisite for a successful online course in the embodied dimension is teachers' good experiential knowledge of teaching food preparation skills. This means that they are aware of the critical points of the food preparation in question beforehand. They know what dishes are most suitable for teaching online and can verbalise the process of preparing the meal. This can be summarised by the fact that they know the stages of preparing the meal by heart. One teacher explained,

> It places more demands on the teacher's competence and professionalism; that is, if students show you some dough on camera, you immediately know at what stage they are and what needs to be done next or what has gone wrong with it (IN3).

The teachers felt that teaching in online courses deepens their experiential knowledge and professional skills in general. One of the teachers summarised online teaching as follows: "I feel like my own expertise has deepened because now I have actually made every dish from start to finish and hundreds of times. I will then be able to provide much more tacit knowledge or experiential expertise" (IN4).

In terms of social interactions, the research clearly shows that an online course is an entity with many levels. The prerequisites for participating in the course and all the social communication starts from a basic fact: to make the course accessible. The course should be organised in a commonly used platform so that as many as possible can participate. Online courses enable participation and the learning of new skills regardless of the students' locations or life situations. They offer students a good opportunity to participate, especially those living far from course venues, people with reduced mobility or parents with small children who cannot leave home after work. This was evident in student feedback. According to one teacher,

> The best feedback is given to us by people who, for one reason or another, are unable to participate in a face-to-face course, such as families with small children or those who live so far from where a face-to-face course is organised (IN5).

Discussion

Although ICT has played a strong role in Finnish society and in the educational system for a long time, many home economics teachers have used ICT mainly to support face-to-face teaching (Sundqvist et al., 2020). However, online courses have many benefits such as the option to participate in courses without place restrictions (Palovaara Søberg & Müller, 2021). The findings of this study expand the scope of teaching food preparation skills to adults in online courses. The results of this study can be summarised in three key elements: the challenge of teachers' triple proficiency, teachers' pedagogical responsibility and understanding of the specific nature of the social interaction in online courses.

Online teaching inevitably means working with a digital tool and platform. This means that teachers must adapt their teaching according to the requirements of the platform. The overview of the general outcomes emphasises the importance of teachers' triple role in teaching online. They must be technically skilled, have a strong competence in their subject area and have understanding of how best to integrate the teaching of food preparation into an online learning environment. Learners' embodied knowledge is shaped by both their experiences and the material and environmental contexts in which they cook (Baurley et al., 2020). Teachers must know every critical stage of the ongoing food preparation process in advance to help their students and to understand at which stage their students are working. They must have strong pedagogical skills and the ability to understand the needs of students at all levels. This means that they need a new kind of proficiency, which stresses their digital skills and the strong role of their experiential knowledge and understanding of multilevel accessible social interactions.

The results emphasise the concept of pedagogical responsibility. All the interviewed teachers thought a lot about pedagogical models of teaching that would support students' learning in the best possible way. The basis of pedagogical solutions is a thorough understanding of the steps involved in food preparation. Teachers need strong pedagogical experience to teach food preparation skills. Our results highlight the need for continuous pedagogical development of teachers' teaching. However, it is not right to emphasise only the teacher's responsibility, as organisations who provide the courses are also responsible for the implementation of teaching. Teachers cannot be left alone to cope with all the challenges of digital education. They need support in implementing online courses and for a deeper understanding of the most proper ways to pedagogically use the digital platforms provided to them. Our data show that if organisations have enough resources to support online courses, teachers' work become much easier. This can be observed, for example, in the Marthas' courses, where two teachers are assigned to each course. One of them advises the students via chat messaging and maintains a conversational connection with them, allowing the other teacher to focus on preparing the meal. In this case, the course can be a little bit more expensive, but both the learning and teaching experiences will be better. In addition, collegial support from other teachers is useful, and the two teachers in the same course can support each other in the best possible ways.

Digital tools are not a purpose in themselves but only tools for implementing teaching properly. According to Väätäjä and Ruokamo (2021), teachers must believe in their own pedagogical choices without increasing their workload with technologies that do not serve the goal. Teachers have attained digital competence when they understand the proper way of using digital devices and programs in every situation.

The results of this study emphasise the importance of online courses in adult education settings. Online courses enable the participation of people who cannot participate in ordinary face-to-face courses. Social motives for participating in adult nonformal courses are often emphasised (e.g. Rothes et al., 2014). Although the amount of interaction between students decreases in online courses compared with face-to-face courses, online courses enable a new kind of gathering around preparing a meal together with family and friends, which strengthens social interactions in the home environment. The interaction take place in different forms and thus requires special attention from the teacher.

The online education we investigated in this study brings a completely new dimension to the teaching of food preparation in home economics. It has many challenges but also many advantages, as summarised by one of the teachers interviewed: "These face-to-face courses and online courses, you can't really even compare them; they're just so different" (IN3).

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PEER-REVIEWED PAPER

Factors Contributing to Well-Being of Mothers in a Childcare Group

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Abstract

This study aimed to clarify, through an interview survey, what exactly a child-rearing network is and how it is perceived by mothers as a change in the sense of burden. A survey was conducted on two child-rearing circles, Circle X and Circle Y, based in City A in the Kanto region of Japan. The results showed that mothers managed their own time, obtained the necessary information for child rearing, and ensured their own well-being by being a part of the network. Additionally, although the mothers were obligated to raise children alone at home, they found the activity itself "enjoyable," which can be seen in their use of language that positioned their network as similar to that of a "family." It was found that the participating mothers experience fun and satisfaction themselves, and that supportive relationships within the network lead to this positive experience.

KEYWORDS: PARENTING CIRCLES, NETWORKS, LIFE RESOURCES, LIFETIME, COMMUNICATION

Research Background and Objectives

Research Background

During Japan's period (1950–1970s) of economic growth, it became common for full-time housewives to take on the sole responsibility for housework and childcare as families in urban areas became increasingly family-oriented (Ochiai, 2019). According to government statistics, in the 1990s, 0.12% of men took childcare leave, a surprisingly low figure. This rate has gradually increased since the late 2010s, reaching 13.97% in 2021 (Ministry of Health, Labor, and Welfare, 2014, 2021), but there is no indication that male participation in childcare in Japan will become significantly more active. In Japan, more than 80% of households with children under the age of 18 are nuclear families. Mothers with infants and toddlers are not only unable to obtain support from relatives, but also cannot expect support from their husbands.

Makino (1987) emphasized the high sense of burden and isolation of mothers while raising children and argued that mothers are becoming increasingly isolated. Ochiai (2019) argued that the sense of burden felt by full-time housewives who devote themselves to childcare is due to the fact that urban families have lost much of their family network (relatives) and must build

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networks with their immediate neighbors. Matsuda (2001) conducted a quantitative survey of mothers' networks and child-rearing anxiety and found that the larger the child-rearing network and the more moderate its density, the less child-rearing anxiety the mothers felt and their life satisfaction was higher.

Japan has various policy measures in place to address this isolation of mothers. One of these is the childcare support system. In addition to financial support such as child allowances and subsidies for medical expenses for infants, the government has strengthened its policy of providing information and services necessary for child rearing. The Cabinet Office's "New System for Supporting Children and Child Rearing," launched in 2015, clarifies the government's policy of actively providing childcare counseling and opportunities for parents and children to interact with each other (Cabinet Office, 2015). The actual support in local governments is provided by child-rearing circles, which are group activities organized by mothers for the purpose of sharing experiences of child-rearing. These gatherings are based on neighborhood networks and are expected to expand the scale of the child-rearing network. Socializing with other mothers has several elements for mothers and can be considered a burden or a pleasure in itself (Toe, 2011). Difficulties associated with maintaining circle activities have been pointed out in the past, including a sense of burden, relationships among members, and changes in relationships over time (Shinagawa, 2005).

Research Objectives

This study addresses the following research questions. What exactly is the neighborhood childcare network, which can be obtained through participation in a childcare group? How have mothers perceived the change in burden (from joining these childcare networks)? To date, quantitative assessments have been conducted on these points, but in this study we examine the in-depth perspective using a qualitative methodology. This study examines the activities of childcare groups using interviews, whose impact had been measured from a network perspective in previous studies. The other objectives are to study the management of lifestyle resources and analyze the current state of mother-centered networks.

In the National Women's Education Association (2007), a survey was conducted regarding the social networks of child-rearing in various countries. In this survey, individuals involved in child-rearing (e.g., partners, childcare facilities, neighbors, separated parents, etc.) were compiled, and in Japan, partners, separated parents, and coresiding parents ranked prominently. In other words, the size of the network is not particularly large. On the other hand, when examining the results from Sweden, the United States, France, South Korea, and Thailand, partners and separated parents also ranked high, making it difficult to claim that the network size is large. By revealing the current status of parenting circles as elucidated in this study, we believe it can provide insights for the development of international social parenting networks.

Methods

The study was conducted with two childcare groups based in City A in the Kanto region, Groups X and Y. Development has been underway in City A since the 1960s. In the 2000s, a railway network was developed, bringing the commute time to Tokyo down to an hour. City A has 84 public, private, and certified private nursery schools (including Early Childhood Education Centers and smaller nursery schools) serving a population of approximately 200,000 residents. City A has a proportionate number of facilities with other comparable cities. While the population has increased due to enhanced transportation, the city faces typical commuter town problems in terms of childcare, such as the high number of children on waiting lists to enter schools.

We conducted a group interview in December 2019 with eight mothers participating in Groups X and Y at a daycare center run by a Non-Profit Organization (NPO) in City A. The interviews were conducted twice, once for each group comprised of four people. The interviews lasted about 1 hour each. Semistructured interviews were used and the questions asked were: family situation, reasons for joining the group, and changes brought about by group participation. The mothers' profiles are presented in Table 1.

This study was conducted after receiving approval from the Ethics Review Committee on Research Involving Humans at Hyogo University of Teacher Education (Approval No. 2018-51). In line with the ethical guidelines of the General Incorporated Association for Social Survey, a written document was provided to explain our privacy policy and other relevant details. Consent for participation in the study was obtained in writing from all informants.

Table 1 Profiles of surveyed individuals

Interview Group		Age of Firstborn (as of December 2019)	Prior experience with childcare group
1	Mom A	10 Years	3 years' experience as Group Y Staff 7th year in Group X
	Mom B	3 Years	Carried out activities for approx. 10 years as caretaker of Group X
	Mom C	18 Years	Approx. 10 years membership in Group X The NPO representative of City A
	Mom D	10 Years	3 years membership in Group Y
2	Mom E	10 Years	3 years as staff of Group Y
	Mom F	12 Years	7th year as member and 2nd year as staff of Group Y
	Mom G	3 Years	2nd year as staff of Group Y
	Mom H	2 Years	3rd year as member and 2nd year as staff of Group Y

Survey Results and Analysis

Finding the Time to Dedicate to Group Operation and Mutual Support for Family Life

Group X was started by a couple raising their children in City A. The group was originally started to support children's outdoor activities at a cost of 500 yen per day. In addition, the group conducted activities in a way that parents can mutually monitor children's outdoor activities at city parks. The group has been active for over 30 years with the participation of local mothers.

Group X is characterized as a "childcare co-op," a structure lacking the intervention of a childcare professional with specialized skills and knowledge, but where the member mothers together take care for the children. In particular, a unique characteristic is that children under the age of 2 are accompanied by a guardian but children aged 3 and older are left in the care of other mothers. Mothers mark their availability of when they can care for the children on a calendar and coordinate schedules. In addition to these daily "co-op activities," the group hosts a voluntary monthly staff meeting to share the details of care, children's behavior during care hours, and any concerns.

It was stated in an interview that such a network created, through continuous activities, a relationship among mothers, where they covered for each other, and that this network differed from mothers of elementary school classmates.

> The other moms cover me a lot in various aspects, and everyone treats that like normal. So, it's like being in a really big family, and we all naturally leave our kids with each other. For example, I'd pick other kids up from school and keep them until dinner. Or they'd sleep over that day, unplanned. When I chat with moms of kids who have graduated kindergarten, they say that if one of their kids' elementary school friends suddenly ask for a play date, they hesitate and think, "Wait, let's hold on a minute." But nursery school friends have become a totally different category (Group X, Mom D, 2019 transcript).

Mom B's statement that the mothers "cover each other in various aspects" is not limited to the daily "childcare co-op" duties typified by transportation to/from outdoor play areas. Mom B mentioned that the Group X network, which was formed during her firstborn, continues to support her even after the birth of her second child, and has become a trusted network akin to a "really big family." This special feedback about Group X is also reflected in Mom D's statement that "nursery school friends [Group X network] are different from elementary school friends." These statements suggest the valuable and special nature of the relationships cultivated through the group activities.

It is likely that the mothers have formed such networks to counter a lack of public/private support systems for childcare in City A. Mom C talks about the lack of private services as follows: "There aren't many services here [in City A] like there are in urban areas that let you to pay money to solve your logistical problems. When that's the case, you have no choice but to make things work somehow."

In contrast to Group X, which carries out activities as network activities (literally, "childcare co-op"), Group Y collects membership fees and elects steering committee members and is characterized by a daycare-like management by volunteers.

Group Y is a long-established childcare group that has been around for 25 years. Their primary activity is hosting various workshops and learning sessions related to childcare. Group Y creates opportunities for information exchange by inviting instructors to speak about breastfeeding, cloth diapers, children, and medicines, in addition to regular monthly meetings and fortnightly newsletters published by the staff. The regular meetings are hosted by approximately 10 officers, whose terms last one year. The mechanism shows the systematic operation of Group Y in contrast to Group X. The mothers of Group Y formed a network based on trust similar to Group X, but they remarked on the difficulty in selecting caretakers, as the group operates as an organization.

Group Y generally secures staff through recruiting. Then, what are the desirable skills in a potential recruit? According to the discussion between Mom G and Mom H, staff are recruited not only in terms of participation but also their plans to not return to work.

> **Interviewer**: What kind of person is likely to do well as staff?
>
> **Mom G**: Most importantly, someone who won't go back to work. It'd be good to have that...
>
> **Mom H**: And someone who participates a lot. A person with high participation rate.
>
> **Mom G**: You're right, probably someone with a high participation rate.

