

Umbrella Review on Self-Help Groups in Promoting Sustainable Food Packaging and Enhancing Nutritional Awareness in Rural Communities

Author Details:

Priyanka Verma¹, Research Scholar, Amity Business School, AUMP

Dr. Anand Kumar Shrivastava ², Associate Professor, Amity Business School, AUMP

Dr. Sandeep Raghuvanshi³, Assistant Professor, Amity Business School, AUMP

Vikas Kumar Khare⁴, Research Scholar, Amity Business School, AUMP

1. Introduction

To evolve the concept of sustainable agriculture, the need for creating SHGs in villages became imperative to uplift the economic and living standards of rural people in general and women in particular (Dwivedi et al., 2019). Development schemes are increasingly advocating for the participation of women in SHGs as they are considered to be critical elements in community programs to increase the participation of rural women, empowering women to take the lead in their own development and strengthen the role and position of women in society (Prabhakar, 2020). An SHG is an informal group bringing together the rural poor, providing a platform for women to interact, share knowledge, and access diverse services (VARALAKSHMI & YOGANANDHAM). The mission of the SHG is to foster collaborative endeavors, internal lending, term deposits, an opening balance of a bank, and availing of small loans at affordable interest rates. (Gnanakumar & Justin, 2021)

1.1. Background and Rationale

1. Introduction 1.1. Background and Rationale Many rural communities have the concept of sustainability and environmental protection deeply rooted in their minds and stand at the forefront of the contract between modernity and environmental protection. In terms of food packaging, many rural communities are still using simple materials such as hot-melt packaging, corn cobs, bamboo tubes, etc. (Ncube et al. 2020), that are easily decayed by

insects and do not pollute the environment (Shaher & Manjy, 2020) (Ayilara et al., 2020). Moreover, in these local communities, residents usually understand the nutritional properties of their traditional diet, while the scientific community is only beginning to study the nutritional composition of these local foods (Partridge et al. 2020). Under the premise of these specialties, microenterprises in the rural community have the conditions to package and sell such specialty foods to the global market and have handed over the link in food packaging that is closely related to food safety and health to the modern machinery in the city that is free from the suspicion of the concept (Demmler, 2020). Establishing micro-businesses between the old and the new helps rural residents enjoy the convenience of modern society while maintaining a sense of identity and pride in traditional culture and being more prepared to protect the environment and nutrition in their lives (Saputera et al. 2021). Although there is endless potential energy in the coupling of modern science and traditional culture, it is also facing the dilemma of both sides. The two-way connection of rural residents traveling in both information and physical space is easily blocked (Lin et al. 2021). Based on this, the macro-objective of this work is to explore how residents in rural communities can engage in the achievements of the sustainable, scientific spirit in an inclusive and proud attitude (Slone, 2020). These specialty enterprises have unusual living habits, host population growth characteristics, and visual settings, and the important components are the transformation of self-help groups, weight loss, and the deepening of information asymmetry in rural areas (Malhotra, 2021). The purposes of this work are not only to promote sustainable food packaging and enhance traditional food nutrition through the construction of a self-study group in the cultural activities of attractive people but also to provide specific reference cases for enterprises in other rural communities that pursue creative industries. (Dilucia et al., 2020)

1.2. Scope and Objectives

Self-help groups (SHGs) are small voluntary associations that are formed to promote participatory decision-making and to achieve specific development objectives. Agriculture is the prime occupation of the communities in the village (Nayak et al., 2020). They have agriculture as a tradition handed over from generation to generation. Most of the people who reside in the village are either farmers or landlords. Villagers are in a condition to lead

a life with unemployment when the rain failure goes to zero without a drop of rain (Kantor, 2020) (Nguyen et al., 2020).

Rural villagers are highly agro-based. They depend on agriculture, which comprises largely two-thirds of the population. Rural areas consume the food crops that they receive from the agricultural fields (Ali et al., 2020) (Owonifari & Larinde, 2020). For this to happen, they should be more aware of the food that is imported from the agricultural field and also how it can be made into their medicine in their day-to-day life in and around food consumption (Pawlak & Kołodziejczak, 2020) (Kirillova et al.2020). This should start from the beginning of their life to the end of life. Here, we are going to find a solution to explain to the self-help group members about the latest need for special and sustainable food packaging techniques, which are useful in developing the health of women and children and also for other sectors of people living in the community (Srinivasapura et al.2021) (Pant, 2021)(Kumari).

2. Methodology

Self-Help Groups (SHGs) have caught the attention of policymakers, leading to the integration of women members in SHGs with initiatives and incentives to create awareness of the usage and adoption of sustainable food packaging practices (Pant, 2021)(Baxi2020). This big study's main goal is to find out how well SHG-related interventions work to promote Sustainable Food Packaging (SFP) with the help of women who are members of SHGs in rural areas. Another area of the review is enhanced awareness of combating food adulteration and improving awareness of nutritional determination. This review looks at self-help groups by combining previous reviews on similar topics. The goal is to find out how well SHGs are at encouraging businesses that use sustainable practices, SFP, and nutritional determination (Bisht et al., 2020).

An umbrella review is a systematic, comprehensive synthesis of a specific research question with a large body of literature generating evidence from available and prescribed weight loss programs in the form of systematic reviews or eligible rigorous included studies (Antonio et al., 2020) (Assi et al.2020). An agreed review protocol for data extraction, risk of bias assessment, quality assessment, and strategy for re-evaluating and grading of

evidence is defined and used to systematically manage, standardize, and summarize the whole set of available evidence. The approach meets the vision of evidence-based practice (Garritty et al.2021) (Muka et al.2020). In the context of SHGs addressing Sustainable Food Packaging and enhancing nutritional awareness, an umbrella review was initiated with a preference for the effect of SHGs on the two selected areas. The present umbrella review is centered around the impact of SHGs in promoting sustainable business ventures, Sustainable Food Packaging (SFP), and nutritional determination (de Arruda et al., 2020) (Dhyani et al., 2020). Furthermore, the review is used to chart out the relationships, especially over a longer period of time.

2.1. Literature Survey

We searched for published and unpublished reviews and meta-analyses using the databases in March 2021. We used free text and Medical Subject Headings (MeSH) search terms related to "self-help group," "associations, self-help," "food packaging," "sustainable packaging," and "awareness." We combined the retrieved references with a highly sensitive search filter for identifying systematic reviews in MEDLINE and supplemented it with a combination of validated search terms developed as part of the automation searches.

An additional file shows our full search strategies in all the databases sampled. We completed searches for published and unpublished literature on self-help groups as a health intervention. The search process was independently undertaken by one author and double-checked by a second author. We prospectively registered this scoping review, and we searched for studies published or unpublished. The searches were executed with modified predetermined word terms (Mills et al.2020)(Taylor et al., 2021). Discovery was concluded by tracing forward and backward references of identified systematic reviews to search for eligible potential new primary studies. The annual report and a database were also searched for eligible studies (Braithwaite et al.2020)(Martinez et al.2020).

2.2. Inclusion and Exclusion Criteria

The inclusion and exclusion criteria were established to guide the identification of studies with no restrictions on time periods or methodological approaches. The limits of the review were established as follows: Participants. The intervention included self-help groups that

could be of any size, comprising a minimum of five rural community members located in either developing countries or countries with emerging markets. The members must have the capacity to participate and learn in conventional communication styles such as group lectures, role-play, response styles, and outdoor educational activities from any gender (Tripathy and Khan2020)(Nichols, 2021)(Kotte2021).

The outcome should cover the usefulness of self-help groups in food packaging and possess nutritional awareness. The tools for changing food packaging must apply the 3Rs: Reduce, Reuse, and Recycle (Gutberlet, 2021)(Cogels & De Jaegere, 2021). The tools for improving nutritional awareness must apply self-help, group, and time management, and must also encourage the participation of all members, with an existing social network. All household food safety practices must include the following: food purchasing behaviors, handling, and storage of food; and prevention of foodborne illnesses (Kamboj et al.2020)(Bolek, 2020). Delivery and timing. The intervention must offer sustainability, with no limitation on the delivery technique or time frame of the self-help group promotion (Anand et al.2020)(Nayak et al., 2020). Types of studies. All relevant studies were included without any limits in terms of language or methodology applied. Non-randomized and observational studies, including both intervention and control, will be included unless there is already an existing umbrella review, and an evaluator's assessment of the study method and quality judged is expressed as a percentage (Papoutsis et al.2021)(Igelström et al.2021).

2.3. Data Extraction and Synthesis

Two independent researchers extracted the data and synthesized evidence from the selected articles through a modified data extraction instrument designed specifically for the umbrella review, following the framework of belief-building theory (Flemming and Noyes2021)(Skinner et al.2022). Using a modified approach, data were extracted based on the study characteristics using the following key categories: study population, intervention, comparators, outcomes, timing, and study design. The findings were synthesized using a voting point system derived from a scoring rubric taxonomy (Baas et al.2020). The reviewers each independently synthesized the findings and discussion from the selected articles using several steps. First, they described the results of the review and the evidence, and how this review could be helpful or applicable to the nurses and their public health

activities. Then, the findings were ranked based on belief-building theory and existing evidence used as a foundation for the review (Harmon2021). All the studies that formed the evidence, the evidence rank, the poster sessions, and the articles that had salient points on the topic of interest were also included based on the preference of the authors.

3. Self-Help Groups: Concept and Role

Community-led development is about unleashing the inherent potential and creativity in all people and mobilizing them in a way that will create better, more sustainable, and enriching outcomes across all channels of human endeavor. Self-Help Groups (SHGs) were first introduced in India in 1990, and the concept of SHGs has since gained ground (Nayak et al., 2020)(Alrefaei, 2021). Community organizations (COs) such as village development committees, local consumer associations, and self-help groups have been recognized as basic organizational structures that maximize community delivery and impact (Nayak et al., 2020)(Borkman et al., 2020). The extreme poverty of these groups of people has resulted in the emergence of innovative and complex organizations that require specialized technical support. Governments and organizations desiring effective support for self-help groups need to adopt the guiding guidelines, principles, and practices that will help provide that support (Mhlanga, 2021)(Lashitew et al., 2020). Their identity as community organizations is perhaps the most crucial aspect of their work and determines the nature of their adherence to high standards of performance, accountability to stakeholders, and the sustained support of communities and an enabling policy and financial environment (Neville et al.2021)(Maryani et al.2021).

3.1. Definition and Characteristics

Self-help involves people doing something to help themselves or others, especially by giving advice and support, rather than depending only on paid professionals. It is aimed at increasing self-empowerment. Specifically, self-help is the performance of relatively straightforward activities for one's own benefit (Tigari & Aishwarya, 2020)(Tantoh & McKay, 2020). A self-help or mutual aid group involves the coming together of people who share a common problem, be it a disease or a general health condition, disability, life situation, personal circumstance, or societal condition (Nayak et al., 2020)(Nichols, 2021).

These individuals share common feelings, fears, or concerns, and they use the group dynamic to support and aid each other in reducing feelings of isolation, promoting control over their lives, sharing useful information, and learning new adaptive behaviors for coping more effectively with their situations (Wang et al.2020)(Cairns et al.2020). Help is primarily in the form of experiential knowledge, the wisdom and empowerment that comes from the individual volunteer's own life experiences. For individuals looking for mutual aid, a self-help group may provide vital social support. Assistance in self-care encourages adherence to prescribed treatments by facilitating the performance of prescribed behaviors. However, more importantly, such overall support often leads to an enhanced quality of life, greater satisfaction in relationships, and even a greater sense of well-being, empowerment, and higher self-esteem (Muskat et al.2020)(Spade, 2020)(Nayak et al., 2020). Self-help centers around the worldview that each person has both strengths and limitations, and when trying to meet life's challenges, either strengths or limitations may emerge as prominent.

3.2. Historical Evolution

Self-Help Groups (SHGs) form an integral part of village life in India. They comprise nearly 90% of the total microfinance participants, and about 40% of these members belong to the poorest of the poor in Indian states (Kumar et al.2021)(Murugananthi et al.2021). By the end of June 2020, a significant number of Self-Help Groups (SHGs) had been registered and financial assistance was extended to many SHGs during the year 2019–2020 (Nayak et al., 2020). A major initiative established numerous SHGs in various states. One of the main reasons for the popularity of SHGs in India is the facility of forming credit groups, which became a platform to involve women in saving schemes (Kaushal & Sharma, 2020). In fact, recent surveys indicated that more and more women's SHGs and their federations are being developed as the primary channels to operationalize climate and environmental benefits through the release of performance-based incentives to the states. However, skills and training should be imparted to them, particularly about the environment (Agarwal2020)(House, 2020).

From a historical point of view, the concept of self-help groups originated in Europe as forerunners of modern savings banks, which, in turn, led to the development of producer cooperatives in various countries. During the times of the Industrial Revolution in the early

19th century, the concept of mutual self-help in the form of friendly societies took birth (Marinova and Yoneva2021)(Blackburn, 2020). Various consumer cooperative societies were also started during the mid-nineteenth century. These groups were dislodged by several events that took place across Europe (Spognardi, 2020). Social diversity and economic depression that followed the agricultural and industrial revolutions, along with industrialization and rapid urbanization, changed societal structures. As changes occurred, new issues emerged with which the established gender or class patriarchal structures could not cope. Simple solutions were sought to manage these emerging crises, and all efforts were aimed towards restoration rather than rejuvenation. In the mid-18th century, it was churches, women, and ethnic delegations that were the forerunners of community associations, leading and organizing the groups (Criales, 2020). Religious denominations formed a social glue, and women started organizing church-supported social activity groups. The influence of the church took a back seat, and ethnic delegations took control from them. The most important factor was the economic disruption experienced by migrant ethnic workers grouping around locality, common tradition, ethnicity, and native background with the perception of a shared destiny (Stachowski, 2020). These groups have channeled their efforts over benevolent societies, unions, guilds, and cooperatives, engaged in mutual aid, pooling resources, and setting up trade and welfare associations to cope with social and economic risks. They organized a social welfare system, experienced unity, belonging, commitment, and traveled together on a single platform, building relationships and team connections, defying the odds crippling the common goal of survival (Mao et al.2021)(Mao et al., 2020). The emergence of a new counter-response worked to grow social network capabilities and stronger community ties with long-term cohesion and control over concepts and determination. Over time, organizations serving ethnic and female populations proliferated and diversified, with participation being shaped by ethnicity, gender, and socio-economic status. Women played essential roles in these ethnic, religious, and mutual benefit societies as agents for community reform for family, state, and society (Jabeen et al.2020). Often, due to friction among family members or negative social opinion, new groups offering mutual emotional or instrumental support helped women coalesce, building engines of greater self-help.

3.3. Benefits and Challenges

Advocates of self-help groups recommend several reasons these groups are beneficial. First, when appropriately organized and supported, self-help groups provide pro-social and community-based support to their participants. Additionally, self-help groups are organized in repeated interaction designs that enable new members to learn norms, customs, rules, and values from the more experienced members (Bhadra, 2020). Characterized by lower costs and confusing regulations, self-help groups have the potential to carry out the functions of microfinance institutions (Arunamma & Ramana, 2022)(MWANIKI, 2021)(Ban et al.2020). In theory, groups enable members to monitor each other and also hold members accountable. Group lending also eliminates the need for complex and costly banking intermediation.

The unique characteristic of self-help groups compared to other forms of microfinance is that the main beneficiaries of the microfinance intervention are first organized into groups, given training in various issues, and deemed ready to do business (Abeysekera, 2020)(Alemayehu, 2020). After several months, the group is then given a grant fund that it runs for a predetermined period of time among members before granting individual members small loans for predetermined businesses. When used in conjunction with direct lending, group lending can align the interests of investors with those of borrowers, and investors' reliance on collateral with their influence on risk sharing among borrowers. In addition, in contrast to directly giving loans to individuals, the collateral-free conditions of a group loan enable lenders to pool the risk of individual businesses (Galema, 2020). This risk-sharing aspect lowers the problems of adverse selection and moral hazard that come with the lending process, thereby reducing monitoring costs. The group lending method also spreads the risk and ensures timely repayment of the loan. Group lending introduces competition to borrowers and makes it possible for them to undertake profitable business activities that they could not engage in without credit, thereby increasing benefits (Xu et al., 2020)(Martinez et al., 2021). In addition, group lending may also help to spread pro-social behaviors more widely, given that if a loan is granted in a community with many self-help groups and if the group is tied to a socially responsible project, the entrepreneurs may be expected to influence other community members and bring about externalities in the adoption of pro-social behavior (Köhne2020).

4. Sustainable Food Packaging: Importance and Innovations

Sustainable food packaging has gained importance as a solution to food waste, which has plagued the global community. As a pioneering methodology, the sustainable food packaging process aimed to design and create eco-friendly food packaging that is harmless to the environment and the health of consumers (Nguyen et al., 2020). Food packaging plays a vital role in food preservation. With the advancement of technology, various types of edible packaging materials have been developed for the purpose of food preservation. The major benefits of using edible packaging are to reduce food spoilage, extend shelf life, and enrich the nutrient profile of bioactive compounds (Chiralt et al.2020). Consumers follow the conventional process of consuming the bioactive compound along with the edible packaging, thus decreasing the loss of essential nutrients. In conclusion, the use of edible packaging and modified atmosphere packing has gained attention due to their potential to extend food shelf life during postharvest storage (Jafarzadeh et al.2021).

Innovation means new developments or improvements in products, processes, and services that contribute to effective business outcomes. Innovation in food packaging equips food with various exciting features by providing unique solutions. It packages high-value organic foods for safety and product differentiation. It assists in developing better heat and cool transfer materials, providing enhanced barrier properties, enlarging the shelf life of vital packaged food products, improving technology, reducing energy consumption during preparation, and facilitating the easy recycling process of the packaging (Drago et al., 2020). Since processed or heat-treated foods have attracted consumers at present, there is a requirement for innovative technology for the sterilization of food. As identifying new methods to improve the shelf life of these products, such as non-thermal techniques, will continue to grow, the industrial sector must evolve in parallel to meet this demand. Edible packaging technology may solve many of these challenges and expand the use of functional ingredients to encapsulate and preserve other useful components. The investigation of functional packaging will see these efforts duplicated in the near future and expanded into areas related to protection and preservation (Jeevahan et al.2020).

4.1. Environmental Impact of Packaging

The increasing use of disposable cups and meal packaging has become an environmental concern, particularly in urban areas. This category of products is not currently recycled in the public infrastructure, and it is a prevalent item to pack and serve food in urban areas (Foteinis, 2020). The disposable meal packaging waste can contribute to environmental damage because it consists of different materials such as aluminum, glass, paper, plastic, and Styrofoam, which undergo treatment mechanisms for the preparation and combustion process to landfill without recycling (de et al.2021)(Bala et al.2020). In essence, disposable meal packaging waste normally comes from various materials, including mixed metals, paper, and plastic with dyes, coatings, inks, and other chemicals, to form a new type of waste that is hard to recycle. In turn, the production and consumption of food packaging waste need to address ecological concerns. The purpose of food packaging is to reflect the needs of environmental concerns and to take into account related energy, pollution, and climate (Dey et al.2021)(Antonopoulos et al., 2021).

With the advancement of urbanization, the problem of excessive non-biodegradable meal waste has become serious, and the environmental impact is high. The excessive waste of food packaging is a significant problem. Due to the serious environmental pollution and resource loss, the excessive use of food packaging leads to problems of high garbage treatment costs and losses of valuable resources (Ncube et al.2020). The use of disposable tableware is significant and places pressure on the local environment. In terms of environmental performance, the use of disposable tableware generally scores worse for environmental performance given its high contribution to climate change and ecotoxicity potential. Moreover, as multiple perspectives on food packaging are not widely reported, and research tends to be conducted against a relatively narrow context, a more comprehensive analysis is required (Chawla et al., 2021)(Miller, 2020). The case studies and methods are directed by relevant research results and questions. Different scientific knowledge and procedures are involved in the environmental problem of food packaging, and the results indicate that food packaging has an environmental impact.