The group activities of City A support the findings of previous studies that mothers who are overwhelmed with childcare reduce their burden by forming a network with neighbors, which in turn has a positive impact on parenting anxieties and quality of life. However, the reality is that for mothers to maintain a network of childcare co-op, Group X mothers must tie up most of their daily activities with the activities of the childcare group. Instead of "pay[ing] money to solve" (Mom C) their logistical problems, Group X mothers invest their time, and as a result, develop a special relationship akin to a "really big family" (Mom B). Behind the formation of this network is the close communication between mothers. As seen in the story of the Group Y caretaker, the presence of full-time housewives, who may not work but are enthusiastic about the group and their activities, is absolutely essential.

Distribution of Parenting Information

In addition to a childcare co-op, Group X has set up a monthly tea party for mothers to share information about children's status and behavior as noticed during childcare activities and daily life. The tea party is incidental to the primary task of planning and executing the childcare co-op but is an important occasion for mothers to exchange information on parenting.

> There's a meeting once a month. Also, there's participation in daily childcare activities and something called a "tea party." It's not part of the schedule but we can talk about things that are currently going on with the children, as well as our concerns and interests. It's optional, but once a month.

In addition to the tea party, mothers try to gain parenting information during the daily childcare co-op. A common issue for mothers is how to approach their children. Information about parenting, is abundant in the Information Age and mothers face difficulties in filtering and selecting the correct information. The increase in nuclear family households makes it difficult to naturally make new friends, and mothers seek a place to create a network they can rely on. By observing how other mothers interact with children at the childcare co-op, new mothers are able to learn about parenting ("Oh, I should have said it that way."). In other words, all of the group's activities become a source of information about parenting and form a solid base from which mothers can form their own parenting philosophies.

> When I'm sometimes unable to explain things nicely to my own child, other mothers rephrase it for me, and it really resonates. I think, "Oh, I should have said it that way." I'm learning a lot about parenting. If you live with a nuclear family and don't have any friends, the only way you'd be able to research parenting is by looking online or in books...

Group Y hosts regular study sessions on childcare. Mothers who are members of Group Y learn from childcare specialists. Group Y's activities become a source of information on childcare. Similar to Group X, mothers use staff meetings as a place to exchange information. Mom F attended the staff meeting at the invitation from the representative of the group. She shared her parenting concerns and her own views and received advice in return (e.g., "There's this type of story," "There's this type of opinion," "I think this way," "I was blown away that there were such views"). She expressed that she was "blown away" by the advice; we can assume that the advice she received facilitated a deep understanding.

> The person who is the representative of the group [invited me and] said to "come along because you seem to have deep concerns on your mind." At the staff meeting, others were able to suggest, "There's this type of story," "There's this type of opinion," or "I think this way." I was blown away that there were such views.

Identity Formation Through the Operation of Childcare Groups

Group X dedicates weekday daytime to childcare, and the mothers plan and manage the co-op activities themselves. As symbolized by Mom B's statement ("It's definitely more fun to do things myself than be told to do them"), the staff dedicate a lot of time to the childcare co-op but find it "rewarding" to plan and implement childcare activities. Mom A also views the childcare activities positively, stating that she is able to "try all sorts of experiences."

> **Mom B**: It's definitely more fun to do things myself than be told to do them.
>
> **Mom A**: They let me try all sorts of experiences.

In the interviews, all of the mothers spoke positively about the operation of the childcare group and commented on its merits and rewards, and a sense of fulfillment. The mothers of Group X spend a lot of time with their own children, other mothers, and other children through the childcare co-op. By sharing a lot of time, Mom A mentioned that "[other children] become as cute as their own." In addition, the affection the mothers felt for the other children held a unique intimacy, as perceived in the statement, "I feel as if I were everyone's mother." In the narrative above, Mom B described the members of the childcare group as a "really big family," but here she describes herself as "everyone's mother." The structure of Group X, in which all children are cared for by all the mothers, likely fostered Mom B's perception that she is "everyone's mother."

> My child, well, at the beginning I was so overwhelmed that I just watched my own child, but after going every day, I started to see what other children were like. Yes, I could see some kids were like me, other kids started to become endearing to me like my own child. I began to sense all the kids' growth as if I were everyone's mother.

In Group X, as mentioned above, the participants all develop a close relationship through the planning and operation of the childcare co-op, sharing long periods of time and childcare information with each other. By forging such close relationships, mothers are able to overcome the isolation felt during child-rearing. This sentiment is represented in Mom B's comment that she can "experience this leisurely growth together."

> For me, I can experience this leisurely growth together, and it is meaningful that I have partners who can share this joy.

In the previous section, Mom B described the members of the group as "a really big family," but here she describes the friends she gained through the group activities as "partners who can share [her] joy [of watching the children's growth]." The mothers of the group help each other dispel their feelings of isolation and support each other's family lives. It can be said that the mothers have a very close relationship which goes beyond descriptors such as "family" or "friends." This is based on interdependence, which is the belief of "ethic of care" (Gilligan, 1982). This is especially true for women who are responsible for raising children alone in the home and are connected to each other as if they were family. Furthermore, these women describe their situation positively, despite the harshness of their situation.

Mom F, who is a member of Group Y, states that the group activity has been "so much fun that [she's] completely absorbed." So, why did she describe the group activity as "so much fun"? Mom G says that a characteristic of Group Y is "how much fun the mothers are having." Regular parenting circles focus on activities related to childcare and growth. Group Y is a place for mothers to learn skills for their children, and it focuses on the satisfaction of mothers. The group believes it is not ideal to have activities where the children are having fun, but mothers are not. The premise of activities is the "mother's well-being," that is, as Mom H states, "If the parents are satisfied, they can pass on the fulfillment to the children." Therefore, Mom F may be expressing her satisfaction as "so much fun that [she's] completely absorbed." The satisfaction can also be explained by Mom H speaking about her well-being, and that she is "blessed to be a member."

> **Mom F**: It's been so much fun that I'm completely absorbed by it. [The sentiment of] joy is winning.
>
> **Mom G**: That's what I felt the most. Other childcare groups are made for children. But these childcare meetings focus on how much fun the mothers are having.
>
> **Mom H**: The meetings made me realize that if parents are fulfilled, they can give that much more to their children. I felt proud [to be in Group Y]. I'm blessed to be a member of such a great group.

Since the concept of the group is based around the mother's well-being, the mothers had fun with the activities themselves. Improved well-being of the mothers affected their values toward parenting. Mom F stated, "If I hadn't been a part of Group Y, the third child wouldn't have been born, and the fourth definitely wouldn't have been either." She was able to assert this due to the knowledge of parenting methods, support system among mothers, and satisfaction gained through the group activities. Having many children means more time dedicated to childcare over a much longer duration. It is inferred that Mom F was able to feel secure in giving birth to a third and fourth child "because she is a member of Group Y," that is, because she has a close network of other mothers. Furthermore, she has adopted a positive view of parenting through the group activities, and states that her "outlook on life has changed."

> I was supposed to be done with having children after two. My hands were completely full with two kids and I would cry while caring for them. But then suddenly, I felt like wanting a third. After the third was born, before I knew it, there came the fourth. If I hadn't been a part of Group Y, the third wouldn't have been born, and the fourth definitely wouldn't have been either.
>
> My parenting outlook completely changed. Not just parenting, but my outlook on life probably changed.

Conclusion and Future Challenges

This study conducted a group interview of full-time housewives engaged in childcare groups in City A and examined how their lifestyle resources are allocated and how the activities relate to the mothers' identities.

It is clear from the interviews that, although Groups X and Y conduct different types of activities, both have assisted in network formation among mothers through the accumulation of time and communication. With regards to time, both Group X, where activities last long hours on a daily basis, and Group Y, which presents numerous opportunities for gatherings entailing responsibilities, such as staff meetings, and various study sessions, require that members dedicate a lot of time to activities. The prerequisite for staff selection is being a full-time housewife who can manage the time commitment. In addition to time, mothers who participate in Group X and Group Y conduct their own information management. Due to an overabundance of parenting information, mothers struggle to filter and seek a foundation they can rely on. Under such circumstances, an opportunity to observe interactions between other mothers and children becomes an invaluable, tangible experience in an information-oriented society. Using the interviews to delve deeper into specific cases allowed us to verify the mothers' efforts to seek and forge human relationships with their children. The childcare group activities also served as a source of information on general family life such as clothing, food, and shelter, in addition to human relationships.

By managing time and information and obtaining parenting tips, mothers are enhancing their own sense of well-being. Although the burden of raising a child alone in a family is high, the interviewed mothers cited child-rearing activities as being "fun" and referred to their network as being equivalent to "family." Childcare groups in this study place the mother at the center stage, and do not solely focus on the activities of the child. Thus, the participating mothers themselves create supportive relationships to realize a setting in which mothers can experience fun and fulfillment themselves.

This study targeted only mothers in City A with strong commitment to Group X and/or Group Y. However, we believe the childcare community likely presents a different meaning for casual participants (not staff) and fathers. Future studies may clarify these problems by increasing the number of study participants.

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PEER-REVIEWED PAPER

Health and Wealth Deserts: Exploring a Conceptual Framework

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Abstract

Drawing from a literature review on health and wealth-related outcomes, we introduce the health and wealth desert framework. We identify indicators of a health and wealth desert—medically underserved areas, limited supermarket access, health insurance coverage, employment rate, homeownership rate, and distance to financial institutions. As a conceptual framework, the health and wealth desert may provide a way to visualize community disparities that present barriers to quality-of-life. With this insight, educators and practitioners can develop culturally responsive programming, more comprehensive interventions, and measure access to resources that support wellbeing and quality of life across global contexts. We also recommend areas of future research.

KEYWORDS: **DISPARITIES, HEALTH, POVERTY, RESOURCES, WEALTH**

Health and Wealth Deserts: Exploring a Conceptual Framework

To conceptualize a *health and wealth desert*, we start with a more commonly understood term: *food desert*. Initially coined by the Scottish Nutrition Task Force in 1995, food deserts are geographic proximity concepts in which insufficient access to grocery stores with healthy, nutritious foods exists, especially in low-income communities (Beaumont et al., 1995; Karpyn et al., 2019). In 2011, the United States Department of Agriculture (USDA) began mapping food access to identify communities where low availability of affordable, nutritious foods existed and found food deserts in all types of communities. As of 2022, the USDA estimated that 17.4% of the U.S. population lived in low income and low access tracts and were more than 0.5 miles (for urban areas) or 10 miles (for rural areas) from the nearest supermarket (USDA, n.d.). These parameters linked to a food desert consider accessibility to healthy food which is measured by distance to supermarkets or number of supermarkets; individual-level resources that impact accessibility including income and vehicle ownership; and community-level resource indicators such as average income or public transit (USDA, n.d.). In recent years, research has broadened our understanding of the impact of food deserts on the physical (Testa et al., 2021; Ver Ploeg et al., 2009) and economic (Richardson et al., 2017) wellbeing of individuals and communities

Russell, M. B., Zuccaroli, I., & Sorenson, C. (2024). Health and Wealth Deserts: Exploring a Conceptual Framework. *International Journal of Home Economics*, *17*(2), 86-101.
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yet one serious issue remains: having and operationalizing the food desert concept does not lead to any plausible solutions (Wright et al., 2016).

The USDA has recognized the vital role of environment in supporting health and wellbeing while also reducing disparities (Neff et al., 2009). Research shows that many social problems further exacerbate challenges in marginalized communities (Thomeer et al., 2020; Warren & Bordoloi, 2020). It is well established that inequity and discrimination are related to lower wellbeing (Warren & Bordoloi, 2020). In the context of social determinants of health (Farnoudi et al., 2022; Matthew, 2019; Talih, 2013;), this inequity and discrimination sheds light on the limited access to resources as well as the health and financial stress that lower-income households and communities frequently face (Clark et al., 2020). In marginalized communities, for example, something as simple as neglecting to take a daily prescription or paying an overdue bill can trigger a chain of events leading to poorer health or costly financial outcomes (Gennetian & Shafir, 2015). Our paper contributes to the literature on quality-of-life and wellbeing by offering an updated and broadened literature review to demonstrate connections between health and wealth factors, especially in vulnerable and marginalized U.S. communities, practical applications as well as recommendations for future research.

Access as the Foundation for a Health and Wealth Desert

One way to understand a health and wealth desert is to consider access to resources and services that support optimal physical and financial wellbeing. For the purpose of this study, we will use a framework and definition drawing from Pechansky and Thomas (1981) in their paper titled "The Concept of Access." Pechansky and Thomas (1981) recognized that access was commonly understood as the individual's ability or willingness to enter a system prompting their division of access into five dimensions: availability, accessibility, accommodation, affordability, and acceptability. *Availability* refers to both the "volume and type of existing services and resources to the clients and their types of needs" (Pechansky & Thomas, 1981, p. 128). *Accessibility* acknowledges the location of resources and individuals and the connection between the two (Pechansky & Williams, 1981). Thus, accessibility includes transportation regarding distance and cost. In the framework, accommodation is defined as "the relationship between the manner in which the supply resources are organized to accept clients and the clients' ability to accommodate to these factors and the clients' perception of their appropriateness" (Pechansky & Thomas, 1981, p. 128). Some examples of accommodation are appointment systems and telephone services offered to consumers. *Affordability* refers to the connection between "prices of services and providers' insurance or deposit requirements to the clients' income, ability to pay, and existing health insurance" (Pechansky & Thomas, 1981, p. 128). Their definition of affordability also includes the way a consumer perceives the value of a service or product (Pechansky & Thomas, 1981). Finally, *acceptability* refers to the relationship of clients' attitudes and perceptions about the service provider (Pechansky & Thomas, 1981). Through these dimensions, the term access becomes better defined and contextualized for the purpose of this study.

Methods

To identify the indicators of health and wealth deserts, we conducted a literature review following guidance from Paré and Kitsiou (2017).

Formulating the Research Question and Objectives

As detailed previously, we aim to discover the primary determinants of health and wealth deserts—a concept inspired by the commonly known term, food desert. Therefore, the research question and driving objective behind this literature review was to understand the intersectionality of access to both healthcare and financial resources and how those can compound to impact individuals and communities. We intended to use the findings from this literature review to synthesize a list of factors that contribute to the identification of a health and wealth desert.