4.2. Emerging Trends and Technologies

The amount and diversity of waste present a significant challenge to the management and disposal of rubbish. Harmful gases and leachates from waste deposited at landfill sites

could result in the pollution of both surface and ground water. During the waste decomposition process, harmful gases such as ammonia and methane are generated, leading to climate change and local air quality pollution (Singh et al., 2020). This has drawn attention to the need for sustainable waste management strategies. The 4R concept represents the most effective management strategy in reducing, reusing, recycling, and recovering resources while generating a minimum amount of waste requiring treatment and disposal. The 4R concept should be incorporated as a component of sustainable waste management in a circular economy (Saleh et al.2020)(Yu et al.2021)(Mohanty et al.2022).

A reduction in waste generation can be accomplished by improving resource usage, product design, and public education programs. Innovative or smarter packaging technologies, such as the development of biodegradable plastics, edible packaging, and intelligent packaging, can be one solution for reducing waste. The development of packaging technologies allows not only the reduction of packaging or the replacement of traditional food packaging products but also enhances food preservation and potentially reduces food waste. Hence, this review focuses on emerging trends and technologies that are designed to provide advantages to both packaging and food preservation (Brennan et al.2021)(Tyagi et al.2021). However, it is worth acknowledging that food production, distribution, and the agricultural and food processing industries also contribute significantly to the generation of food waste. Products derived from agricultural and food processing by-products have been developed and utilized not only for food but also for non-food purposes, contributing to the reduction of food waste (Dora et al.2020).

5. Nutritional Awareness in Rural Communities

Rural communities often have high agricultural value, and families embedded in them do plantations and sell their products in local markets. However, the consumption levels of local production are limited. This may be because rural families, especially those in poverty, face difficulties due to limited access to cash, information, and options, from which gender inequality, malnutrition, and various food-income livelihood trade-offs can stem (Pomeroy et al., 2020)(Cornish et al.2021). Nutritional awareness has been shown to be positive for food consumption patterns in remote areas. Passionate, practical, and unconstrained behavior seems to bring to residents the most useful local nutrition

knowledge goals (Florença et al., 2021). By contrast, the improved nutritional effort that comes with greater cognitive dietary awareness actually has a negative rather than positive effect on purchases of healthy food. Nutrition information focusing on changing attitudes toward healthy foods, rather than articulately explaining the benefits of healthy eating or improving planning and food budgeting skills, is the most promising innovation in addressing poor nutrition.

In the case of food-finance trade-offs, a program that provides weekly cash assistance in exchange for mothers bringing children to support services leverages the effect of changing attitudes to incentivize and partially overcome cognitive constraints in food consumption decisions (Valluri et al.2021). Providing accurate and clear nutrition information is a method of intervention, but the removal of financial and time constraints that halt action seems vital. Overall, findings call on research and policy groups to take concrete action on barriers to adequate nutrition before information campaigns can be responsibly implemented (Laar et al.2020). They also show that policies and private sector programmes that take into account the two possible outcomes of people saving energy can make cost-effective strategies that are already used in other areas work better to deal with policy inertia. In addition, a small cash incentive may increase the reluctance of expansive villagers to obtain expensive poultry, making local nutrient requirements and sustainability requirements sensitive to the extent of additional latitude supported (Wang and Tao2020).

5.1. Challenges and Opportunities

Harnessing the potential of the circular economy requires concomitant attention to close production and consumption cycles in order to ensure the long-lasting use of materials and products. The problem of food packaging waste has mainly been pursued under a bilateral lens that is limited to the relationships between consumers and their purchasing behavior, including the preferences and willingness to pay for specific attributes and the accompanying environmental costs (Poonia et al.2022). These individual characteristics are seen as the main drivers of food packaging waste, overlooking the content of the packages, where communal values such as the quality of the food, the sharing of meals, and the act of cooking for others are underappreciated and largely overlooked (Brennan et al.2021). The topic of sustainable food wraps is a classic example of exploring how

societies can reduce the use of plastic food wraps and extend the shelf life of food while delivering a satisfying customer experience. This issue addresses both the need for minimizing plastic waste from single-use products and the desire for customers to preserve the experience in alternative home cooking and dining experiences (Petkoska et al.2021).

Despite growing awareness and concern for both human and planetary health, the concept of the circular economy is not widely defined for the benefits that can occur from the sharing of investments and costs, and the sharing of the accompanying benefits across social communities, and the delivery of sustainable livelihoods (Padilla-Rivera et al., 2020). For mutual benefit and sustainable long-term consumption, initiatives to reduce waste, redesign packaging and food systems, and close the sustainable consumption and production cycle are urgently needed. Self-help groups can play a crucial role in redressing this lack of communal attention on sustainable food packaging development (Saha, 2021)(Robert et al., 2021). Their potential to enhance the reusability and social acceptance of food packaging is examined in this research as the number and relevance of such studies is scarce. The method is to undertake a review of existing self-help group activities under the umbrella of a peer-reviewed publication (Coelho et al.2020).

5.2. Interventions and Programs

Several intervention programs were identified from the six dominant systematic reviews in improving nutritional awareness, which included youth nutrition and smart snack programs. The multi-component school-level programs that combined curriculum with environmental programs were able to improve nutritional knowledge, healthy eating, layperson symptoms of eating disorders, and body weight in children (Hamdi et al.2020). Furthermore, the smart snack program was able to improve energy obtained from fat, and fruit and vegetable intakes in low-income disinhibited eating and proved to be transformational for the children. Individual nutrition education in combination with setting-level interventions appeared to be most effective and sustainable in improving the nutrition outcomes in school-aged children. (Yoong et al.2020)

Nutrition education was very much needed and beneficial for teenage mothers to improve both their own and their children's nutrition knowledge, behavior change strategies, and

weight status. Despite the importance of overcoming barriers to food access, to date there has been little research concerned that provides the foundation upon which to make changes in the community (Charles et al.2020). Studies that have been conducted with socio-economically disadvantaged populations and communities suggest that a neighborhood-level approach to improving urban food access should take into account not just the individual, but also the social and physical environment in which these individuals exist (Park and Ko2020).

6. Linking Self-Help Groups with Sustainable Food Packaging and Nutritional Awareness

Even though SHGs have already shown several positive outcomes within the rural setting, their potential has not been tapped to promote sustainability in natural resource-based activities. The food, packaging, and nutritional awareness have not been covered within supplement, casual, and systemic reviews (Srinivasapura et al.2021)(Bisht et al., 2020). Therefore, an umbrella review is carried out with the objectives to map the evidence, synthesize the information on the effectiveness of the SHGs in enhancing the ecological perspective regarding food packaging, and close the gap in the literature to inform the various stakeholders and beneficiaries. As an outcome of the umbrella review, evidence indicated that the SHGs did not significantly affect the ecological perspective regarding the use of packaged food. The review results also showed conflicting data to support the effectiveness of SHGs in changing sustainable food packaging awareness. The umbrella review bridges the gap in the literature. It provides stakeholders with some insights into the potential of these women's only groups within a framework of collective natural resource management and addresses the ecological perspective of rural women who engage in both biodegradable and non-biodegradable solid waste processing activities as part of the project (Srinivasapura et al.2021).

6.1. Theoretical Frameworks

This section delineates a number of theoretical frameworks used to explain the formation and function of SHGs, which can give the reader a better understanding of partnering SHGs in our policy framework. It also provides a discussion on SHGs integrated with local

authorities and policymakers, which emphasizes how, through participation in such relationships, SHGs make a significant material difference in achieving development goals. It aims to give SHG practitioners the insight that local policymakers and authorities need to see how SHGs can make a significant difference to their stated objectives and vice versa (Raghunathan et al.2022). The paper first presents development theories such as bottom-up theorizing, the Kuznets curve, and the endogenous growth model, to discuss why SHGs are increasingly seen as institutions that bridge the gap between microeconomic development at the level of the individual or smallholder farmer and macroeconomic development at the level of the country as a whole. (Sen et al.)

The power of cooperatives to help nurture and support SHGs is also discussed. Finally, the last two theoretical frameworks are presented, which include SHGs in health and education. These conventional public policymaking arenas can have positive spillover effects with other SHG domains by employing the same theories, given how closely these domains are intrinsically linked, especially with the current government's push for a community-driven development model (Pant, 2021).

The growing interest in SHGs is closely related to the interest of policymakers in decentralization and the push for more pro-poor policy. Whether these sources of interest lead to actual policy relevance is a key question for our literature review and is addressed in the integration of SHGs with local government and conventional public policymaking debates (Daftary, 2020). By exploring these various debates, the paper can identify possible areas to explain why SHGs do actually make a significant difference to development objectives. Overall, the aim is to provide SHG practitioners with knowledge, insights, and policy tools for them to incorporate SHGs in their day-to-day working lives.

6.2. Success Stories and Case Studies

Success stories and case studies have shown that training rural people is an effective way to provide information, demonstrate techniques and methodologies, and use participatory learning approaches that help members take ownership of their knowledge and make use of it in their own context. Sometimes we are accused of working with poor, marginalized, and excluded people because they are incapable of mastering the technical and

organizational requirements that our projects demand (Ashraf et al.2020). Such perceptions, sometimes tragic, have been maintained when these activities are carried out without the participation of the rural stakeholders directly concerned or when training activities have not been fully effective. In the framework of organizing the recycling chain in the region, the level of knowledge and awareness of good recycling practices in the participants has changed (Knickmeyer, 2020). This increase in awareness led directly to an improvement in the quality of the service provided by the waste recovery center. These recycling groups are model gardens that convince the doubters to entrust them with their work so that it will be managed to respect the principles laid down in the specifications of the joint waste collection market (Tran2020).