Searching the Extant Literature

To conduct our review, we began by performing electronic searches for research articles, in major academic journals, and other published texts developed by industry and government, between January 1995 and December 2023. This search period was defined beginning with the year that the term food desert—the inspiration for our conceptual framework—was first coined, in 1995, and ending the year we developed this manuscript. We searched for articles using Web of Science, Academic Search Ultimate/EBSCO, SCOPUS, and PubMed. While the EBSCO and SCOPUS databases are inclusive and diverse, we also included databases that are well-established in the social sciences (e.g., Web of Science) and medical research (e.g., PubMed). Taken together, these databases are suitable and appropriate for literature reviews (Torraco, 2005). We used the following search terms simultaneously in each identified database: "social determinants", "health", "wealth", "well" (i.e., well-being and wellness), "quality" (i.e., quality of life), "outcome", and "community".

Screening for Inclusion and Assessing the Quality of Primary Studies

To be considered for initial inclusion, the article needed to be peer-reviewed, written in English, and have a U.S. context. We decided to ground this framework in the U.S. context given our hope to apply it to local U.S. census tracts, but it is important to note that the underlying principles of community disparities and their impact on quality of life are universally relevant.

We identified 85 articles. Using the Johns Hopkins University library system, we saved all articles to a reference manager. The search results were then exported to Excel for data analysis. The three-person research team used the following process: two of the researchers reviewed and made decisions about article inclusion or exclusion.

Specifically, articles were retained in the search using the following criteria: 1) article was in a peer reviewed journal; 2) article was peer reviewed; 3) article represented U.S. context; and 4) article represented health and wealth outcomes. Articles were deleted if published in a peer reviewed journal but did not appear to be peer reviewed articles (e.g., editorials, book reviews, dissertations, and journal issue introductions). Both researchers reviewed the title and coded marked with "0" for exclusion and "1" for inclusion. Based on the article title review, the data set was reduced from 85 to 23. The first two researchers independently reviewed each article title to determine if there was a substantive component of the health and wealth desert. The researchers acknowledged the subjectivity of this research and strived for consistency throughout the review. In fact, in the event of conflict, the third researcher made the final decision. Next, the researchers reviewed the abstracts of the 23 identified articles. Based on study alignment and relevance, the abstracts were marked with "0" for exclusion and "1" for inclusion. Based on substantive and health and wealth related content in the abstract, the researchers identified 10 articles for full review and inclusion. All researchers reviewed the 10 articles included in this study. In addition to these articles, relevant industry and government publications related to health and wealth deserts, were integrated into the literature review as support. Related concepts found in definitions and associated narrative in the literature were coded as indicators.

Data Extraction

Each author closely reviewed the included articles and drew significant themes along with supporting information from each. The relevant themes from the final literature review articles along with the article's necessary information are summarized in Table 1.

Analyzing and Synthesizing Data

Using the themes from Table 1, the authors discussed the particular indicators that were prevalent throughout the included articles. Equipped with these indicators, the authors developed the health and wealth desert definition and framework. The Results section details each indicator and provides support for its inclusion as a determining factor of health and wealth desert status.

Table 1 Literature included in study

Title	Author	Year	Journal Name	Relevant Themes
Addressing racism and its deeply entrenched dynamics: A 21st century imperative	Christopher et al.	2023	*Health Equity*	Discusses the interrelatedness of health and wealth through examples.
Housing and inequalities in health	Howden-Chapman	2002	*Journal of Epidemiology & Community Health*	Discusses the importance of homeownership among individuals and the implications of wealth for populations.
Structural inequality: The real covid-19 threat to America's health and how strengthening the Affordable Care Act can help	Matthew	2019	*Georgetown Law Journal*	Explores the relationships between racial segregation, discrimination, the social determinants of health, and health disparities through a lens of the law.
Invited commentary: Can changes in the distributions of and associations between education and income bias estimates of temporal trends in health disparities?	Talih	2013	*American Journal of Epidemiology*	Provides background for the social determinants of health and also explores the connections between income and health along with health literacy and overall health.
Call for emergency action to limit global temperature increases, restore biodiversity and protect health	Atwoli et al.	2021	*Nutrition Reviews*	Highlights the disproportionate impact of global and environmental challenges on vulnerable populations.

Title	Author	Year	Journal Name	Relevant Themes
Looking at diabetes-related distress through a new lens: The socio-ecological health model	Farnoudi et al.	2022	*Endocrines*	Focuses on the social determinants of health and briefly examines food insecurity and unemployment.
The PhenX Toolkit: Measurement protocols for assessment of social determinants of health	Krzyzanowski et al.	2023	*American Journal of Preventive Medicine*	Provides a standardized way of grouping measures of the social determinants of health which may serve as a guide.
Sound communities and healthy schools: The economic and social determinants of educational outcomes	Mangino & Silver	2010	*International Journal of Sociology*	Explores the factors that impact education that lie outside the scope of education but carry weight in terms of how students experience education systems.
Social determinants of health: Understanding the basics and their impact on chronic kidney disease	Brown & Elliott	2021	*Nephrology Nursing Journal*	Emphasizes the interrelated nature of health and wealth in the context of kidney disease which can be used to consider other diseases. The article also highlights the impacts of low access to the social determinants of health in specifically vulnerable communities.
Advancing health equity: Facilitating action on the social determinants of health among public health departments	Narain & Zimmerman	2018	American Journal of Public Health	Discusses the need for accessible and usable research, especially when it comes to applying research to community-based practices.

Results

Informed by the studies from the literature review (Table 1) and guided by the social determinants of health measures from Krzyzanowski et al. (2023), we define a health and wealth desert by describing six factors that are essential to both physical and financial wellbeing.

Defining the Health and Wealth Desert

A health and wealth desert is a holistic term and comprehensive concept that identifies an area characterized by a low to limited level of resources and services that support optimal physical and financial wellbeing (Zuccaroli & Russell, 2024). Living in low-access and low-income areas have long created precarious living situations (Kashian et al., 2018; Matthew, 2019; Sampson, 2016). The COVID-19 pandemic amplified these existing disparities by showing the consequences associated with lack of resources and access (Atwoli et al., 2021; Matthew, 2019). Close relationships between health and wealth factors demonstrate an undeniable connection between the two (Atwoli et al., 2021; Matthew, 2019; O'Neill, 2015; Shadmi et al., 2020; Williams & Rucker, 2000). Therefore, exploring the indicators of a health and wealth desert may offer strategies and solutions to reduce the perilousness of living life on the margins.

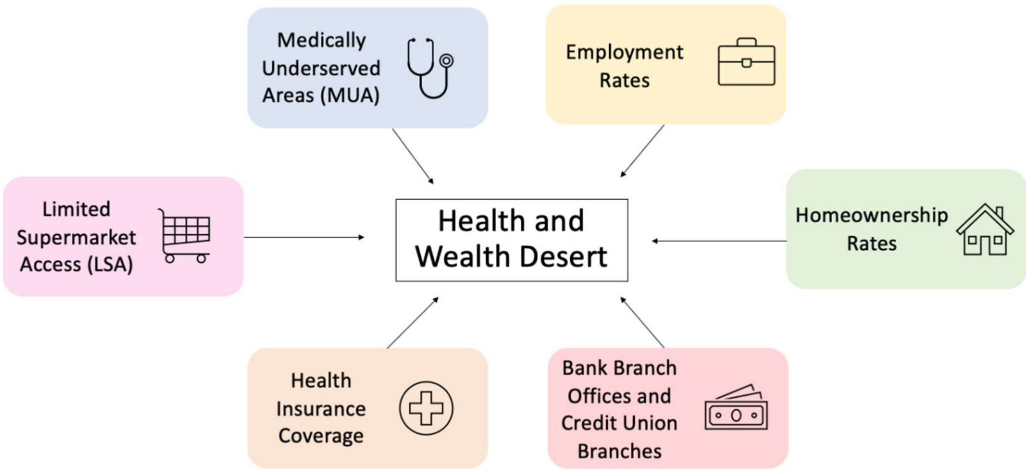

Figure 1 The Health and Wealth Desert framework

Medically Underserved Areas

Medically underserved areas (MUA) are geographical locations that experience a shortage of primary healthcare services (Health Resources & Services Administration, n.d.). Communities living in MUAs typically experience high rates of obesity, cardiovascular disease, and pulmonary disease along with more instances of drug use, emotional issues, worsened health behaviors, and lower child immunization rates (Hooker, 2013; Wilson et al., 2014). Lower access to medical care has been associated with race, ethnicity, lower incomes, and lower levels of health insurance (Brown & Elliott, 2021; Shi et al., 2011). Without access to medical professionals that provide adequate healthcare to individuals living in MUAs, many chronic diseases go untreated and can be detrimental to general health, wellbeing, and life expectancy. Due to this limited access, patients are more likely to delay seeking medical treatment until hospitalization for the symptoms is necessary (Shadmi et al., 2020). This delay has significant impacts on treatment and recovery despite the fact that many of these diseases are treatable and preventable (Virapongse & Misky, 2018; Wilson et al., 2014). Higher hospitalization rates as a result of delayed treatment can impose costly medical bills that greatly impact an individuals' financial security and wellbeing. Moreover, due to the inability to receive cost-effective and timely treatment for medical needs, MUAs experience a lower quality-of-life as it relates to overall physical and mental health.

Limited Supermarket Access

Access to grocery stores can be captured by considering a metric called Limited Supermarket Access (LSA) areas. Food deserts and LSA areas limit access to healthy and nutritious foods, often forcing individuals to turn to convenient, unhealthy foods for sustenance (Farnoudi et al., 2022). LSA areas are identified by using income, distance to grocery stores, and car ownership rates (Reinvestment Fund, 2022). According to the USDA, food deserts tend to have smaller populations, higher rates of abandoned or vacant homes, and residents who have lower levels of education, lower incomes, and higher unemployment (Dutko et al., 2012). As an area characterized by poor access to healthy and affordable food resulting in a vicious cycle of poor health outcomes and economic difficulties.

The main consequence of food deserts is food insecurity that manifests in the food-insecurity obesity paradox (Dhurandhar, 2016). The paradox is generated when the only accessible food is highly caloric and unhealthy but good tasting and cheap, fast food and snack options. In addition, less knowledge about resources for healthy eating and other healthy habits are usually prevalent among food insecure individuals and families (Dhurandhar, 2016).

This cycle of unhealthy eating that is forced upon residents of food deserts and LSA areas results in long-term health effects such as obesity, diabetes, and cardiovascular disease, which are chronic in nature and expensive to manage (Centers for Disease Control and Prevention, n.d.). In addition, it has been noted that obese and overweight individuals report lower life satisfaction which demonstrates the impact that living in an LSA area can have on wellbeing, quality-of-life, and mental health (Farnoudi et al., 2022; Kuroki, 2016). A cycle quickly emerges where unhealthy eating—which is a result of poverty and structural inaccessibility—leads to a need for expensive medical treatment that increases financial instability. This cycle becomes even more vicious if food deserts and LSA areas overlap with MUAs where it is more difficult to obtain medical care for the worsened health conditions resulting from unhealthy eating options.

Health Insurance

The third factor—health insurance—is inextricably tied to wellness and financial status. In fact, an individual's insurance status is among the strongest predictors of the use of cancer screening and advanced disease progression following treatment (VanderWielen et al., 2015). Insurance coverage is linked to lower access and utilization of healthcare services and thus lower detection or treatment of chronic diseases (Brown & Elliott, 2021). Furthermore, the high costs associated with the United States healthcare system demonstrates the need for health insurance for anyone who engages with it (Rosenbaum et al., 2009). Lack of health insurance leads to a higher risk of being in poor health. In addition, living without health insurance can lead to a delay in routine healthcare visits and results in higher rates of emergency department visits and hospitalizations (Maryland Department of Health, 2021). In addition to the integral role of health insurance status for maintaining healthy physical wellbeing, health insurance is also related to financial outcomes, including fewer medical bills being sent to collection agencies (Baicker et al., 2013; Hu et al., 2016), reduced out-of-pocket medical costs (Baicker et al., 2013; Chua & Sommers, 2014), as well as reduced personal bankruptcies and improved credit scores (Mazumder & Miller, 2016).

Employment

Employment is the baseline of determining an individual's income level. It has been demonstrated that higher income can influence health by increasing access to higher quality resources such as healthcare, shelter, food, and education while also improving status and power (Talih, 2013). Therefore, a link between employment and health exists. Taken together, limited and lack of employment prevents individuals from achieving acceptable standards of living, ultimately limiting opportunities and choices to avoid poverty. In this way, employment, or participation in the labor market, is a way to pursue and exercise personal agency.

As we continue to build the argument for the health and wealth desert, it is important to consider the effects and consequences of not being employed. Thompson and Dahling (2019) suggested that unemployment has devastating financial and psychological consequences for individuals, families, and communities. Individuals who are unemployed exhibited higher levels of distress, depression, and anxiety as well as lower levels of subjective wellbeing and self-esteem when compared to individuals who were employed (Paul & Moser, 2009) and an increased level of financial stress and strain (Farnoudi et al., 2022; Kalil, 2013). These relationships were supported by the assertion of Thompson and Dahling (2019) who insisted that negative outcomes are associated with job loss and underemployment, i.e., lowered access to financial resources and increased susceptibility to mental and physical health concerns. In fact, a positive correlation exists between regional unemployment rates and neighborhood poverty rates (Wilson, 1996). Fenwick and Tausig (1994) found that heightened neighborhood economic stress related to decreases in life satisfaction and health among community residents.

Homeownership

Homeownership brings social and financial benefits as well as physical and psychological health rewards for families and communities (Howden-Chapman, 2002). In fact, U.S. families primarily accumulate wealth through homeownership and a number of positive social, economic, family, and civic outcomes (Yun & Evangelou, 2016). Furthermore, housing is considered to be an indicator of wealth due to the fact that it is often the largest capital asset that many people ever own (Howden-Chapman, 2002). In agreement with this, Wolff (2002) suggested home equity represents 60 percent of the total wealth among members of the American middle class. Schuetz (2017) asserted that low-income renters in the U.S. face acute problems balancing the cost of housing and paying for other necessary expenses. Through homeownership, households experience greater housing and financial stability. Although homeownership is a traditional source of wealth for many families (Grinstein-Weiss et al., 2013), Wainer and Zabel (2020) showed that the rate of foreclosure is disproportionately higher for low-income households thus demonstrating the dichotomy associated with homeownership: both a financial strain and a way to build wealth.

According to Krieger and Higgins (2002), a positive relationship exists between living in poor housing and having health problems, including respiratory conditions such as asthma, exposure to toxic substances, injuries due to failing housing conditions, and mental health issues. A similar relationship is confirmed by Howden-Chapman (2002) who stated that, "those who rent their houses appear to have poorer health than those who own their houses even after controlling for age, gender, and education." Housing wealth is also associated with better health outcomes for homeowners. Rohe and Stegman (1994) reported that homeownership had a significant and positive effect on psychological health: higher life satisfaction, self-esteem, and locus of control. Supporting these findings, Rossi and Weber (1996) found that homeowners reported higher self-esteem and happiness as compared to renters. Moreover, renting in unaffordable housing leads to lower funding for other items necessary to health and can lead to chronic stress and adverse health outcomes (Christopher et al., 2023). Homeowners were 2.5 percent more likely to have good health when compared to renters—a substantial health advantage (Finnigan, 2014).

Commercial Bank and Credit Union Branches

The term banking desert is often used to describe areas that lack an adequate number of physical banks for the population of the surrounding neighborhoods. Neighborhoods that lack financial institutions are typically communities of color and/or low-income communities (Hegerty, 2016). Despite the lack of traditional financial institutions, alternative financial services such as check cashing stores and payday lenders abound. While the use of alternative financial services is more prevalent in unbanked and underbanked households, an estimated 25 percent of all households (banked and unbanked) obtained financial services from nonbank providers such as check cashing stores, pawn shops, and payday lenders (Federal Deposit Insurance Corporation [FDIC], 2015; Northwood & Rhine, 2018; Riley et al., 2022).

Limited research is available on the health outcomes associated with alternative financial services. However, over the years, researchers have examined the role of household debt on health outcomes (Clayton et al., 2015; Jacoby, 2002). Specific to short-term borrowing, Sweet et al. (2018) found an association with high blood pressure, inflammation, and self-reported adverse physical symptoms. Moreover, Sweet et al. (2018) reported that short-term loans were associated with higher body mass index, waist circumference, and anxiety. Despite the need to further understand banking circumstances and health outcomes, compelling evidence exists that short-term loans have negative implications for health.

Discussion and Implications

Through a literature review, the social determinants of health specific to health and wealth outcomes were examined to define a health and wealth desert and develop the health and wealth desert framework. The connection between health and wealth outcomes is clear and grounded, and, therefore, provides merit to considering them together through the lens of a health and wealth desert framework. The health and wealth desert framework includes six factors: medically underserved areas (MUA), limited supermarket access (LSA), health insurance coverage, employment rate, homeownership rate, and distance to commercial banks and credit unions. We assert that these six parameters measure factors critical for individual achievement of optimal quality-of-life and wellbeing. Additionally, we assert that these factors can compound upon one another to create a particularly concerning environment that limits an individual's quality-of-life and wellbeing.

The conceptual framework described by Pechansky and Thomas (1981) allows us to consider how each of the six health and wealth desert indicators might affect an individual's wellbeing, in terms of the five dimensions of access. Limited availability and acceptability of healthcare services in MUAs manifests as worsened health outcomes. Within MUAs, there is a lack of availability of medical interventions as well as vulnerable populations with a higher risk of chronic illness resulting in higher rates of hospitalization and mortality. Acceptability also plays a role by limiting patients' ability to feel adequately cared for and empowered by healthcare systems to achieve optimal physical wellbeing. This lack of access to medical services, therefore, hinders wellbeing on the individual and community levels in both physical and financial ways. Policymakers and practitioners should consider dispersing mobile medical units to MUAs and other areas with higher hospitalization rates to provide medical interventions in more timely and appropriate manners.

Living in LSA areas and food deserts exposes individuals to increased risks of obesity and heart disease as a result of unhealthy eating habits. This disproportionately impacts life expectancy and many quality-of-life parameters. In terms of the five dimensions of access, this indicates an issue with both accessibility and accommodation. Healthy food options are inaccessible because supermarkets are too far for individuals, not accessible by public transit, or offer inconvenient hours of operations. Without consistent access to these healthy foods, individuals cannot develop healthy eating habits. This lack of accessibility is detrimental to the accommodation dimension of access by rendering healthy food options for those who live in LSA areas inconvenient. Community organizations, educators, and policymakers could partner to create community gardens and to expand programs that provide fresh, healthy food to local convenience stores.

Health insurance serves as a clear bridge between healthcare and financial wellbeing. In a health and wealth desert, limited access to health insurance in the form of affordability and acceptability is too often the norm. For many, health insurance imposes high costs that limit the number of low-income individuals who can afford and maintain health insurance plans (Hoffman, 2013). Furthermore, individuals in low-income census tracts are also less likely to hold employment positions that supply them with health insurance. In this sense, the costs associated with holding health insurance serve as a barrier to adequate access to healthcare services. Moreover, individuals may not know that they need health insurance to avoid expensive medical bills which emphasizes the lack of acceptability associated with health insurance. An opportunity exists for educators and practitioners to both educate and empower consumers with health insurance literacy programs and information specific to financial resources for purchasing health insurance.

Homeownership and other housing decisions are sensitive to affordability and accessibility, namely liquidity and credit constraints. The Joint Center for Housing Studies of Harvard University (2023) confirms that during the pandemic the U.S. housing market experienced the largest single-year increase in over three decades. While significant, the high cost of homes is not the only barrier to homeownership. Credit accessibility, especially for economically vulnerable individuals, also creates challenges. While many tried and tested solutions are found in the marketplace to improve homeownership access, a need exists for more affordable housing and retention programs to help individuals purchase homes that they can comfortably afford. Creative programs calibrated to help borrowers acquire a mortgage and pay off debts, such as student loans and medical debts, would also be of tremendous support for many individuals with low-to-moderate incomes.

When we consider banking access, entering a bank is the most common way for customers to access their accounts thus making it important to ensure proper availability and affordability of banking serves (Small et al., 2021). Small et al. (2021) suggested that affordability can influence financial exclusion and economic growth. Moreover, affordability is measured by many factors, including high fees and charges, strict terms, and required minimum account balances. Small et al. (2021) also indicated that the documents required by financial institutions may limit their access, especially for certain groups who may already struggle with access. Without access to banks, residents cannot carry out financial practices such as saving money, depositing paychecks, or taking out a mortgage and are consequently inhibited from accumulating wealth (Nguyen et al., 2023). Commercial bank and credit union leadership should consider developing programs that support an individuals' return to mainstream and traditional banking. Although commercial banks continue to decrease their number of physical locations, there are still opportunities for them to meet the short-term borrowing needs of individuals that regularly use alternative financial services. Educators and practitioners could also play a role by educating individuals about the costs associated with short-term borrowing and helping them to make informed decisions about their banking and borrowing behaviors.

By reviewing the six parameters that contribute to health and wealth deserts and confirming the undeniable health and wealth connections, we have created the foundation for our new conceptual framework. In addition, we are able to evaluate the outcomes associated with living in a health and wealth desert. Application of the five dimensions of access to the parameters of a health and wealth desert enhances the conceptual framework and promotes further research, development, and testing of it. Further, as asserted by Milton et al. (2012), this framework may inform community engagement efforts and interventions. Defining this concept may inform the work of FCS professionals that engage in community outreach; improving their understanding of the challenges their audiences face in improving their overall wellbeing. For example, if an educator or community serving individuals becomes aware of the concept of a health and wealth desert, it might help them understand how environmental factors compound on one another to limit the behavior of individuals. They may also be able to better tailor their education, community programs, and other support initiatives to better fit the challenges faced by the individuals they serve. Finally, they may also consider working in their communities to advocate for policy changes to address the larger, systemic barriers facing those living in health and wealth deserts. Overall, the health and wealth desert can be one strategy for conceptualizing, researching, and addressing the challenges faced by many communities in order to improve their overall wellbeing.

To discuss the internationality of the findings in this study, it's important to recognize that the concept of health and wealth deserts can be applied across different global contexts, though the specific indicators identified in the framework may vary in their manifestation or significance depending on the country or region.

The concept of medically underserved areas, limited supermarket access, and other indicators like employment and homeownership rates are not isolated to one country; they can be found in communities worldwide, often with similar impacts on health and well-being. For example, regions in the Global South or low-income neighborhoods in high-income countries can experience overlapping health and wealth deserts, where systemic barriers limit access to essential resources and services. However, the way these deserts are structured and the specific resources or systems that contribute to them may differ across international settings due to local policy, economic conditions, and cultural factors.

By framing health and wealth deserts as a conceptual framework, this study offers a lens through which both local and international stakeholders—such as public health practitioners, educators, and policymakers—can assess disparities and respond with culturally responsive interventions tailored to the needs of diverse populations. Additionally, recommendations for future research could expand the application of this framework to examine how global disparities in health and wealth can be tackled in varied geographical, political, and economic contexts.

Ultimately, while the specific measures of access or the barriers to resources might differ internationally, the underlying principles of community disparities and their impact on quality of life are universally relevant.

Limitations

A few limitations are worthy to note. First, this paper draws from a review of literature. The search strategy may have been inadequate, leading to an exclusion of relevant articles. In addition, we acknowledge that our definition of a health and wealth desert may have excluded variables that could be useful indicators (i.e., public spaces and parks). It is plausible that we excluded important criteria in our effort to develop a framework with the most critical yet fewest number of indicators. We had to make the decision of what indicators to include based on the data that is currently available and measurable which led us to decide on the six indicators described in this paper. More robust data in the future may allow for an expansion of indicators.

Conclusion

In this article, we offer the health and wealth desert framework drawing from a review of literature on health and wealth related outcomes. We sought to explore evidence and argued that health and wealth deserts can be identified using the following indicators: medically underserved areas (MUA), limited supermarket access (LSA), health insurance coverage, employment rate, homeownership rate, and distance to commercial banks and credit unions. These indicators may make it easier to understand environmental barriers to optimal wellbeing and inform interventions that support improvements in individual wellbeing and quality-of-life.

Considering the social determinants of health, community disparities, health and wealth relationships, and the lack of practical solutions, we conceptualize and define health and wealth deserts. A health and wealth desert is a holistic term and comprehensive concept that identifies an area characterized by a low to limited level of resources and services that support optimal physical and financial wellbeing (Zuccaroli & Russell, 2024). Indicators of a health and wealth desert include medically underserved areas (MUA), limited supermarket access (LSA), health insurance coverage, employment rate, homeownership rate, and distance to commercial banks and credit unions (Figure 1).

Our paper contributes to the literature on quality-of-life and wellbeing by offering an updated and broadened literature review to demonstrate connections between health and wealth factors, especially in vulnerable and marginalized U.S. communities, practical applications as well as recommendations for future research. Answering the call of Buys and Koukel (2018), this framework can inform a wide range of prevention and intervention programs that support the health and wealth of individuals and communities that Cooperative Extension serves. Researchers, educators, and practitioners can use this framework to create culturally responsive programs that support behavior change. For example, screening for health and wealth deserts within communities could be effective in informing resource distribution and community support initiatives. In addition, by acknowledging the inextricable connection between health and finances, this framework can serve as a new foundation for ways to consider healthcare and financial services. Finally, opportunities exist for future research to examine the indicators of health and wealth deserts locally, in rural and urban areas in the United States, across the nation and around the globe.

Acknowledgements

This research did not involve human subjects; however, appropriate research methods were followed.

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Viewpoint Paper

United Nations' Consumer Needs Framing Versus Consumer Rights: The Import of Consumer Protection Rhetoric

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Abstract

*Since 1985, the United Nations (UN) has published its **Guidelines for Consumer Protection** with updates in 1999 and 2015. From the beginning, the UN has eschewed the consumer right concept in its rhetoric and used instead the notion of "legitimate consumer needs." This paper speculates about the thinking behind and the implications of the UN's decision to rhetorically frame consumer protection as what people need in their consumer role versus what they have a legal and moral right (entitlement) to receive so their consumer interest and welfare are protected. The UN's position might have been influenced by (a) the human development movement with its focus on basic human needs, (b) needs fulfilment theory or (c) Consumer International's sustained lobbying. Consumers would be better, more transparently, served if the **Guidelines** were reframed as consumer rights. Home economists, longstanding champions of the consumer interest, are well placed to lobby the UN and advocate for this policy change.*

Keywords: United Nations, Consumer Protection Guidelines, Consumer Rights, Consumer Needs, Basic Human Needs

Introduction

In response to the "evolution of … the consumer movement, … home economists and educators such as … Ellen Richards stressed the need for consumer education [and consumer rights and responsibilities. Thanks to their work], in the early 20th century these ideas found their way into teachers colleges and the educational curriculum" (Uhl et al., 1970, p. 11; see also Langrehr & Mason, 1977; Van Horne, 1941). "Home economics is the traditional disciplinary home of consumer education. [In 1908,] the American Home Economics Association's … Consumer Interests Committee early advocated the introduction of consumer education into the schools" (Uhl et al., 1970, p. 13).

Home economics has always and continues to be a champion of the consumer interest. Its prolonged engagement with consumer protection behoves home economists to remain diligent about how thinking, practice, and policy have evolved around this topic. In that spirit, this paper was inspired by the United Nation's (UN) (1985, 2003, 2016) rhetorical use of the consumer needs concept instead of consumer rights in its 38-year-old *Guidelines for Consumer Protection*. As a caveat, the guidelines apply to business-to-consumer transactions provided by

McGregor, S. L. T. (2024). United Nations' Consumer Needs Framing Versus Consumer Rights: The Import of Consumer Protection Rhetoric. *International Journal of Home Economics*, *17*(2), 102-109.
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private enterprise and State-owned enterprises (SOEs) (UN, 2016). SOEs are legal entities created by a government to partake in commercial activities on its behalf. Among other things, SOEs provide lending and credit, coal, oil, natural gas, electricity, postal services, public transit and trains, telecom services, business development, port authorities, broadcasting, health care, and atomic energy (Kenton, 2020).