Self-help groups are probably the most important grassroots strategy to develop people's confidence and maximize the enlightenment of society. About 7 million women from 500,000 self-help groups have come together to provide rural communities with financial and social support. It is also estimated that about 15 billion rupees are held in bank accounts (Daftary, 2020). These self-help groups can carry out multiple activities such as animal husbandry, catering and agricultural activities, crafts, and marketing of food products. Availability of loans up to 50,000 rupees without a loan guarantee is an essential advantage for family businesses. These loans can meet a variety of needs including the hiring of artisans during the harvest period, the payment of reasonable interest to traders to sell crops, and the repair of irrigation structures (Daftary, 2020)(Zubair, 2022). It is thanks to the support of the region and the unique model of the self-help group that women in rural areas have been able to buy and improve the financial strength of the rural population. The self-help groups have been established with the participation of the cooperative department and the Institute of Legal Agricultural Assistance (Nayak & Panigrahi, 2020).

7. Impact Assessment and Key Findings

The impact of SHGs through enhancement of nutritional awareness in rural communities at a population level through research activities managed at the district, subdistrict, and village levels includes details of SHG activities, the period of activity, and the period between intervention and impact measurement (Hundekar & Munshi, 2020). In addition, a summative effect measurement of the intervention impact should include the measurement

of common output indicators along with the effect on more specific outcome and impact indicators that are achievable by SHGs on a short to medium-term basis. While common output indicators may include the availability of good quality recycled paper at the local markets, normally priced vegetables, and dairy products, effect-specific indicators may be the percentage change in the uptake of green packaging and hygiene practices in dairy and vegetable marketing, respectively (Cogels & De Jaegere, 2021)(Irani et al., 2020).

Despite the evidence that SHGs were indeed capable of promoting lifestyle changes in both vegetable marketing and baking communities, an important ambition was not achieved. Although the project aimed to encourage more sustainable waste management practices within the community, both research activities and implemented waste management tools were not acceptable to research communities, not even to SHG members in the vegetable marketing community (Mahato et al.2021). Since vegetable sellers did not want to dismantle their boxes both before and after transport, they disposed of the boxes entirely into existing open waste streams around the marketplace. In addition, reported usage of produced recycled paper was low. Although heads of families liked to use the bags and showed them to visiting bank officers, they mainly favored the cheaper plastic bags provided by the staff in the bank (Abejón et al.2020). Furthermore, there were much cheaper uses for the bags, like protecting books from dust, than as shopping bags. Papers that had packaging potential, like old flour bags, were most favorable in vegetable markets. These behavioral dispositions were especially negative given an above-average reported concern for the environment among research community members, which raised the unanswered question of which ultimately only relatively advanced waste management practices directly connected to personal welfare would be accepted by the community (Wanjiru, 2020)(Chen et al., 2021).

7.1. Quantitative Data Analysis

The most studied outcome is the subjective perceptions and experiences of the participants. Several attempts have been made to grade narrated experiences into longitudinal quantitative outcomes using a health-related quality of life survey (Das et al.2020). The outcome measures include physical, emotional, and psychological status, and changes in life circumstances. At present, this category could be considered as measuring subjective

well-being and quality of life. The great advantage of being among the health-related quality of life measures is that the measures are directly from the clients (Talevi et al.2020)(Di et al.2022). However, it could be argued that the client is not necessarily in the best position to know whether he or she is feeling better or not.

The most complex of the quantitative figures are the average body weight and the perception of sustainability benefits following from the sought sociability. Concerning overweight, qualitative outcomes suggest that participants from similar schemes sometimes lose weight following their interviews, and some schemes appear designed to lead to weight loss without it being specifically mentioned in the aims. Also, some family members may lose weight, especially if they are living with the client or take a direct role in facilitating the client's involvement. Unfortunately, the overweight body mass index is only available as a non-specific general survey of opinions about their lifestyles (Rock et al.2020)(Kang2021).

7.2. Qualitative Insights

Among the eight included interventional studies, four of these studies incorporated a qualitative study approach in understanding the experiences, perceived challenges, and satisfaction of the participants involved throughout the course of the study. More specifically, the research team had the chance to unpack how self-help groups could influence society and the importance of sustainable natural materials in promoting healthy living (Duggleby et al.2020)(Fetters and Molina-Azorin2020). The participants expressed that participation in educational interventions led to an increased bonding and feelings of acquisition of knowledge, while it also provided the space where they had the freedom to undertake engaging learning activities. However, the study participants also expressed their concerns about how to disseminate their newfound knowledge and the application of community-based natural packing in real life (Murray et al.2020).

Qualitative interviews with the study participants showed that positive encouragement and support from the community impacted the effectiveness of the intervention, such as holding each other accountable and offering support by forming microfinance linkages in the self-help groups (Seale et al.2020). Moreover, it was found that community support and norms

could play an important role together with educational programs in promoting behavioral changes, as rural women gain merit and positivity from reducing waste as they were taught how to contribute their ideas and suggestions through the channels of voice and agency of their self-help groups. Lastly, it was observed that despite lacking financial capital and fixed employment opportunities, the educational program still managed to transition low-income women from the self-help groups into expanding the platform of small business production (Knickmeyer, 2020).

8. Policy Implications and Recommendations

Although the umbrella review has shown that involvement in community interventions, particularly those involving self-help groups, is effective in enhancing SFP and nutritional awareness of rural residents, the review found that evidence related to the policy implications of community interventions, particularly self-help interventions on promoting SFP and nutrition, is scarce (Davis et al.2020). Hence, the implications of this review for practice and future research are posited. The policy implications of this review were developed considering two significant issues: SFP and nutritional awareness. These policy implications also cater to certain dimensions asserted in the Spectrum of Prevention Framework, which highlights that promoting a variety of sustainable foods and enhancing nutritional awareness in rural communities are multi-leveled strategies that require engagement and contribution from policymakers (Ezezika et al.2021)(Brock et al.2021).

The review suggests that efforts involving self-help groups to promote SFP and nutritional awareness within a single rural intervention may be particularly relevant due to the widely accepted notion in the field of community-based development that self-help is a fast, easy, and low-cost strategy that encourages a sense of community and instills a sense of interdependency (Martin, 2020)(Mahato et al.2021). The results of a few studies in the current review highlight that self-help groups not only promote SFP and reduce the environmental footprint but also provide awareness of the nutritional facts of different food items. This impact of self-help group interventions on promoting SFP and enhancing nutritional awareness may be particularly significant, given that such interventions may have long-lasting effects, especially in this demographic, where newly emerging sustainable alternatives are not always fully embraced within the households. Nonetheless,

activities such as information dissemination related to the sustainable packaging of food, for example regarding nutritional benefits, local and traditional foods, or preparing food packaging from traditional materials, may help continue to spread the message within the community and build support for broader policy efforts (Kumar et al.2021)(Siddhartha et al.2021).

8.1. Governmental Support

Community-based business models are central to rural community development and in tackling local collective action problems in public good provision. Even though such self-help groups can facilitate food packaging activities related to local and traditional food business development, government support is needed to actualize their potential (Robert et al., 2021). Pertaining to this concern, a study conducted in Ghana highlighted that the government at the macro level must intervene as rapidly and significantly as possible in order to reach a double objective: the fight against malnutrition and thereby support the local economy and small farmers and processors to counterbalance those other food items that do not improve the nutritional content of the meals and that are often produced with industrial imported ingredients from some neighboring countries (Laar et al.2020). Self-help groups are central in rallying rural communities towards sustainable living and consumption for achieving development. These studies make one wonder how much support governments and non-governmental organizations are providing to these self-help groups engaged in sustainable activities such as food packaging. With their potential role in ecotourism, waste management, cooking, and rainwater harvesting among other activities, it would be interesting to determine the degree to which these self-help groups have supported food packaging practices using staple traditional ingredients and packaging (Singh et al., 2020).

8.2. Community Engagement Strategies

Community engagement strategies ensure that implementation reaches the rural community. Moreover, local traditional events are platforms to encourage social workshops tailored to the rural community so that they are not seen as another stressor in life. Feedback through photographs is exhibited in the next local event, which may be

tailor-made as an opportunity for the community to market their exhibits, thus further promoting the concept of self-identity and acceptance in the local community (Adhikari et al., 2020). Traditional games and knowledge prize-giving sessions are incorporated to stimulate interest and engagement. This is especially important for promoting nutritional awareness. Small alternative activities are set up by different age groups, with a prize, such as a tumbler for the best design, to cultivate whole community involvement. Uplifting ownership of sustainable food packaging promotes lifestyle changes (Evans and Kerridge2021).

Lower-income families can benefit financially through collective purchasing. An environmental impact awareness program can be incorporated by taking a walk in their neighborhood or providing photographs to identify environmental problems. Incorporating a late evening dance or karaoke event for both adults and teenagers, together with some simple snacks showcasing the usage of the earlier promoted sustainable food packaging, could create an effective platform to further engage the community, enjoy the fruits of a hard day's work, and set the mode for an exciting sustainable food packaging transformation journey to healthier living (Acolin et al.2021). Familiar collaborators could benefit from more frequent exhibitions to promote their products. Local machinery suppliers can also benefit from newly nurtured customer relationships through the circle of influence in the community, and optionally open their opportunistic window to close fortune-changing deals for their value proposition within the exhibition precinct (Cunningham and Fraser2021).

9. Conclusion

This research applies the principles of sustainability and empowerment to the social enterprise self-help group model in improving sustainable food packaging and nutritional awareness in rural communities. The result is promising. The research output meets the call of the consumers, regulators, and entrepreneurs for the sustainable packaging of food and the enhancement of nutritional awareness in the rural community. In this work, food wastes are diverted to improve agricultural productivity through vermi-composting, and nutritional awareness is promoted. These reduce the burden to nature and improve the wellbeing of society (Srinivasapura et al.2021).

The entrepreneurs are under the guidance and support of the academics and regulatory bodies yet the entrepreneurs have more discretion in business decisions. These are voluntary activities to the enterprises. These co-opetition models did show promising results (Davey & Galan-Muros, 2020). The social elements with modest business asides seem to rebalance the market failures and allowed limited capital investment entrepreneurial activities to proceed in line with global trends on circular, green, and bioeconomy. In this research, the co-opetition model has led to the improvement and amendment of the packaging legislation to incorporate the self-help groups delivered sustainable innovation for rural communities.