Needs Versus Rights

A *need* describes the condition required for someone to thrive (e.g., grow, develop, have well-being, and flourish). A need is essential; its absence is noteworthy (Gasper, 2005). *Rights* are moral or legal entitlements to something. A right is a recognition of a person's entitlement, by virtue of being a person, to have a need fulfilled (Anderson, 2014; OpenLearn Create, 2017). To ensure that basic, universal, and essential needs are met, the UN intentionally frames them as rights (entitlements) in relevant conventions (UNICEF Canada, 2010). For example, children need nutritious food, descent shelter, protection from abuse and neglect, health care, recreation and so on. These needs are entrenched as rights in the *UN Convention of the Rights of the Child*. Children may want their own bedroom, fast food, and an allowance, but these are not entrenched as rights because they are not necessary for survival and thriving (UNICEF Canada, 2010). Not all needs correspond to rights, and not all rights equate to a need (Gasper, 2005).

Galtung (1994) insightfully clarified that needs direct people to causal factors, while rights direct people to dishonourable or corrupt actors. Regarding the latter, this paper is concerned with consumers' rights to protection from business and SOEs' activities and practices that lead to unfavourable outcomes in consumer transactions. A consumer right is defined as "the legal and moral duties of protection owed to a purchaser of goods or services by the supplier" (Course Sidekick, 2023, para. 11). McGregor (2012) explained that when consumer rights are infringed, or when consumers take irresponsible actions, their best interest can be compromised because "they (a) have not received any benefits; (b) are harmed, injured or left less secure or unprotected; (c) are disadvantaged, exploited or marginalized in some way (morally, personally, financially)" (p. 4).

Needs Versus Rights in UN *Guidelines for Consumer Protection*

In the consumer rights arena, the UN trend of entrenching a need as a right is reversed. Instead, the UN (1985, 2003, 2016) has consistently framed consumer rights as consumer needs. The inaugural *Guidelines for Consumer Protection* included six "legitimate needs" (UN, 1985, p. 180) held by consumers: safety, economic interests, choice and information, consumer education, redress, and voice. The 1999 version added sustainable consumption as a legitimate consumer need (see UN, 2003). The most recent version expanded the list to 11 legitimate consumer needs by adding (a) access to essential goods and services (i.e., basic human needs), (b) inclusivity (protection of the vulnerable and disadvantaged), (c) consumer privacy and (d) protection during e-commerce transactions (UN, 2016). The original (1962) notion of protecting consumers from business practices employed the *consumer rights* concept—President John F. Kennedy's *Consumer Bill of Rights* (Lampman, 1988). The UN changed up the game and opted for consumer needs.

As evidence, the most recent version (2015) (published in 2016) of the *UN Guidelines for Consumer Protection* begins with this statement: "Taking into account the interests and needs of consumers … these guidelines for consumer protection have the following objectives" (UN, 2016, p. 5). Then, the preamble to a list of, what have come to be known as, consumer rights, says, "the legitimate needs which the guidelines are intended to meet are the following" (UN, 2016, p. 7). The current 11 "legitimate consumer needs" are then listed. Consumers International (CI) (whose raison d'etre is consumer rights since 1960) subsequently reinforced (perhaps sanctioned) the UN's consumer need framing when it said, "What do consumers need: These [UN] guidelines are centered around meeting eleven 'legitimate needs' of consumers" (CI, 2016, p. 11). The consumer rights term is not in CI's (2016) interpretive document of the UN guidelines, and it appears only once in the official 2015 UN Guidelines: "protect consumer rights and interests and promote consumer welfare" (UN, 2016, p. 4).

This paper encourages home economists to consider the implications of framing consumer protection as what people need in the consumer role versus what they have a legal and moral right (entitlement) to receive, so they are protected from business and SOEs' practices that infringe on their interests (i.e., obtaining an advantage, a benefit, and a favourable outcome). Needs and rights are interconnected, but they are different (Gasper, 2005). This difference matters. Solis (2014) astutely observed that "a 'human needs' approach appeals to charity, while a 'human rights' approach translates need into a matter of entitlement with dignity. … The term 'human rights' demands action and accountability" (para. 9 and 5). His framing of this conceptual and pragmatic distinction for the human development field garnered an international award for its innovativeness.

Semantics and rhetoric (i.e., word choice and tone conveyed) matter in the consumer context as well. By extension, charity (needs) would imply business and SOEs' voluntary protection of consumers, while rights would imply legal obligations to protect consumers. Framing consumer protection as consumer needs instead of consumer rights severely compromises consumers' power in the marketplace because it conveys the message that business and SOEs' accountability becomes optional. Granted—the narrative accompanying the UN (2016) consumer protection guidelines does not absolve businesses and SOEs of responsible behaviour. But the overall message of consumer needs versus consumer rights (i.e., people are owed certain business and SOEs' behaviors, so they are protected) conveys an unspoken sentiment of optional consumer protection when expedient for the business or SOE purveyor.

Speculation About UN's Rhetorical Choice of Consumer Needs Instead of Rights

This section tenders three speculations for home economists to consider around why the UN might have embraced this semantic and rhetorical choice of consumer needs instead of consumer rights. The UN might have been influenced by (a) the human development movement with its focus on basic human needs, (b) needs fulfilment theory or (c) Consumers International's lobbying. Respecting the call herein for due diligence, home economists are encouraged to exercise reasonable care when promoting the UN's consumer protection guidelines by contemplating the usefulness of the following ideas for gaining insight into the UN's current focus on needs instead of rights and judging whether this rhetorical stance is tenable.

Influenced by Human Development Movement

When four new consumer needs (rights) were added in 2015, the UN consumer protection guideline's architects placed "access by consumers to essential goods and services" (UN, 2016, p. 5) (intimating basic human needs) at the top of the list. *Basic human needs* refer to aspects of life that "foster effective functioning, well-being, and continued growth or optional human functioning" (Staub, 2004, p. 52). Needs convey the sentiment of necessary for thriving (Gasper, 2005). Was this positioning done on purpose to convey the message that access to essential consumer goods and services is the most important principle?

Perhaps the UN was swayed by the human development movement (i.e., basic human needs) as evidenced by the pervasive reference in the consumer protection guidelines to developing countries (n = 9 times) compared to developed countries (n = 2). That said, the UN only used the term basic human needs in reference to one legitimate consumer need, sustainable consumption: "policies for promoting sustainable consumption should take into account the goals of… satisfying the basic human needs of all members of society" (UN, 2016, p. 5). Mayhap the primal positioning, of what feels like basic human needs, was not intentional and can only be inferred.

Unfortunately, these speculations cannot be substantiated, as there is no narrative for the access to essential consumer goods and services need (as there is for the remaining 10 needs) nor is essential (and nonessential) consumer goods and services defined. Other sources consider *essential* (absolutely required) consumer goods and services as "vital and necessary for the health, safety, and welfare of the public" (Law Insider, 2023, para. 1). Examples include basic food stuffs/ staples (e.g., flour, sugar, butter/oil, rice, and milk), water, fuel, shelter, clothing, transportation, sanitation, personal hygiene, and health care services. What is essential and how it is met varies by context (Bae, 2009; Law Insider, 2023; Mutyala et al., 2016).

This human development interpretation of the UN's use of consumer needs framing could be further challenged given that "rights [are] more in the worlds of law and social movements, [and] needs [are] more within social and economic policy and planning" (Gasper, 2005, p. 270). Social and economic policy and planning concern government actions for the noneconomic and economic aspects of development, respectively. Social planning strengthens the community (e.g., income distribution, gender, housing, urban planning, health, and education) (Queen's University et al., 2020). Economic planning bolsters the economy by marshalling its productive resources to achieve national development goals. Producers and consumers have varying degrees of freedom to adapt their activities to changing conditions (Nove et al., 2023).

The UN (2016) consumer protection guidelines appear to reflect a combination of Gasper's (2005) needs (social and economic planning) and rights (laws). On one hand, Member States are to prioritize consumer protection relative to the social, economic, and environmental circumstances of their country. This equates to Gasper's (2005) needs. On the other hand, Member States are expected to "develop, strengthen, or maintain a strong consumer protection policy (UN, 2016, p. 5) [comprising] laws, regulations, rules, frameworks, procedures, decisions, mechanisms and programmes … as well as private sector standards" (UN, 2016 p. 4). This equates to Gasper's (2005) rights. Unfortunately, the mixed messaging camouflages inference of consumer rights.

Influenced by Needs Fulfilment Theory

An alternate interpretation of the UN's (2016) consumer needs framing is that the document's architects might have viewed needs as a force that induces people to action (Burns & Rayman, 1989; Gasper, 2005). This interpretation would reflect the well-established understanding that basic human needs are considered central to human motivation (Huitt, 2007). Gasper (2005) explained that while "rights are justified claims to the protection of persons' important interests, … 'needs' … are powerful underlying motives or drives" (p. 270).

It is conceivable that the UN might have assumed that if consumers viewed their protection as dependent on need fulfilment, they would be motivated to take action to ensure those needs are met (e.g., safety, choice, and voice). This may not be the case, however, as the UN (2016) guidelines specifically targeted what businesses and SOEs should do to protect consumers rather than what consumers should do to protect themselves. And in its interpretation of the UN's 2015 guidelines, CI (UN, 2016) referred to appropriate actions for all stakeholders except consumers.

CI (2016) also said "the [UN] Guidelines spell out the main principles of consumer protection. They explain what consumers need, and give practical advice to organizations about how best to meet those needs" (p. 3). Unfortunately, in addition to reinforcing the UN's consumer needs framing rhetoric, CI further commented that the guidelines "protect consumers by … ensuring that goods and services are responsive to consumer needs" (2016, p. 6). This phrasing does not explicitly connote the concept of consumer rights (i.e., entitlement—a right [protection] granted by law or contract). Instead, the phrase consumer needs could easily connote that people need transportation, food, shelter, a financial planner, or a doctor, but the notion of assured protection during the production/delivery of or transactions to obtain those goods and services is not readily apparent.

Influenced by Consumers International's Lobbying

A third possibility is that the UN guidelines' rhetoric reflects CI's longstanding influence in UN consumer protection affairs. To explain, CI was originally called the International Organization of Consumer Unions (IOCU), which was founded in 1960. The name CI was adopted in 1995 (currently 200 organizational members from 100+ nations). IOCU gained general consultative status with UNESCO in 1977. This is the highest membership status offered to a nongovernmental organization to contribute to work at the UN (Hilton, 2009). Through sustained campaigns, whereby CI worked as an interlocutor between its members and the UN, CI has very much influenced all three versions of the UN's consumer protection guidelines. Most recently, its 2013 proposal for amendments (CI, 2013) culminated in the UN entrenching three more needs (rights) in the most current version: e-commerce, privacy, and inclusion.

The UN's nearly half-century-long engagement with IOCU/CI may explain the UN's respect and penchant for the consumer needs framing that may have originally been inspired by Anwar Fazal (Malaysia), the first IOCU President from the Developing World (in 1978). Under his leadership (informed by Asian consumerism instead of Western consumerism), IOCU moved from being "a fringe group for the middle classes [with rights] to a movement that was central to the process of Sustainable Human Development [concerning the needs of] the poor, oppressed, exploited, disempowered [when consuming]" (IOCU Archive Box 131 as cited in Hilton, 2009, p. 108).

From this "politics of consumption" stance (Hilton, 2009, p. 108), CI might have been influential in convincing the UN to embrace a basic human needs approach and subsequently add the consumer need to access basic goods and services (satisfy human needs to ensure survival) and the need for vulnerable and disadvantaged consumers to be protected. After all, CI's own roster of consumer protection rights includes the right to the satisfaction of basic needs (Malcolm, 2013). It makes sense that CI would draw on this foundational principle when lobbying UN consumer protection initiatives, and that this strategy might have influenced the UN's framing of "legitimate consumer needs" versus entitled consumer rights.

Conclusion

This paper encouraged home economists to engage in due diligence regarding advancements in consumer interest scholarship, practice, and policy, and that includes when they promote the UN's consumer protection guidelines. When needs are met, people are better able to function. But in many scenarios, this cannot happen unless essential and universal needs are entrenched as rights (Gasper, 2005; UNICEF Canada, 2010). The discussion herein supports the conclusion that people would be better served in their consumer role if the UN reframed its *Guidelines for Consumer Protection* as consumer rights just as the consumer movement originally intended in 1962 (Lampman, 1988). When "acknowledged as norms or legally recognized as instruments, rights form a major set of tools, legitimate claims, in the political struggles for fulfilment of needs" (Gasper, 2005, p. 269).

From this perspective, consumer rights would apply for every person because everyone is a consumer. Consumer rights would help consumers procure, use, and dispose of goods and services to keep the economy healthy. In that pivotal role, consumers need to be safe, have information, have a choice, have a voice and so on. It is thus their right to have consumer protection frameworks regulating businesses and SOEs' behaviour and holding governments accountable to their citizens (e.g., safety, education, access, privacy, and inclusion).

The UN's consumer needs framing and rhetoric downplays the mindset that consumers are "active rights-claiming choice-making agents. [Instead, it too readily assumes consumers] are passive and materialistic. [In a consumer rights approach,] autonomy of agency stands as central principle" (Gasper, 2005, p. 272). A consumer legitimate needs framing negates this message. The adjective *legitimate* means defended and justified using logic (Stevenson, 2011). But it is not logical to frame consumer protection as a need that must be fulfilled rather than a right to which people are entitled because their contributions to the economy are so vital.

Finally, the UN's consumer needs framing belittles the relentless gauntlet people face when engaging with a rapidly changing global marketplace. A consumer rights framing better respects the challenges inherent in ensuring that their consumer interest and consumer welfare are protected. A needs framework is too limiting and constrictive. A healthy economy depends on bolstering consumers with a firmly entrenched consumer protection policy framework focused on their legal and moral rights as a vital marketplace player.

Home economists are encouraged to personally and collectively ponder the import of the speculative points developed in this paper. Should they become convinced of their merit—the rightfulness of shifting away from legitimate consumer needs rhetoric—they can approach the International Federation for Home Economics (IFHE) to lobby the UN for changes to the underlying foundations of the consumer protection guidelines. Like CI, IFHE has general consultative status at the UN since 1952 (Arcus, 2008). Like CI, IFHE can act as an interlocutor between its members (*N* = 62 home economics organizations from 25 countries) and the UN. This opens the door for potential influence on and changes to the *UN Consumer Protection Guidelines*, so they privilege consumer rights and a legal entitlement to protection from businesses and SOEs' unsavoury actions.

Biography

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VIEWPOINT PAPER

Home Economics 5.0: In Readiness for Industry 5.0 and Society 5.0

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Abstract

The world has experienced four industrial revolutions and is edging into the fifth. Each revolution has shaped a unique social architecture. This paper describes four societies that humanity has lived through (Society 1.0–4.0) and acknowledges a fifth (Society 5.0). Corresponding, technology-driven industrial revolutions are expounded for context (Industry 1.0–5.0). The intent is to orient home economics and family and consumer science (FCS) practitioners to the technology-driven stages of human and societal development. With these insights, the profession can better position itself in the current Society 4.0 and prepare for the proposed Society 5.0—reinvent and redefine itself. Technological advances are happening exponentially and inexorably. Society is scrambling to keep up. To ensure that the profession keeps up as well, this paper traces the history of these phenomena and makes a case for ***Home Economics 5.0****.*

KEYWORDS: HOME ECONOMICS 5.0, FAMILY AND CONSUMER SCIENCES, INDUSTRIAL REVOLUTIONS, SOCIETY 5.0, SMART TECHNOLOGIES, ARTIFICIAL INTELLIGENCE

Introduction

The world has experienced four industrial revolutions and is edging into the fifth. Each revolution has shaped a unique *social architecture* (from Society 1.0 to Society 4.0)—how society is structured to deal with technological impact. For millennia, society has historically restructured itself to accommodate industrial revolutions that are driven by or the impetus for technological innovations. Industry creates or adopts technology so it can change its modus operandi with society subsequently adapting (Yakymchuk, 2024).

Humans, which are a necessary component of implementing modern industrial revolutions, live within societies (Melnyk et al., 2019). But most humans also live within family units, which is the purview of home economics and family and consumer sciences (FCS). This paper describes four societies that humanity has lived through (Society 1.0–4.0) and acknowledges a fifth (Society 5.0). Corresponding industrial revolutions are expounded for context (Industry 1.0–5.0). The intent is to orient home economists and FCS practitioners to the technology-driven stages of human and societal development. With these insights, the profession can better position itself in the current Society 4.0 and prepare for the proposed Society 5.0. By tracing the history of these phenomena (see Table 1), a case is made for Home Economics 5.0.

McGregor, S. L. T. (2024). Home Economics 5.0: In Readiness for Industry 5.0 and Society 5.0. *International Journal of Home Economics*, *17*(2), 110-128.
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Table 1 Evolution of Industry, Society, and Home Economics/Family and Consumer Sciences

	Birth of Humans	**13,000 BC**	**End of 18th Century**	**Latter Half of 20th Century**	**21st Century Onward**	
Industrial Revolution (Technological Advances)	No Industry	No Industry	**Industry 1.0** (1740–1850) *First Industrial Revolution* Steam and water powered machines, coal, factories, mechanization, railways **Industry 2.0** (1850–1950) *Second Industrial Revolution aided by Technological Revolution; the Age of Science and Mass Production* Electricity, oil, refrigeration, assembly lines, nuclear power, analog computers, automobiles, telephones, radio, television, national transportation infrastructure	**Industry 3.0** *Information/Digital Revolution* Personal computers, the Internet, fax machines, emails, listservs, Information and Communication Technology (ICT), electronics, e-commerce, merger of telephone networks and computer networks, knowledge economy, service economy	**Industry 4.0** *Exponential Technological Fusion* Smart technology, connectivity and computational power, artificial intelligence, automation, Cyber-physical systems (CPS), robotics, the Internet of Things (IoT), advanced engineering, block chains	**Industry 5.0** *The Human Touch* Social-cyber-physical systems (SCPS) to ensure interaction between and integration of machines and humans; adaptive cognitive manufacturing systems (ACMS) (high degree of machine autonomy; immersive technologies; metaverse; data personalization to ensure equity; robots and cobots; a wisdom manufacturing architecture
Societal Adaption to Technological Advances	**Society 1.0** *Hunter-gatherer Society*	**Society 2.0** *Agrarian Society*	**Society 3.0** *Industrial Society*	**Society 4.0** *Information Society*		**Society 5.0** *Super Smart Society (Creative Society)*
Home Economics Inception and Evolution	Not Founded	Not Founded	**Home Economics 1.0** Founded in 1909 in response to Industry 2.0	**Home Economics 2.0** Evolved with the times during the 60s–late 90s but faulted for being too technical, expert-oriented, and complicit in uncritically perpetuating capitalism and consumerism	**Home Economics 3.0 (almost called 4.0)** IFHE 2024 challenge to update to deal with Industry 4.0 Become AI literate; critically and responsibly embrace digitization; become resilient; and advocate for the respect of humans, home, and family vis-á-vis smart technology	**Home Economics 5.0** 2025 challenge to update to deal with Industry 5.0 and Society 5.0 Augment the profession's existing philosophy, theory and knowledge, and competencies with Industry 5.0 and Society 5.0 imperatives

Society 1.0: Hunter-Gatherer

Succinctly, preindustrial Society 1.0 was called the *Hunter-Gatherer Society*. It began with the birth of human beings more than six million years ago. Life was nomadic. People were one-with-nature and in a perpetual fight for survival—"the struggle for life, the struggle to feed [foraging] and [find] temporary accommodations" (Gülen et al., 2024, p. 56). Although there are no written records of the early stages of this society (prehistoric), archeologists have studied past and contemporary hunter-gather societies (e.g., Indigenous, tribal peoples) and discerned that they were highly social, despite their geographic mobility. They had three tiers of social networks: immediate household, a cluster of closely related households, and the wider camp that congregated with other camps when resources were bountiful (Dyble et al., 2016).

It is hypothesized that this tiered social network contributed to the cooperative relationships vital for a foraging economy as well as for protection, marriages, cultural enrichment, and societal stability (Dyble et al., 2016). Foraging economies require a lot of land (seasonal roaming) and water sources. People tend to make decisions that maximize energy outlays as they seek wild plants, animals, birds, and fishes for subsistence (i.e., produce enough for their own use but not for trade). In addition to foraging (i.e., using what is available in the natural environment), gathering "requires expert knowledge of where plant resources can be found, when they will be best to harvest, and how to prepare them for consumption" (Brellas & Martinez, 2024, p. 135).

Technologies driving Society 1.0's structure included fire, the wheel, stone tools, fishhooks, bone implements, needles and awls, bow and arrow, spears, daggers and knives, hand axes, scrapers, snares, string, leather straps, slingshots, blow darts, tanning techniques, mortar and pestle, smoke curing, and primitive weaving (interlacing grass, stems, and tree branches to create baskets and shelters) (Lee & Daly, 1999). Preindustrial dependence on craft production prevailed. Craft work (often involving creative artwork and self-expression) produced, among other things, decorative and symbolic beading; clothing; accessories; bedding; furniture; storage containers (pottery, barks, wood, and grasses); cooking implements; and embellished tools and weapons (Yao et al., 2024).

In Society 1.0, labour was often divided by gender with men hunting and women gathering, but gender roles were not rigid and could vary within and between cultures. Because finding and preparing sufficient food was so challenging, group sizes in Society 1.0 tended to be small. The presence of elders and children (both less able to contribute) influenced foraging and gathering endeavours. Societal members measured wealth not in terms of material accumulation (too cumbersome to move around) but in generosity and one's ability to share (Brellas & Martinez, 2024).

Obviously home economics did not exist during Society 1.0 having not been founded until 1909 (Brown, 1985). But knowledge of what this society looked like provides valuable context for ensuing societal architectures as humanity moved through inexorable technological advancements. Also, modern-day foraging societies still exist (e.g., the Inuit, the Ayoreo, the Awá, and the reindeer herders of Siberia) (Survival International, 2024) thus affording home economists and FCS practitioners opportunities to experience them and their everyday lives.

Society 2.0: Agrarian

About 15,000 years ago, around 13,000 BC, Society 2.0 emerged—the *Agrarian Society*—wherein humans transitioned from a nomadic lifestyle and foraging/gathering economy. Technology driving the emergence of Society 2.0 included domesticated animals (especially beasts of burden such as horses, oxen, mules, and donkeys); hoes; sickles; plows; irrigation systems; fences; seed drills; seed saving; horse-related technology; horse-drawn threshing machines; water-powered flour mills; windmills; and more advanced weaving (and knitting) to make cloth, clothing, ropes, and sails from harvested cotton and flax fibers and shorn wool (Mazoyer & Roudart, 2006).

Society 2.0's economy was based on growing, producing, and maintaining farmland and crops. People established settlements with permanent buildings, developed irrigation techniques, planted crops, employed husbandry (bred animals and crops), and built fences while still foraging and gathering some food and resources from the land (Gülen et al., 2024; Keidanren, 2016; Langlois, 2001).

The extended family was the main production unit. Children learned and worked at home with multiple generations. Schools were not common until the end of this Era. The division of labour was such that men mostly worked the fields, and women supported the household and family unit so the family unit could be self-provisioning while also producing enough to give to overlords. As before, gender roles were not rigid and could vary within and between cultures. Serfdom (i.e., workers were tied to a particular estate often in indentured labour) and slavery were common (Littek, 2001; Moravec, 2008).

Social life unfolded in increasingly complex communities and statehood (i.e., independent cities or nations) compared to a nomadic existence. To accommodate this agriculture-based economic model, a literate governing class emerged with standing armies guided by strict religious tenets and assumptions of divine right (i.e., kings received their authority from God). This elite ruling class lorded over the poor, illiterate masses (i.e., peasants and serfs) who farmed the land (Gülen et al., 2024; Keidanren, 2016; Langlois, 2001).

Agrarian societies often exhibit larger populations than nomadic societies (due to improved food sources), a combination of farm life and town life, and more leisure time in concert with technological advances such as writing, printing, and musical instruments. Disease epidemics increased due to infections in crowded towns and cities. This society was the first to witness urban poverty and unemployment with associated social ills (e.g., crime and violence) (Cohen, 1989). Some city states flourished (i.e., an independent sovereign city that is separate from the nation) (e.g., Venice). With half of their population engaged in nonagricultural activities, some of these cities managed to become commercial societies (Cohen, 1989).

Indeed, modern-day agrarian societies (where less than half of the population is engaged in agricultural activities) tend to have a significant industrial sector (Cohen, 1989; Richerson & Vila, 2001) (e.g., Indonesia, India, Peru, Pakistan, and African nations). Although home economists did not live through Society 2.0 per se, contemporary majority world (developing world) home economists and FCS practitioners work in modern-day Agrarian societies that have "variable admixtures of industrial technology" (Richerson & Vila, 2001, p. 6–95).

Society 3.0: Industrial

Society 2.0 basically lived on until the end of the 18th century when Society 3.0—the *Industrial Society*—arose and evolved in response to the First and then Second Industrial Revolution: Industry 1.0 (1740–1850: coal, steam, and waterpower, and mechanization) and Industry 2.0 (1850–1950: science, electricity, and mass production). Attendant technology emergent over time included water and steam power, coal, railways, oil-based power, mechanization, electrification, refrigeration, the conveyor belt, manufacturing, and mass production.

Industry 1.0 pulled society away from agriculture toward factories. Industry 2.0 (aka. the Age of Science) was characterized by a plethora of one-of-a-kind technological innovations that were protected and encouraged by patents. Patents enabled ubiquitous inventors to profit from their work, which bolstered rapid industrial and economic progress. Industry 2.0 generated myriad new technologies employed in industry and homes: the typewriter, the telegraph machine, telephones, the refrigerator, light bulbs, the radio, the vacuum cleaner, the combustion engine and automobiles, and horse-and electricity-powered street cars (beginning of mass transportation).

These technological advances sped up industrialization and changed home life forever. Factor in World War I, and industry, family life, and society 3.0 changed profoundly. In the society that evolved to keep up with Industry 2.0, women started working outside the home (in factories, domestic service, teaching, and nursing); children worked in factories; men worked in factories instead of in agricultural work; families had to buy products and services instead of producing them themselves; and schools were established to educate students for the factory-based workforce. Factories were not safe, and most overcrowded urban centers lacked potable water, hygiene, sanitation, adequate housing and nutrition and were rife with crime and filth. The women's rights and suffragette's movements started as did unions and labour rights (Moravec, 2008).

Still in Society 3.0, but arising from World War II, technology continued to evolve giving us television, movies, synthetic rubber, nuclear power, radar, penicillin, jet engines, analog computers, national transportation infrastructures, motels, an inexpensive housing boom, new fibers and textiles, and skyscraper architecture to accommodate industrial city populations and commerce (Suciu, 2020). Society 3.0 (the Industrial Society) continued to restructure beyond World War II in the years leading up to Industry 4.0 (Information Revolution) and the necessity of Society 4.0—the Information Society.

This overlap manifested in the Baby Boom generation (1946–1964), which eventually replaced the Silent Generation in the Post World-War II workforce and society. In the 1970s and 80s, both parents tended to work with women doing so by necessity and choice (to deal with hyperinflation and feminism, respectively). Too many people worked multiple jobs. The latchkey kid phenomenon took hold, wherein working baby boomers' children were underparented and undernurtured. Families eventually became smaller as birth rates continued to decline during and after the 1970s Baby Bust. Young people started to delay marriage and starting families. Single parents increased as did childless couples. Cities grew, and agricultural and rural locales began to shrink (Moravec, 2008; Muller et al., 1991).

To continue, due to declining birth rates and an attendant slowly shrinking workforce, immigration and associated diversity mushroomed toward the end of Society 3.0 and continues today. National economies began to operate within the neoliberal globalization context, which exacerbated the have-and have-not world with exclusion, injustice, and inequalities. Free trade became the mainstay of national and global economies to the detriment of human rights, labour rights, women and children's rights, and the environment. The pace of technological and societal change accelerated exponentially but with declining returns (e.g., stress, illiteracy, threats to privacy and security, and the bane of consumerism and nonhuman-centered globalization). Individuals, families, and communities suffered (Moravec, 2008). And this was before the invention of computers, the Internet, social media platforms, and the Information Society.