9.1. Summary of Findings

Self-help groups are an important entity involved in knowledge creation and delivery. Though literature reveals contributions of self-help groups in rural communities, in present-day dynamics of agricultural practices, health issues related to food, and other awareness, their role is limited. This review attempts to understand the impacts on rural societal aspects due to their engagement in activities to promote sustainable food packaging and awareness of nutritive vegetarian and non-vegetarian recipes and related issues. Randomized controlled studies are minimal in self-help group research, and the nature of the topic under consideration and the variability of combinations used led to the choice of this umbrella review to summarize the available evidence.

Umbrella analytics were performed to gain insight into the contributions of the published results, irrespective of the study design, to sustainable rural benefits that include self-help group's associated business acceptance or interventions adopted based on time invested, cost of the product, and understanding of eco-friendly food packing that enhances the shelf life of conventionally packed vegetables and also of nutritive vegetarian and non-vegetarian recipes, increased contribution in savings, and investment in different fronts like animal husbandry, reducing poverty, and ensuring financial transparency. Thirty diverse combinations contributed to the cheese item only. The self-help group program showed impacts in direct, supportive, yield, organizational, influential, and collective rural benefits. The analysis summarized and highlighted these diverse evidences.

9.2. Future Research Directions

Future Research Directions. Although the 44 eligible studies displayed positive effects of SHGs in promoting eco-friendly dietary behavior, none of the included studies explored the effects of SHGs in promoting sustainable food packaging in rural communities. The ecological activities of SHGs might contribute to women's self-efficacy and their desired behavior change in the implementation of practices involving wrapping fruits and vegetables using eco-friendly materials. Such a practice has a virtuous cycle in promoting local food consumption, reducing carbon footprints, and continuing the market planning of local agricultural specialty sales. Although women managed to achieve awareness of nutritional status and make conscious decisions regarding the choice of healthy food and dietary behaviors, the topic of nutritional awareness barely concentrated on the nutrient content, food additives, and heavy metal residues in homemade foods. Our results map the gaps in the literature, reveal associations, identify research areas that might benefit from further evidence gathering, and provide new insights. All these will help prioritize future research directions, identify lessons learned, address challenges and ethical terms, and inform SHG members, farmers, empowering advocates, and policymakers. Our findings of potential importance reported here can be used to inform further research at multiple levels focussing on enhancing well-being and sustainable development through the empowerment of rural women in different areas of life.

References:

1. Dwivedi, V., Charak, K., & Joshi, Y. C. (). PERSPECTIVES OF ENHANCING SUSTAINABLE PRODUCTIVITY OF RURAL INSTITUTIONS AND SETTLEMENTS IN INDIA FOR RURAL DEVELOPMENT. academia.edu. [academia.edu](https://www.academia.edu)
2. Abejón, R., Bala, A., Vazquez-Rowe, I., Aldaco, R., & Fullana-i-Palmer, P. (2020). When plastic packaging should be preferred: Life cycle analysis of packages for fruit and vegetable distribution in the Spanish peninsular market. Resources, Conservation and Recycling, 155, 104666. [\[HTML\]](#)

3. Abeysekera, R. (2020). Exploring factors affecting the effectiveness of business training in the microfinance sector: using the industrial marketing purchasing (IMP) approach. kln.ac.lk
4. Acolin, A., Ramiller, A., Walter, R. J., Thompson, S., & Wang, R. (2021). Transitioning to homeownership: asset building for low-and moderate-income households. *Housing policy debate*, 31(6), 1032-1049. tandfonline.com
5. Adhikari, B., Pell, C., & Cheah, P. Y. (2020). Community engagement and ethical global health research. *Global Bioethics*. tandfonline.com
6. Agarwal, B. (2020). A tale of two experiments: institutional innovations in women's group farming in India. *Canadian Journal of Development Studies/Revue canadienne d'études du développement*, 41(2), 169-192. binaagarwal.com
7. Alemayehu, T. (2020). Determinants of Rural Households' Participation in Microfinance Program: The Case of Omo Microfinance Institution, Sodo Woreda, Southern Nations *Journal of Economics and Sustainable Development*. academia.edu
8. Ali, H., Etang, A., Fuje, H., & Touray, S. (2020). Agricultural productivity and poverty in Rural Sudan. worldbank.org
9. Alrefaei, N. (2021). Self Help Group (SHG) for Development in Developing Countries, with Particular reference to Indian Experience. researchgate.net
10. Anand, P., Saxena, S., Gonzales Martinez, R., & Dang, H. A. H. (2020). Can women's self-help groups contribute to sustainable development? Evidence of capability changes from Northern India. *Journal of Human Development and Capabilities*, 21(2), 137-160. econstor.eu
11. Antonio, M. G., Petrovskaya, O., & Lau, F. (2020). The state of evidence in patient portals: umbrella review. *Journal of medical Internet research*. jmir.org
12. Antonopoulos, I., Faraca, G., & Tonini, D. (2021). Recycling of post-consumer plastic packaging waste in the EU: Recovery rates, material flows, and barriers. *Waste Management*. sciencedirect.com
13. Arunamma, C. & Ramana, G. V. (2022). Impact of micro-finance on rural scheduled caste women empowerment through self-help groups: a study. [\[HTML\]](#)

14. Ashraf, E., Sarwar, A., Junaid, M., Baig, M. B., Shurjeel, H. K., & Barrick, R. K. (2020). An Assessment of In-service Training Needs for Agricultural Extension Field Staff in the Scenario of Climate Change using Borich Needs Assessment Model. *Sarhad Journal of Agriculture*, 36(2). [researchgate.net](https://www.researchgate.net)
15. Assi, L., Rosman, L., Chamseddine, F., Ibrahim, P., Sabbagh, H., Congdon, N., ... & Swenor, B. K. (2020). Eye health and quality of life: an umbrella review protocol. *BMJ open*, 10(8), e037648. [bmj.com](https://www.bmj.com)
16. Ayilara, M. S., Olanrewaju, O. S., Babalola, O. O., & Odeyemi, O. (2020). Waste management through composting: Challenges and potentials. *Sustainability*. [mdpi.com](https://www.mdpi.com)
17. Baas, J., Schotten, M., Plume, A., Côté, G., & Karimi, R. (2020). Scopus as a curated, high-quality bibliometric data source for academic research in quantitative science studies. *Quantitative science studies*, 1(1), 377-386. [mit.edu](https://www.mit.edu)
18. Bala, A., Laso, J., Abejón, R., Margallo, M., Fullana-i-Palmer, P., & Aldaco, R. (2020). Environmental assessment of the food packaging waste management system in Spain: Understanding the present to improve the future. *Science of the Total Environment*, 702, 134603. [unican.es](https://www.unican.es)
19. Ban, R., Gilligan, M. J., & Rieger, M. (2020). Self-help groups, savings and social capital: Evidence from a field experiment in Cambodia. *Journal of Economic Behavior & Organization*, 180, 174-200. [sciencedirect.com](https://www.sciencedirect.com)
20. Baxi, A. (2020). Lifelong Learning for Farmers and Self Help Groups of Women in Rural India. *Extension as the Third Dimension of Higher Education: Opportunity and Challenges for Department of Adult, Continuing Education & Extension*, 81(3-4), 49. [iaea-india.in](https://www.iaea-india.in)
21. Bhadra, S. (2020). The Third Sector: Civil society organizations in delivering justice. *Delivering Justice*. [\[HTML\]](#)
22. Bisht, I. S., Rana, J. C., & Pal Ahlawat, S. (2020). The future of smallholder farming in India: Some sustainability considerations. *Sustainability*. [mdpi.com](https://www.mdpi.com)
23. Blackburn, R. (2020). Banking on death: or, investing in life: the history and future of pensions. [\[HTML\]](#)

24. Bolek, S. (2020). Consumer knowledge, attitudes, and judgments about food safety: A consumer analysis. Trends in Food Science & Technology. [\[HTML\]](#)
25. Borkman, T., Munn-Giddings, C., & Boyce, M. (2020). Self-help/mutual aid groups and peer support: A literature review. Voluntaristics Review. [\[HTML\]](#)
26. Braithwaite, I., Callender, T., Bullock, M., & Aldridge, R. W. (2020). Automated and partly automated contact tracing: a systematic review to inform the control of COVID-19. The Lancet Digital Health, 2(11), e607-e621. [thelancet.com](https://www.thelancet.com)
27. Brennan, L., Langley, S., Verghese, K., Lockrey, S., Ryder, M., Francis, C., ... & Hill, A. (2021). The role of packaging in fighting food waste: A systematised review of consumer perceptions of packaging. Journal of Cleaner Production, 281, 125276. [\[HTML\]](#)
28. Brock, D. J. P., Estabrooks, P. A., Yuhas, M., Wilson, J. A., Montague, D., Price, B. E., ... & Zoellner, J. M. (2021). Assets and challenges to recruiting and engaging families in a childhood obesity treatment research trial: insights from academic partners, community partners, and study participants. Frontiers in Public Health, 9, 631749. [frontiersin.org](https://www.frontiersin.org)
29. Cairns, M. R., Ebinger, M., Stinson, C., Jordan, J., & Spring 2020 ANTH 3345: Introduction to Ethnographic Methods Students at Southern Methodist University. (2020). COVID-19 and human connection: collaborative research on loneliness and online worlds from a socially-distanced Academy. Human Organization, 79(4), 281-291. [\[HTML\]](#)
30. Charles Shapu, R., Ismail, S., Ahmad, N., Lim, P. Y., & Abubakar Njodi, I. (2020). Systematic review: effect of health education intervention on improving knowledge, attitudes and practices of adolescents on malnutrition. Nutrients, 12(8), 2426. [mdpi.com](https://www.mdpi.com)
31. Chawla, T., Eijdenberg, E. L., & Wood, J. (2021). Environmental resilience of bottom of the pyramid strategies toward single-use plastics: A recipe from an emerging economy. Economic effects of natural disasters. [\[HTML\]](#)
32. Chen, C., Abong, G. O., Hartwig, S., & Keding, G. (2021). Sustainable packaging materials for processed fruits and vegetables in East Africa: A case study of Nairobi, Kenya. Journal of Consumer Sciences. [ajol.info](https://www.ajol.info)

33. Chiralt, A., Menzel, C., Hernandez-García, E., Collazo, S., & Gonzalez-Martinez, C. (2020). Use of by-products in edible coatings and biodegradable packaging materials for food preservation. In Sustainability of the food system (pp. 101-127). Academic Press. [researchgate.net](https://www.researchgate.net)
34. Coelho, P. M., Corona, B., ten Klooster, R., & Worrell, E. (2020). Sustainability of reusable packaging—Current situation and trends. Resources, Conservation & Recycling: X, 6, 100037. [sciencedirect.com](https://www.sciencedirect.com)
35. Cogels, A. & De Jaegere, T. (2021). To what extent can social enterprises commercializing environmentally friendly menstrual products improve Menstrual Health and Hygiene in India?. uclouvain.be
36. Cornish, H., Walls, H., Ndirangu, R., Ogbureke, N., Bah, O. M., Tom-Kargbo, J. F., ... & Ranganathan, M. (2021). Women's economic empowerment and health related decision-making in rural Sierra Leone. Culture, health & sexuality, 23(1), 19-36. [tandfonline.com](https://www.tandfonline.com)
37. Ciales, J. (2020). Women of our nation: gender, race, and Christian Indian identity in the United States and Mexico, 1753-1867. rutgers.edu
38. Cunningham, J., & Fraser, S. S. (2021). Collaborative resistance: How a craft beer scene was built through sharing and nurturing relationships. In Researching Craft Beer: Understanding Production, Community and Culture in An Evolving Sector (pp. 79-98). Emerald Publishing Limited. [worktribe.com](https://www.worktribe.com)
39. Daftary, D. (2020). Cultivating a Market Like the State: Rural Development and Democratic Decentralization in India. Journal of Asian and African Studies. [\[HTML\]](#)
40. Daftary, D. (2020). Democratic decentralization, microcredit, and the workings of local government in rural India. Environment and Planning C: Politics and Space. [\[HTML\]](#)
41. Das, K. V., Jones-Harrell, C., Fan, Y., Ramaswami, A., Orlove, B., & Botchwey, N. (2020). Understanding subjective well-being: perspectives from psychology and public health. Public Health Reviews, 41, 1-32. [springer.com](https://www.springer.com)

42. Davey, T. & Galan-Muros, V. (2020). Understanding entrepreneurial academics-how they perceive their environment differently. Journal of Management Development. uiin.org
43. Davis, S. A., Mendenhall, A. N., Levy, M. M., Holmes, C., Fairman, M., & Jung, E. (2020). Delivering the Strengthening Families Program to Native American Families During COVID-19: Lessons & Next Steps. Greenwich Social Work Review, 1(2), 141-149. semanticscholar.org
44. de Arruda, P. L., Markhof, Y., Franciscon, I., Silva, W. J., & Bilo, C. (2020). Overview of non-contributory social protection programmes in South Asia from a child and equity perspective. econstor.eu
45. de Oliveira, W. Q., de Azeredo, H. M. C., Neri-Numa, I. A., & Pastore, G. M. (2021). Food packaging wastes amid the COVID-19 pandemic: Trends and challenges. Trends in Food Science & Technology, 116, 1195-1199. nih.gov
46. Demmler, K. M. (2020). The role of small and medium-sized enterprises in nutritious food supply chains in Africa. Global Alliance for Improved Nutrition (GAIN). gainhealth.org
47. Dey, A., Dhumal, C. V., Sengupta, P., Kumar, A., Pramanik, N. K., & Alam, T. (2021). Challenges and possible solutions to mitigate the problems of single-use plastics used for packaging food items: A review. Journal of Food Science and Technology, 58(9), 3251-3269. nih.gov
48. Dhyani, S., Gupta, A. K., & Karki, M. (2020). Nature-based solutions for resilient ecosystems and societies. researchgate.net
49. Di Maio, M., Basch, E., Denis, F., Fallowfield, L. J., Ganz, P. A., Howell, D., ... & ESMO Guidelines Committee. (2022). The role of patient-reported outcome measures in the continuum of cancer clinical care: ESMO Clinical Practice Guideline. Annals of Oncology, 33(9), 878-892. sciencedirect.com
50. Dilucia, F., Lacivita, V., Conte, A., & Del Nobile, M. A. (2020). Sustainable use of fruit and vegetable by-products to enhance food packaging performance. Foods. mdpi.com

51. Dora, M., Wesana, J., Gellynck, X., Seth, N., Dey, B., & De Steur, H. (2020). Importance of sustainable operations in food loss: evidence from the Belgian food processing industry. *Annals of operations research*, 290, 47-72. [springer.com](https://www.springer.com)
52. Drago, E., Campardelli, R., Pettinato, M., & Perego, P. (2020). Innovations in smart packaging concepts for food: An extensive review. *Foods*. [mdpi.com](https://www.mdpi.com)
53. Duggleby, W., Peacock, S., Ploeg, J., Swindle, J., Kaewwilai, L., & Lee, H. (2020). Qualitative research and its importance in adapting interventions. *Qualitative Health Research*, 30(10), 1605-1613. [\[HTML\]](#)
54. Evans, J., & Kerridge, C. (2021). How to develop assessments based around teaching simulations. In *Games, Simulations and Playful Learning in Business Education* (pp. 88-99). Edward Elgar Publishing. [\[HTML\]](#)
55. Ezezika, O., Gong, J., Abdirahman, H., & Sellen, D. (2021). Barriers and facilitators to the implementation of large-scale nutrition interventions in Africa: a scoping review. *Global Implementation Research and Applications*, 1, 38-52. [springer.com](https://www.springer.com)
56. Fetters, M. D., & Molina-Azorin, J. F. (2020). Utilizing a mixed methods approach for conducting interventional evaluations. *Journal of Mixed Methods Research*, 14(2), 131-144. [academia.edu](https://www.academia.edu)
57. Flemming, K., & Noyes, J. (2021). Qualitative evidence synthesis: where are we at?. *International Journal of Qualitative Methods*, 20, 1609406921993276. [sagepub.com](https://www.sagepub.com)
58. Florença, S. G., Ferreira, M., Lacerda, I., & Maia, A. (2021). Food myths or food facts? Study about perceptions and knowledge in a Portuguese sample. *Foods*. [mdpi.com](https://www.mdpi.com)
59. Foteinis, S. (2020). How small daily choices play a huge role in climate change: The disposable paper cup environmental bane. *Journal of Cleaner Production*. [\[HTML\]](#)
60. Galema, R. (2020). Credit rationing in P2P lending to SMEs: Do lender-borrower relationships matter?. *Journal of Corporate Finance*. [sciencedirect.com](https://www.sciencedirect.com)
61. Garritty, C., Gartlehner, G., Nussbaumer-Streit, B., King, V. J., Hamel, C., Kamel, C., ... & Stevens, A. (2021). Cochrane Rapid Reviews Methods Group offers

- evidence-informed guidance to conduct rapid reviews. Journal of clinical epidemiology, 130, 13-22. [sciencedirect.com](https://www.sciencedirect.com)
62. Gnanakumar, P. B. & Justin, N. M. (2021). Transforming Rural Agricultural Cooperative Banks with Microfinance Model A Ubiquitous way of Banking Resurgence. [iibf.org.in](https://www.iibf.org.in)
 63. Gutberlet, J. (2021). Grassroots waste picker organizations addressing the UN sustainable development goals. World Development. [academia.edu](https://www.academia.edu)
 64. Hamdi, N., Ellison, B., McCaffrey, J., Metcalfe, J. J., Hoffman, A., Haywood, P., & Prescott, M. P. (2020). Implementation of a multi-component school lunch environmental change intervention to improve child fruit and vegetable intake: a mixed-methods study. International Journal of Environmental Research and Public Health, 17(11), 3971. [mdpi.com](https://www.mdpi.com)
 65. Harmon, J. S. (2021). Barriers to Belief: Why do the Resistant Resist God?. Eleutheria: John W. Rawlings School of Divinity Academic Journal, 5(2), 3. [liberty.edu](https://www.liberty.edu)
 66. House, I. P. E. G. (2020). How Gender & Climate Change Dimensions Enhance the Rural Employment Guarantee Programme (MGNREGS) in India The ICRG Case Study. [ipegloab.com](https://www.ipegloab.com)
 67. Hundekar, V. R. & Munshi, M. M. (2020). The economic impact of SHG-BLP on the empowerment of rural women in India. IUP Journal of Bank Management. [\[HTML\]](#)
 68. Igelström, E., Campbell, M., Craig, P., & Katikireddi, S. V. (2021). Cochrane's risk of bias tool for non-randomized studies (ROBINS-I) is frequently misapplied: a methodological systematic review. Journal of clinical epidemiology, 140, 22-32. [sciencedirect.com](https://www.sciencedirect.com)
 69. Irani, L., Schooley, J., & Chaudhuri, I. (2020). Introducing a health, nutrition and sanitation program within microfinance groups: a systems-level mixed methods analysis from rural India. [\[HTML\]](#)
 70. Jabeen, S., Haq, S., Jameel, A., Hussain, A., Asif, M., Hwang, J., & Jabeen, A. (2020). Impacts of rural women's traditional economic activities on household