Home economics and FCS lived through Industrial Society 3.0 and beyond having been founded in 1909 in response to the vagaries of Industry 2.0 (Brown, 1985). The profession gained century-long experience engaging with societal transformation in the face of two industrial revolutions—Industry 1.0 and 2.0 (see Table 1). However, in the early 1990s (the tail end of Society 3.0), home economics was faulted for being too technical in nature (insufficient interpretive and critical practice), too expert oriented instead of viewing families as partners, and too complicit in uncritically perpetuating capitalism and consumerism (Brown, 1993). She intimated that we had failed to keep up with the times to the unintended detriment of individual, family, and community well-being, strength, and resiliency.

Society 4.0: Information

At the end of the 20th century (just 25 years ago—2000 onward), the *Information Society* (Society 4.0) emerged out of the Industrial society. We currently live in the Information Society, which is barrelling forward with smart technology. The Information Society moniker reflects societal restructuring in the early 1990s that was driven by Third Industrial Revolution technology focused on information, which had become an economic commodity. Technology at the time included the computer; the MS Windows operating system; the Internet; email, dial-up modems, listservs, fax machines, Information and Communication Technology (ICT) (analog, wireless, and digital); the merger of telephone and computer networks enabling personal computers, mobile phones, and cable and satellite television; the service economy; and the knowledge economy. Telework (telecommuting) and telemedicine became mainstream in the 2000s (Gülen et al., 2024; Keidanren, 2016; Saxena et al., 2020; Strivemindz, 2023).

Society 4.0 started out in an era of information distribution made possible due to ICT advancements. Manufacturing and industrialization still occur but in tandem with the buying and selling of information, knowledge, and services (Mavrodieva & Shaw, 2020). As with Society 3.0, Society 4.0 appears to be straddling two industrial revolutions, which means it must restructure to accommodate both industrialization and digitization.

The technological influence of Industry 3.0 (1960–1990s—the Information/Digital Revolution) on Society 4.0 lingers with augmentation. Streamlined laptops, iPads, tablets, and smart phones now have astounding computing power (Strivemindz, 2023). But Industry 4.0 (2000 onward—what I am calling the *Exponential Technological Fusion Revolution*) is about all of that as well as advanced digitalization, artificial intelligence (AI), automation, robotics, the Internet of Things (IoT), smart technology, and Cyber-physical systems (CPS) (to be discussed) (David, 2016; McGregor, 2022b; Yao et al., 2024). Although still called the Information Society, this is far beyond the mere selling and distribution of information and knowledge, which was avant-garde at the time.

Foremost in Society 4.0, not only are technological advances happening extremely rapidly, but they are also being fused together instead of standing alone like in the First and Second Industrial Revolutions (Yao et al., 2024). For example, the automobile, radio, and telephone were invented around the same time, followed by the computer, the Internet, and satellites, but they were not combined (fused) into a vehicle until decades later. Industry 4.0 is all about furthering industrialization by fusing separate technologies as soon as they are invented and sometimes intentionally invented to enrich fusion. Several pivotal technological advances make this fusion possible and even imperative for Industry 4.0 to flourish.

To begin, digitization refers to converting analog data (e.g., mass, length, time, color, current, temperature, and voltage) to 1s and 0s (digits) and using digital technology to both store and process these data and communicate and even interpret attendant information (Digital Adoption Team, 2024). AI is a branch of computer science focused on developing intelligent machines that can simulate human cognitive abilities (e.g., learning, decision making, problem solving, perception, and communication) (Bliwise, 2018). Automation refers to applying technology (including robots and cobots) to achieve output and industrial outcomes with minimal human input. The intent was to bolster human capital by freeing humans from mundane, repetitive, boring, and error-prone tasks, so they can engage in more creative thinking, work, and innovation (Agrawal et al., 2023).

The IoT connects various things via a computer network, builds highly advanced systems using these connected things, and integrates "several of these diverse systems so they can coordinate and collaborate with each other" (Government of Japan, 2015, p. 14) (e.g., smart appliances, fitness monitoring, and healthcare monitoring).

> What makes a technology 'smart' is its ability to communicate and work with other networked technologies [thereby] allowing automated or adaptive functionality as well as remote accessibility or operation from anywhere. … Smart technology refers to the integration of computing and telecommunication technology into other technologies that did not previously have such capabilities (Campbell, 2019, p. 1).

Finally, Industry 4.0 involves Cyber-physical systems (CPS), or physical systems connected to the cyber world via computer algorithms (i.e., set of rules or instructions to complete calculations and other problem-solving operations) (Yao et al., 2024). Examples include smart cars, smart appliances, smart electrical grids, airplanes (autopilot), and smart medical devices for health and fitness monitoring. A jog is no longer solitary if one is wearing a Fitbit. CPS mechanisms tightly integrate users with the Internet (Suh et al., 2014) thereby creating "'smart networks' capable of functioning without human participation" (Melnyk et al., 2019, p. 381). CPS is "a hyper-connectivity revolution" (Saxena et al., 2020, p. 359).

Unfortunately, a paradox has emerged in Society 4.0. The more that people are in contact with each other via technology (i.e., hyperconnected), the less they are connected as human beings. Ironically, society is social but not in a healthy or sustainable way. Society 4.0 has become a combination of mass personalization, mass customization, and mass automation (Yao et al., 2024). The world is rife with, what can be, debilitating human immersion in ubiquitous social media platforms, virtual reality (VR) gaming and gambling platforms, augmented reality (AR), online shopping, and so on. Personal well-being and safety, family dynamics, and community engagement are threatened due to social isolation and inadequate socialization into responsible use of these technologies.

As well, job security is threatened due to automation and robotics. Personal privacy, identity, and financial security are threatened due to insecure and abused digital and cyber connections. And Education 4.0, created for Society 4.0. cannot adequately deal with Industry 4.0's lingering economic, social, and personal issues or provide requisite skills for 21st century learning (i.e., critical thinking, collaboration, communication, and creativity) (Yakymchuk, 2024). Education 4.0 was designed to advance Industry 4.0 (Makrides, 2021) (including STEM—science, technology, engineering, and mathematics), but it failed society with its overly strong commitment to technological savviness to the exclusion of the human factor. The latter are now captured in the STEAM movement with A meaning arts and humanity, so STEM education can better address real-world problems with a creative, accountable human face (Gülen et al., 2024).

Yakymchuk (2024) elaborated further on challenges that Industry 4.0 has triggered for Society 4.0.

> The boundaries between everyday life and the world of digital technologies are blurring … new rules and a particular social contract are being formed, which can provoke social (digital) inequality and excessive control by the state or transnational corporations. It is also clear the challenge of replacing hundreds of millions of job places with automated systems and artificial intelligence, but also the question of the readiness of educational systems to prepare personnel for the new realities of the new economic system (p. 176).

In effect, the society that has emerged in the short term (over the last quarter century) to cope with the exponentially advancing Fourth Industrial Revolution is not working right now. It is too dependent on Big Data (stored information generated using smart devices) and AI to the exclusion of human input, perception, and interpretation (Mourtzis et al., 2022; Yao et al., 2024). Many governments are now dependent on Big Data patterns to "tell people how to lead and optimize their lives … Digital technologies and data science are used to weave the very fabric of sociality and to shape societies" (Helbing, 2016, pp. 1–2). Previous assumptions that AI would overcome human imperfections were flawed. AI is not neutral, rational, or impartial (Helbing, 2016).

Instead, both AI and Big Data have severe limitations, and profound, unintended side effects that are challenging, some say threatening, society (Helbing, 2016; Yao et al., 2024). This is unfortunate because the vast amount of data now generated is just too much for humans to handle. People now depend on AI to analyze and transform it into easy-to-understand data while uncritically assuming that the upfront information was correct and unbiased (Mavrodieva & Shaw, 2020).

Home economics and FCS practitioners barely had time to grapple with the Second Industrial Revolution (industrialization and mechanization) before they were shoved into another and then another in rapid succession, respectively: Industry 3.0 (computers) followed just a few years later with Industry 4.0 (information and smart technology). Technological advances are happening exponentially and inexorably. Recently, the International Federation for Home Economics (IFHE) (2024) coined the neologism *Home Economics 3.0* to spearhead its initiative to convince home economists to reboot and update, so they can deal with Industry 4.0.

IFHE (2024) likened this to a software update justified because “we live in an era characterized by the integration of digital technologies, artificial intelligence, internet of things and automation” (“Home Economics 3.0” section). An updated home economics would (a) critically and responsibly embrace digitization, (b) be both AI literate and resilient to help others be the same and (c) advocate for human behavioural changes that align with technological changes (Börries et al., 2024). IFHE’s call for action is timely as neophyte Society 4.0 is truly struggling. But more significantly, Home Economics 3.0 may not be enough as society is concurrently facing a looming Industry 5.0 and the imperative for yet another restructuring to Society 5.0 when Society 4.0 has barely taken root.

Society 5.0: Super Smart

Indeed, just 15 years into the 21st century (2015), a call emerged for Society 5.0—the *Super Smart Society*—which does not exist yet but is envisioned as a response to a nascent but inevitable Industry 5.0 (a marriage of machines and humans in the metaverse). The Super Smart moniker reflects two things: (a) the ubiquitous prevalence of smart technologies and (b) a society designed to be smart about dealing with how it is affected. The Japanese government coined and conceptualized Society 5.0 ten years ago (Government of Japan, 2015; Gülen et al., 2024; Keidanren, 2016).

Society 5.0 pushes back against the pervasive negative side effects of Industry 4.0 and anticipates Industry 5.0 (Government of Japan, 2015; Gülen et al., 2024; Shiroishi et al., 2018; Yao et al., 2024). The Japanese presumed that, in addition to digitization being a technological innovation, “digitalisation is a philosophical movement that aims to ensure the efficient interaction of people with machines and robots in accordance with [humans’] demographic, economic and sociological structures” (Gülen et al., 2024, p. 57). They also called Society 5.0 “artificial human” (Gülen et al., 2024, p. 57) to convey the idea that technology will be used with a human touch to ensure that people get what they need (i.e., equity instead of equality). “Super smart societies have to treat technology as innovations that work for the benefit of society, not as a threat. [Through] a collaborative relationship between super smart machines and humans, a fair [equitable] and sustainable society is envisaged” (Gülen et al., 2024, p. 58; see also Mourtzis et al., 2022).

To that end, Industry 5.0 (the *Human Touch*) will initially use Web 4.0 technology and Industry 4.0 technology (to be discussed) to add a human dimension to overcome the alienation created by Industry 4.0 (Gülen et al., 2024; Saheal & Mohammad, 2025; Saxena et al., 2020; Yakymchuk, 2024). The Fifth Industrial Revolution will

> augment digital transformation with a more meaningful and efficient collaboration between humans and the machines and systems within their digital ecosystem. The partnership of humans and smart machines marries the accuracy and speed of industrial automation with the creativity, innovation, and critical thinking skills of humans (Generative AI, 2022, para. 1).

Society 5.0 does not exist yet, but those who envisioned it wanted to create a social-cyber-physical production system (SCPS) to augment existing CPS (Mourtzis et al., 2022; Yao et al., 2024). This social augmentation “takes into account both technical and human factors of production [and enables people to] investigate manufacturing systems from the perspective of a social-technical view” (Yao et al., 2024, p. 236). The latter respects the interdependence of social (human) and technical aspects of a society or system and emphasizes that both aspects must be optimized together to achieve positive outcomes (Pasmore et al., 1982). Society 5.0 is intended to work with smart technologies (a rich blend of physical and digital worlds) to create "a sustainable, inclusive and human-centered society" (Mavrodieva & Shaw, 2020, p. 4; see also Mourtzis et al., 2022).

Indeed, the negativity driving Society 5.0's conceptualization arose from the fallout of the *disruptive, fused technologies* used to advance Industry 4.0, which caused unintended dehumanization (Mourtzis et al., 2022). To elaborate, Web 4.0 and Industry 4.0 technologies significantly disrupt (interrupt or disturb) and then alter the way business, consumers, governments, and societies operate (McKinsey & Company, 2022). This intentional disruption is why contemporary society is especially challenged.

Principal examples of disruptive technologies include (a) connectivity and computational power (e.g., the Internet; cloud technology [on-demand access to databases, storage, and computing power housed on a global network of servers instead of in-house]; and blockchains [i.e., secure distribution of assets on the Internet]); (b) artificial intelligence (AI) (i.e., machine learning and deep learning that mimics human learning and reasoning); (c) human-machine interactions (e.g., VR, AR, robotics, and IoT—real-time information exchange between humans and machines); and (d) advanced engineering (e.g., 3-D printing, nanotechnology, and renewable energy technologies—biomass, geothermal, solar, wind, perovskite solar cells, and floating solar farms) (McKinsey & Company, 2022; Smith, 2022).

In short, Society 5.0 is a response to

> the creation of the internet of things, the active use of artificial intelligence (AI), the tremendous progress of biotechnology, the creation of new materials with unprecedented properties, the leading role of cyber-physical systems, the implementation of the control functions of cloud technologies, etc (Melnyk et al., 2019, p. 381).

When Society 5.0's architecture is successfully structured, it will

> be a human-centered society in which economic development and the resolution of social issues [triggered by Industry 4.0 technologies] are compatible with each other through a highly integrated system of cyberspace and physical space. [It will be] a society that is sustainable and resilient against threats and unpredictable and uncertain situations, that ensures the safety and security of the people, and that individual to realize diverse well-being (Japanese Cabinet Office, 2024, para. 1).

Mavrodieva and Shaw (2020 continued, explaining that Society 5.0 will take "Industry 4.0 a step forward [by] depicting a data-driven economy and society—a Super Smart Society, with a focus on individual needs and capabilities" (p. 3). By merging physical space with cyber space, more precise and personalized data can be collected leading to improved decision making and problem solving with humanity at the core. "This process is expected to change the way society functions in all areas of human life" (p. 3). This includes merging human touch with smart technology in several key sectors: health care, agriculture and food, finances, disaster management, energy, manufactured goods, services, city infrastructures, and supply chain logistics (Mavrodieva & Shaw, 2020). Mourtzis et al. (2022) added trade, religion, justice, transportation, military, tourism, entertainment, media, sustainable environments, and governance.