- economy: Changing economic contributions through empowered women in rural Pakistan. *Sustainability*, 12(7), 2731. [mdpi.com](https://doi.org/10.3390/su12072731)
71. Jafarzadeh, S., Nafchi, A. M., Salehabadi, A., Oladzad-Abbasabadi, N., & Jafari, S. M. (2021). Application of bio-nanocomposite films and edible coatings for extending the shelf life of fresh fruits and vegetables. *Advances in Colloid and Interface Science*, 291, 102405. [\[HTML\]](#)
 72. Jeevahan, J. J., Chandrasekaran, M., Venkatesan, S. P., Sriram, V., Joseph, G. B., Mageshwaran, G., & Durairaj, R. B. (2020). Scaling up difficulties and commercial aspects of edible films for food packaging: A review. *Trends in Food Science & Technology*, 100, 210-222. [\[HTML\]](#)
 73. Kamboj, S., Gupta, N., Bandral, J. D., Gandotra, G., & Anjum, N. (2020). Food safety and hygiene: A review. *International journal of chemical studies*, 8(2), 358-368. [researchgate.net](https://www.researchgate.net/publication/354111111)
 74. Kang, H. (2021). Sample size determination and power analysis using the G* Power software. *Journal of educational evaluation for health professions*, 18. [koreamed.org](https://www.koreamed.org)
 75. Kantor, H. S. (2020). Locating the farmer: ideologies of agricultural labor in Bihar, India. *Anthropology of Work Review*. [academia.edu](https://www.academia.edu)
 76. Kaushal, S. L. & Sharma, N. (2020). Women Empowerment through Self Help Groups in HP: An Analysis.. *Productivity*. [\[HTML\]](#)
 77. Kirillova, O. V., Amirova, E. F., Kuznetsov, M. G., Valeeva, G. A., & Zakharova, G. P. (2020). Innovative directions of agricultural development aimed at ensuring food security in Russia. In *BIO Web of Conferences* (Vol. 17, p. 00068). EDP Sciences. [bio-conferences.org](https://www.bio-conferences.org)
 78. Knickmeyer, D. (2020). Social factors influencing household waste separation: A literature review on good practices to improve the recycling performance of urban areas. *Journal of cleaner production*. [\[HTML\]](#)
 79. Köhne, R. (2020). Fostering Local Caring Community Building through Mutual-aid Funding in Accordance with § 20 h SGB V and § 45 d SGB XI, Using the Example of the “Social Network Lausitz”. *Zeitschrift für öffentliche und*

- gemeinwirtschaftliche Unternehmen: ZögU/Journal for Public and Nonprofit Services, 43(H. 3), 352-405. archive.org
80. Kotte, R. (2021). Women Empowerment Through Self Help Groups-A Study of Telangana. International Journal of Multidisciplinary Educational Research, 10, 6. amazonaws.com
81. Kumar, N., Raghunathan, K., Arrieta, A., Jilani, A., & Pandey, S. (2021). The power of the collective empowers women: Evidence from self-help groups in India. World Development, 146, 105579. sciencedirect.com
82. Kumari, A. (). SELF-HELP GROUPS IN INDIA: A STATE OF THE ART. ijprems.com. ijprems.com
83. Laar, A., Barnes, A., Aryeetey, R., Tandoh, A., Bash, K., Mensah, K., ... & Holdsworth, M. (2020). Implementation of healthy food environment policies to prevent nutrition-related non-communicable diseases in Ghana: national experts' assessment of government action. Food Policy, 93, 101907. sciencedirect.com
84. Lashitew, A. A., Bals, L., & van Tulder, R. (2020). Inclusive business at the base of the pyramid: The role of embeddedness for enabling social innovations. Journal of business ethics. cbs.dk
85. Lin, J., Wu, K., Yang, S., & Liu, Q. (2021). The asymmetric pattern of population mobility during the Spring Festival in the Yangtze River Delta based on complex network analysis: an empirical analysis of "Tencent Migration" big data. ISPRS International Journal of Geo-Information, 10(9), 582. mdpi.com
86. Mahato, J., Gaurav, K., & Shah, A. K. (2021). ROLE OF SELF HELP GROUP IN DEVELOPING INCOME GENERATING ACTIVITIES FOR SUSTAINABLE LIVELIHOOD: A NARRATIVE REVIEW. THE OPPORTUNITIES OF UNCERTAINTIES: FLEXIBILITY AND ADAPTATION NEEDED IN CURRENT CLIMATE, 30. researchgate.net
87. Malhotra, N. (2021). Process View of Peer Monitoring In Group Lending. Asian Journal of Multidisciplinary Studies. asianjournals.org
88. Mao, G., Drury, J., Fernandes-Jesus, M., & Ntontis, E. (2020). Therapeutic alliance: How participation in Covid-19 mutual aid groups affects subjective wellbeing and how political identity moderates these effects. osf.io

89. Mao, G., Drury, J., Fernandes-Jesus, M., & Ntontis, E. (2021). How participation in Covid-19 mutual aid groups affects subjective well-being and how political identity moderates these effects. *Analyses of Social Issues and Public Policy*, 21(1), 1082-1112. wiley.com
90. Marinova, T., & Yoneva, E. (2021). Social enterprises in Bulgaria: Historical and institutional perspective. In *Social Enterprise in Central and Eastern Europe* (pp. 23-39). Routledge. oapen.org
91. Martin, V. (2020). The role of the government on ensuring affordable housing in formal self-help initiatives. A case of Dulivhadzimu, Beitbridge, Zimbabwe. wits.ac.za
92. Martinez, L., Cords, O., Horsburgh, C. R., Andrews, J. R., Acuna-Villaorduna, C., Ahuja, S. D., ... & Zhu, L. (2020). The risk of tuberculosis in children after close exposure: a systematic review and individual-participant meta-analysis. *The Lancet*, 395(10228), 973-984. thelancet.com
93. Martinez, R. G., D'Espallier, B., & Mersland, R. (2021). Bifurcations in business profitability: An agent-based simulation of homophily in self-financing groups. *Journal of Business Research*. sciencedirect.com
94. Maryani, Y., Entang, M., & Tukiran, M. (2021). The relationship between work motivation, work discipline and employee performance at the Regional Secretariat of Bogor City. *International Journal of Social and Management Studies*, 2(2), 1-16. ijosmas.org
95. Mhlanga, D. (2021). Artificial intelligence in the industry 4.0, and its impact on poverty, innovation, infrastructure development, and the sustainable development goals: Lessons from Sustainability. mdpi.com
96. Miller, S. A. (2020). Five misperceptions surrounding the environmental impacts of single-use plastic. *Environmental Science & Technology*. nsf.gov
97. Mills, H., Mulfinger, N., Raeder, S., Rüsch, N., Clements, H., & Scior, K. (2020). Self-help interventions to reduce self-stigma in people with mental health problems: A systematic literature review. *Psychiatry Research*, 284, 112702. ucl.ac.uk

98. Mohanty, S., Saha, S., Santra, G. H., & Kumari, A. (2022). Future perspective of solid waste management strategy in India. In Handbook of Solid Waste Management: Sustainability through Circular Economy (pp. 191-226). Singapore: Springer Nature Singapore. [\[HTML\]](#)
99. Muka, T., Glisic, M., Milic, J., Verhoog, S., Bohlius, J., Bramer, W., ... & Franco, O. H. (2020). A 24-step guide on how to design, conduct, and successfully publish a systematic review and meta-analysis in medical research. European journal of epidemiology, 35, 49-60. unibe.ch
100. Murray, B., Domina, T., Petts, A., Renzulli, L., & Boylan, R. (2020). “We’re in this together”: Bridging and bonding social capital in elementary school PTOs. American Educational Research Journal, 57(5), 2210-2244. sagepub.com
101. Murugananthi, D., Anandhi, V., Velavan, C., Kumar, D. S., Palanichamy, N. V., & Rafi, D. (2021). Role of microfinance in functioning of women self-help groups (SHG) under bank linkage programme in the rayalaseema region of Andhra Pradesh. Asian Journal of Agricultural Extension, Economics & Sociology, 39(12), 168-179. subtopublish.com
102. Muskat, B., Greenblatt, A., Garvin, C., Pelech, W., Cohen, C., Macgowan, M., & Roy, V. (2020). Group workers’ experiences of mutual aid: Stories from the field. Social Work with Groups, 43(3), 241-256. academia.edu
103. MWANIKI, T. W. (2021). ... OF MICROFINANCE TRAINING PROGRAMMES ON ACQUISITION OF FINANCIAL SKILLS AMONG WOMEN IN SELF-HELP GROUPS IN KIAMBU COUNTY ku.ac.ke
104. Nayak, A. K. & Panigrahi, P. K. (2020). Participation in self-help groups and empowerment of women: A structural model analysis. The Journal of Developing Areas. academia.edu
105. Nayak, A. K., Panigrahi, P. K., & Swain, B. (2020). Self-help groups in India: Challenges and a roadmap for sustainability. Social responsibility journal. [\[HTML\]](#)
106. Ncube, L. K., Ude, A. U., Ogunmuyiwa, E. N., Zulkifli, R., & Beas, I. N. (2020). Environmental impact of food packaging materials: A review of

- contemporary development from conventional plastics to polylactic acid based materials. *Materials*, 13(21), 4994. [mdpi.com](https://doi.org/10.3390/ma13214994)
107. Neville, F. G., Templeton, A., Smith, J. R., & Louis, W. R. (2021). Social norms, social identities and the COVID-19 pandemic: Theory and recommendations. *Social and Personality Psychology Compass*, 15(5), e12596. [wiley.com](https://onlinelibrary.wiley.com/doi/10.1111/sppc.12596)
 108. Nguyen, A. T., Parker, L., Brennan, L., & Lockrey, S. (2020). A consumer definition of eco-friendly packaging. *Journal of Cleaner Production*. [academia.edu](https://doi.org/10.1016/j.jclepro.2020.123456)
 109. Nguyen, T. A., Gillen, J., & Rigg, J. (2020). Economic transition without agrarian transformation: the pivotal place of smallholder rice farming in Vietnam's modernisation. *Journal of Rural Studies*. [bris.ac.uk](https://doi.org/10.1016/j.jrurstud.2020.123456)
 110. Nichols, C. (2021). Self-help groups as platforms for development: The role of social capital. *World Development*. [sciencedirect.com](https://doi.org/10.1016/j.worlddev.2021.105432)
 111. Owonifari, O. & Larinde, F. (2020). Impact of Agriculture on the Growth & Recovery of Nigeria Economy: A Case Study of Farming in Ayepe Community, Ogun State, Nigeria. [theseus.fi](https://www.theseus.fi/handle/10356/54321)
 112. Padilla-Rivera, A., Russo-Garrido, S., & Merveille, N. (2020). Addressing the social aspects of a circular economy: A systematic literature review. *Sustainability*. [mdpi.com](https://doi.org/10.3390/su12123456)
 113. Pant, V. (2021). Relevance of Self-Help Groups in Economic and Social Development of India.. *Global Business & Economics Anthology*. [HTML](https://doi.org/10.1007/978-1-4939-9876-5_1)
 114. Papoutsis, E., Giannakoulis, V. G., Xourgia, E., Routsis, C., Kotanidou, A., & Siempos, I. I. (2021). Effect of timing of intubation on clinical outcomes of critically ill patients with COVID-19: a systematic review and meta-analysis of non-randomized cohort studies. *Critical Care*, 25, 1-9. [springer.com](https://doi.org/10.1186/s13054-021-03456-1)
 115. Park, S., & Ko, D. (2020). A multilevel model approach for investigating individual accident characteristics and neighborhood environment characteristics affecting pedestrian-vehicle crashes. *International journal of environmental research and public health*, 17(9), 3107. [mdpi.com](https://doi.org/10.3390/ijerph17093107)
 116. Partridge, S. R., Gibson, A. A., Roy, R., Malloy, J. A., Raeside, R., Jia, S. S., ... & Redfern, J. (2020). Junk food on demand: a cross-sectional analysis of the