Japan envisions its Society 5.0 to be in place by 2030 and encourages other nations to follow suit (Gülen et al., 2024; Mavrodieva & Shaw, 2020; Mourtzis et al., 2022). A transition to Society 5.0 is especially needed given the *metaverse* nature of Industry 5.0 (Yao et al., 2024). Metaverse means beyond the universe or beyond the familiar physical realm to a blend of physical reality and VR (i.e., an immersive feeling of being real in a computer-generated space but without physical or sensory involvement). Think of the movies *Enders Game* and *Ready Player One* as well as VR gaming, training, and therapy. The metaverse is possible due to a combination of AI, blockchains (for digital security) and 3D visual technologies. Regarding the latter, augmented reality (AR) allows users to interact with the virtual and real world, but VR completely immerses users in a computer-generated place only. The metaverse is thus the Internet of Place (IOP) (Accenture, 2025) versus the Internet of Things (IoT).

The metaverse also "generates digital replicas of real spaces called digital twins" (Accenture, 2025, para. 1; see Yao et al., 2024). The metaverse, where the digital world mirrors the physical world, is navigated using avatars aided by *immersive technologies*: (a) wearable devices (e.g., headgear, handsets, body gear, treadmills, and steering wheels); (b) screens, projections, consoles, and apps; and (c) immersive workplace and learning platforms (e.g., Microsoft Mesh). Avatars simulate social interactions in online environments for any number of reasons including social interaction, gaming, therapy, training, and manufacturing (Accenture, 2025; Lutkevich, 2023).

Industry 5.0 is understandably concerned with the *industrial metaverse*, whereby avatars are used along all aspects of the value chain to improve products and services, efficiency, and profits. "The industrial metaverse, blending cutting-edge tech with a human-centric approach for Industry 5.0, is now a reality" (Martínez-Gutiérrez et al., 2024, p. 1), but it is still in its early inception stages as far as its industrial potential. Yao et al. (2024) explained that instead of using technology to liberate workers' physical labour (via automation and robotics), Industry 5.0 will use technology to liberate workers' mental labour (via avatars, and cobots—collaborative robots working in tandem with humans) (see also Mourtzis et al., 2022).

In short, with Industry 5.0, "the Internet is moving to the Metaverse" (Yao et al., 2024, p. 248). Instead of the IoT (connecting things to the Internet), the Industry 5.0 metaverse "realizes the interconnection of humans, machines, things and the environment" (p. 248). "Machines/computers, things/environment and humans coordinate with one another" (p. 242). In an amazingly humanized evolution, the Industry 5.0 metaverse construct thus accommodates the social augmentation of the Cyber-physical system (yielding SCPS) and connects it to sustainability, human-centric systems, and resilience (Yao et al., 2024).

This new approach will be feasible through a *wisdom manufacturing architecture* (Yao et al., 2015, 2024), which is an aggregate of (a) smart manufacturing (smart factories); (b) cloud manufacturing (resources packaged as services available through the cloud); (c) socialized enterprises (using social networking to help employees, customers and suppliers interact); and (d) intelligent manufacturing (applies AI) (Yao et al., 2015). This visionary industrial architecture addresses the relationship among "knowledge, intelligence, creativity/innovation, learning and wisdom [leading to the integration of] things, computers and humans, ubiquitous artificial and collective intelligence, as well as explicit and tacit knowledge" (Yao et al., 2015, p. 1291).

Ground-breaking wisdom manufacturing "is a hypernetwork composed of a physical network (IoT) [Internet of Things], a cyber network (IoS) [Internet of Services], a social network (IoP) [Internet of People] and a linking network (IoCK) [Internet of Content and Knowledge]" (Yao et al., 2024, p. 240). Metaverse-related technology is in the early stage of concept formation and very incomplete, but it has been happening for more than a decade (Martínez-Gutiérrez et al., 2024; Yao et al., 2024). Society 5.0 must somehow be ready, and so must home economics/FCS.

Home Economics 5.0

It becomes increasingly clear that IFHE's (2024) Home Economics 3.0 challenge may not be enough. Coming to grips with Industry 4.0, while ignoring Industry 5.0, is not tenable because both are happening at the same time at an inexorable pace. But endeavouring to overhaul on both fronts would be a massive update for the profession. Or would it? Home economics and FCS practice comprises three dimensions: philosophy, theory and knowledge, and competencies/skills (Kieren et al., 1984). Applying this model suggests that updating the profession is feasible if the will is there—Home Economics 5.0 is possible. We already have competencies that can be augmented. Our philosophy has been articulated if not implemented. And knowledge (theory and content) can be gained and evergreened.

Theory and Knowledge

Although a daunting task, learning about Industry 4.0 and upcoming 5.0 is a doable thing. It is a matter of critically accessing, reading, and processing information about these two industrial revolutions and their effect on society. This exercise would augment and replace aspects of existing home economics theory, knowledge, and content. A primer on that new information, which can be mentally processed to become knowledge, was presented in this paper.

We must also keep abreast of Japan's Society 5.0 initiative to see if other nations get on board and to what extent. What might this society look like in different nations? Also, are there other visions or versions of Society 5.0 instead of Japan's Super Smart Society? For instance, Mourtzis et al. (2022) called Society 5.0 the *Creative Society*, one that is evolving from a response to Industry 4.0 (AI-supported smart manufacturing systems and CPS) to Industry 5.0 (SCPS, and adaptive cognitive manufacturing systems) (ACMS). Compared to smart manufacturing, cognitive manufacturing "can recognise, assess, plan, predict, optimise, react, adapt, and enhance their operation with some degree of autonomy, make decisions, and execute actions to achieve objectives analogous to real-world cognitive behaviour in a changing environment" (ElMaraghy & ElMaraghy, 2022, p. 7442).

Mourtzis et al. (2022) reasoned that anyone can become super smart, but building Society 5.0 (the Creative Society) in the face of a profoundly different industrial and manufacturing model (cognitive in nature—acquiring knowledge through thought, experience, and the senses) will require a three-pronged effort involving (a) diverse people's (b) imaginations and (c) creativity. For the time being, until ACMS and the metaverse solidify at the industrial level, "Society 5.0 can be viewed as a human-centered Industry 4.0 environment" (p. 11) focused on resilience, sustainability, and equity (Mourtzis et al.).

Competencies

Competency wise, home economists and FCS practitioners tend to have a healthy roster of practice skills that are germane to engaging with both Industry 4.0 and 5.0 and attendant societal restructuring (Society 5.0): interdisciplinary thinking, integrated and holistic thinking (ideally integral thinking), communication, problem solving, decision making, management, leadership, collaboration and cooperation, research, analysis, planning and development, a learner-centered pedagogy, advocacy and lobbying, reflective practice, a global perspective, cultural competence, capacity building, resiliency (i.e., recover, adapt, and thrive when facing change and challenges) and the all-encompassing critical science approach (Alexander & Holland, 2020; Keiren et al., 1984; Lead FCS Education, 2018; McGregor & McCleave, 2007; Nickols et al., 2009).

To this century-long roster they should especially develop their digital literacy, and AI literacy. In addition to being able to "use software or operate a digital device, [digital literacy] also includes a large variety of complex cognitive, motor, sociological, and emotional skills" (Osterman, 2012, p. 5). Digital literacy involves (a) basic computing and internet navigation skills; (b) critical thinking, creativity, comprehension, and critical reflection (cognitive skills); and (c) the emotional-social skills to deal with social media computing (Eshet-Alkalai, 2004). AI literacy entails both (a) recognizing, understanding, using, and critically evaluating AI applications; and (b) effectively communicating and collaborating with AI (Laupichler et al., 2022).

Home economists and FCS practitioners should also master (a) complex decision making (i.e., involves multiple stakeholders, factors, uncertainties, and trade-offs); (b) technological literacy (i.e., use, manage, comprehend, and assess technology); (c) systems analysis (i.e., study a system to aid in technical decision making); and (d) understanding big data, which are extremely large, complex, and constantly changing data sets (arising from smart device and social media usage) that are not easily managed or analyzed (Schmitt, 2024; Scully, 2023; World Economic Forum, 2023).

But doing so would help us unlock deep insights that can be used to identify trends, spot anomalies and divergence, determine root causes of issues, improve outcomes, augment client and customer insights to personalize practice, and calculate risks. Other benefits of understanding big data include gaining a competitive advantage, improving client and partner service, focusing and targeting interventions, promoting available services, improving decision making and problem solving, and bolstering efficiency and effectiveness (SAS Institute, 2025; Schmitt, 2024; Scully, 2023; World Economic Forum, 2023).

Philosophy

It is the philosophy part that may need work. It is not so much that we need to update our philosophy but rather implement it. For nearly 50 years, elements of our philosophical armour have been evolving but are not yet solidified into a ready-to-wear vestment. We tend to resist philosophizing. Intrepid home economists, Brown and Paolucci (1979) (see also Brown, 1980) acknowledged this resistance but persevered nonetheless and laid the foundation for a powerful belief system to guide our practice, regardless of what the world looks like.

They gave us a mission statement that was ahead of its time. It built on neologisms they had borrowed or created (i.e., newly coined expressions for sophisticated intellectual constructs): (a) systems of action (technical, interpretive, and critical); (b) practical perennial problems; (c) moral values reasoning; (d) practical reasoning; (e) valued ends instead of given ends; (f) three metascientific perspectives (modes of inquiry): analytical/empirical science, interpretive science, and critical science; and (g) the human condition, which is far beyond well-being (Brown & Paolucci, 1979). A respondent to their new definition of home economics added transdisciplinarity (Kockelmans, 1979) (see also Brown, 1993). Colleagues have since provided plain-language versions of these constructs to make them more accessible and palatable (e.g., Alexander & Holland, 2020; Hultgren & Coomer, 1989; Johnson & Fedji, 1999; Kieren et al., 1984; McGregor, 2007, 2014, 2022a, 2023; Vaines & Wilson, 1986; Williams et al., 1990).

International colleagues have subsequently added even more threads to our philosophical vestment: family ecosystems, human ecology, transdisciplinarity, transdisciplinary human ecology, complex adaptive systems, integral specialist, expert novice, home economics literacy, carnivalesque (temporarily turn the world upside down to expose domination), home as habitation and protection, life world and Being-in-the-World, thoughtful practice (knowledge in action), Aristotelian human action in everyday life, dialogics (meaning) as well as dialectics (synthesis), answerable for creating an act as well as responsible for an outcome, and qualities of living (dynamics of being alive) versus quality of life (static) (see McGregor, 2020).

In an overall synopsis, McGregor (2020) proposed five overarching philosophical ideas to take us forward. With our new raison d'être being "human action in everyday life as it impacts the human condition" (p. 53), she recommended (a) assuming that individuals and families are in a relationship with the World not just within their unique family unit. We should thus (b) be humanistic oriented as well as family oriented, (c) be focused on the dynamics of forces at play for being alive as well as on more controllable processes, (d) view the home as a mediating space that we work through—a means to an end with that end being an improved human condition, (e) and be concerned with 'human action in everyday life' as well as our longstanding focus on well-being and quality life.

Conclusion

We must make sure that both preprofessional socialization and professional development (PD) initiatives (via higher education and professional associations) continually educate and update us for the current and upcoming industrial revolutions and attendant societal restructuring. Home economics was founded to deal with the vagaries of the Second Industrial Revolution (early 1900s). We have persevered for more than a century through two other industrial revolutions with a fifth looming. Going forward is a given, but we must be ever vigilant of staying current—philosophically, theoretically, and pragmatically—because families and society are forever changing.

As I write this, the Godfather of AI and winner of the 2024 Nobel Prize for Physics (Geoffrey Hinton) predicted that "the odds of AI wiping out humanity over the next three decades" are even higher than expected—up from 10% to 20% (Milmo, 2024, para. 1). Home economists and FCS practitioners' involvement in creating Society 5.0 is imperative because the human side of the exponential smart technology juggernaut—the individual, family, and home side—may be decimated. This is unthinkable. Our involvement will require (a) augmenting our longstanding collection of practice competencies with (b) updated knowledge and theories about Industry 4.0/Society 4.0 and Industry 5.0/Society 5.0 and (c) a genuine commitment to making our rich and comprehensive philosophical rhetoric a reality—we need *Home Economics 5.0*.

Society 5.0 will be a technological society comprising independent and smart systems managed and directed by AI in real time, on the Internet and in the metaverse—the new frontier. In such a society, it will be vital that humans, who will be increasingly dependent on technology, can communicate with each other as well as AI (Aberšek & Aberšek, 2020). Creating Home Economics 5.0 to deal with this reality will require unprecedented restructuring of our own professional culture, philosophy, and body of knowledge (BOK). We will have to wrestle with putting family first over technology (would this be a losing proposition?) or positioning families, so they have power relative to AI, and smart and adaptive-cognitive technologies.

That said, if we can invent ourselves to confront Industry 1.0, we should be able to reinvent and redefine ourselves in the face of Industry 5.0 and help create Society 5.0. Graham (2023) distinguished between reinvent and redefine, and we will need both. Reinvention is a choice, a bold declaration of our autonomy as a profession (self-governance). It involves emerging anew as a self-liberated profession free of old ways of doing and being. To reinvent, we must embrace uncertainty with the certainty that we can create a new, updated version of ourselves. Redefinition involves each practitioner self-authoring and assuming a new identity as the reinvented profession authentically journeys through Society 4.0 toward Society 5.0 as Home Economics 5.0.

Questions for further discussion

1. I report in another article that I found only 15 papers in our literature about AI and home economics (the last two years). Most were commentaries not research papers. We are not engaging with this issue yet. Do you agree with the assumption herein that the scenario laid out in this paper is a pressing issue for the profession? Explain your position.

2. Do you agree with the assumption herein that the profession can transition into this future by augmenting its current philosophy, knowledge, and practice repertoire? If not, what do you think must happen for us to engage with this juggernaut?

3. Had you ever heard of Industry 5.0 and Society 5.0? How do these prospects resonate with you, and how do you think you will engage with this looming economic and societal transformation? What should the profession do?

4. Arrange for a study circle with this article as background reading. Discern your colleagues' positions on this issue and share with the group to inform a follow up study circle perhaps leading to action.

5. Do you agree with my proposed version of Home Economics 5.0? If not, what do propose it would look like (assuming you think we need 5.0)?

6. Work with colleagues and prepare a course outline that can be used around the world in home economics programs to orient preprofessionals to this issue.

Biography

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