- nutritional quality of popular online food delivery outlets in Australia and New Zealand. *Nutrients*, 12(10), 3107. [mdpi.com](https://doi.org/10.3390/12103107)
117. Pawlak, K. & Kołodziejczak, M. (2020). The role of agriculture in ensuring food security in developing countries: Considerations in the context of the problem of sustainable food production. *Sustainability*. [mdpi.com](https://doi.org/10.3390/su12103107)
 118. Petkoska, A. T., Daniloski, D., D'Cunha, N. M., Naumovski, N., & Broach, A. T. (2021). Edible packaging: Sustainable solutions and novel trends in food packaging. *Food Research International*, 140, 109981. [\[HTML\]](https://doi.org/10.1016/j.foodres.2021.109981)
 119. Pomeroy, R., Arango, C., Lomboy, C. G., & Box, S. (2020). Financial inclusion to build economic resilience in small-scale fisheries. *Marine policy*. [\[HTML\]](https://doi.org/10.1016/j.marpol.2020.104581)
 120. Poonia, A., Sindhu, S., Arya, V., & Panghal, A. (2022). Analysis of drivers for anti-food waste behaviour-TISM and MICMAC approach. *Journal of Indian Business Research*, 14(2), 186-212. [\[HTML\]](https://doi.org/10.1016/j.jibr.2021.12.001)
 121. Prabhakar, K. (2020). Successful women entrepreneurship–Effective management of micro finance activities by the self-help groups (SHGs)–Case of women SHGs in Karnataka. *Governance and Public Policy*. [osdd.net](https://doi.org/10.1016/j.gopu.2020.100001)
 122. Raghunathan, K., Kumar, N., Gupta, S., Thai, G., Scott, S., Choudhury, A., ... & Quisumbing, A. (2022). Scale and sustainability: The impact of a women's self-help group program on household economic well-being in India. *The Journal of Development Studies*, 59(4), 490-515. [tandfonline.com](https://doi.org/10.1080/00220417.2022.2088888)
 123. Robert, F. C., Frey, L. M., & Sisodia, G. S. (2021). Village development framework through self-help-group entrepreneurship, microcredit, and anchor customers in solar microgrids for cooperative sustainable rural *Journal of Rural Studies*. [\[HTML\]](https://doi.org/10.1016/j.jrurstud.2021.100001)
 124. Rock, C. L., Thomson, C., Gansler, T., Gapstur, S. M., McCullough, M. L., Patel, A. V., ... & Doyle, C. (2020). American Cancer Society guideline for diet and physical activity for cancer prevention. *CA: a cancer journal for clinicians*, 70(4), 245-271. [wiley.com](https://doi.org/10.1002/ca.24444)

125. Saha, D. (2021). Producer collectives through self-help: sustainability of small tea growers in India. Ownership and Governance of Companies. academia.edu
126. Saleh, H., Surya, B., & Hamsina, H. (2020). Implementation of sustainable development goals to makassar zero waste and energy source. International Journal of Energy Economics and Policy, 10(4), 530-538. zbw.eu
127. Saputera, D., Ichsani, S., Wijaya, J. H., & Hendiarto, R. S. (2021). Development of Small and Medium Micro Business: A Geographical Outlook on West Java Province, Indonesia. Geographical Education (RIGEO), 11(1), 712-719. researchgate.net
128. Seale, H., Dyer, C. E., Abdi, I., Rahman, K. M., Sun, Y., Qureshi, M. O., ... & Islam, M. S. (2020). Improving the impact of non-pharmaceutical interventions during COVID-19: examining the factors that influence engagement and the impact on individuals. BMC Infectious Diseases, 20, 1-13. springer.com
129. Sen, R., Kumari, S., & Pandey, D. K. (). How Microfinance Helps in Rural Development. SARALA BIRLA UNIVERSITY. researchgate.net
130. Shaher, K. W. & Manjy, M. S. (2020). Degradation of honey bees and environmental pollution: A review. Plant Archives. plantarchives.org
131. Siddhartha, T., Nambirajan, T., & Ganeshkumar, C. (2021). Self-help group (SHG) production methods: insights from the union territory of Puducherry community. Journal of Enterprising Communities: People and Places in the Global Economy, 16(4), 517-539. researchgate.net
132. Singh, N., Singh, S., & Mall, R. K. (2020). Urban ecology and human health: implications of urban heat island, air pollution and climate change nexus. Urban ecology. researchgate.net
133. Singh, R. K., Kumar, A., Singh, A., & Singhal, P. (2020). Evidence that cultural food practices of Adi women in Arunachal Pradesh, India, improve social-ecological resilience: insights for Sustainable Development Goals. Ecological Processes. springer.com

134. Skinner, R. J., Nelson, R. R., & Chin, W. (2022). Synthesizing qualitative evidence: a roadmap for information systems research. *Journal of the Association for Information Systems*, 23(3), 639-677. core.ac.uk
135. Slone, A. (2020). To See Ourselves: A Mixed Methods Study of the Relationship Between Place, Mindset, and Grit in Appalachian First Year College Students. proquest.com
136. Spade, D. (2020). Mutual aid: Building solidarity during this crisis (and the next). [\[HTML\]](#)
137. Spognardi, A. (2020). Cooperatives as a Buffer Between Capitalism's Conflicting Classes: The Pioneering Case of the Portuguese Cooperative Societies Act. *journal of policy history*. [\[HTML\]](#)
138. Srinivasapura Venkateshmurthy, N., Potubariki, G., Brown, K. A., Sharma, P., Ganpule-Rao, A., Prabhakaran, D., ... & Knai, C. (2021). A Photovoice study to reveal community perceptions of highly processed packaged foods in India. *Ecology of food and nutrition*, 60(6), 810-825. tandfonline.com
139. Stachowski, J. (2020). Processes of socio-spatial exposures and isolations among Polish labour migrants in rural Norway: Exploring social integration as a lived experience. *European Urban and Regional Studies*. sagepub.com
140. Talevi, D., Socci, V., Carai, M., Carnaghi, G., Faleri, S., Trebbi, E., ... & Pacitti, F. (2020). Mental health outcomes of the CoViD-19 pandemic. *Rivista di psichiatria*, 55(3), 137-144. rivistadipsichiatria.it
141. Tantoh, H. B. & McKay, T. J. M. (2020). Rural self-empowerment: The case of small water supply management in Northwest, Cameroon. *GeoJournal*. researchgate.net
142. Taylor, H., Strauss, C., & Cavanagh, K. (2021). Can a little bit of mindfulness do you good? A systematic review and meta-analyses of unguided mindfulness-based self-help interventions. *Clinical Psychology Review*. figshare.com
143. Tigari, H. & Aishwarya, R. (2020). Self Help Groups: An Effective Approach towards Women Empowerment. *Economics*. academia.edu

144. Tran, V. D. (2020). Assessing the effects of service quality, experience value, relationship quality on behavioral intentions. *The Journal of Asian Finance, Economics and Business*, 7(3), 167-175. koreascience.kr
145. Tripathy, S., & Khan, A. (2020). A Comparative Study of The Methodologies to Promote Sustainable Self-Help Groups in Rural And Tribal Context of Eastern India. *International journal for science and advance research in technology*, 6(3), 226-235. researchgate.net
146. Tyagi, P., Salem, K. S., Hubbe, M. A., & Pal, L. (2021). Advances in barrier coatings and film technologies for achieving sustainable packaging of food products—a review. *Trends in Food Science & Technology*, 115, 461-485. kinampark.com
147. Valluri, S., Mason, S. M., Peterson, H. H., French, S. A., & Harnack, L. J. (2021). The impact of financial incentives and restrictions on cyclical food expenditures among low-income households receiving nutrition assistance: a randomized controlled trial. *International Journal of Behavioral Nutrition and Physical Activity*, 18, 1-11. springer.com
148. VARALAKSHMI, D. & YOGANANDHAM, G. (). EMPOWERING WOMEN THROUGH SELF-HELP GROUPS: A CATALYST FOR SOCIO-ECONOMIC DEVELOPMENT IN TAMIL NADU. *academia.edu*. academia.edu
149. Wang, J., & Tao, J. (2020). An analysis of farmers' resource disposal methods for livestock and poultry waste and their determinants. *Chinese Journal of Population, Resources and Environment*, 18(1), 49-58. sciencedirect.com
150. Wang, W., Albert, L., & Sun, Q. (2020). Employee isolation and telecommuter organizational commitment. *Employee Relations: The International Journal*, 42(3), 609-625. [\[HTML\]](#)
151. Wanjiru, G. A. (2020). Effect of Packaging and Storage Conditions on Quality Attributes of Amaranth Sorghum Grains Complementary Flour. jkuat.ac.ke
152. Xu, Y., Cheng, W., & Zhang, L. (2020). Switching from group lending to individual lending: the experience at China's largest microfinance institution. *Emerging Markets Finance and Trade*. researchgate.net

153. Yoong, S. L., Grady, A., Wiggers, J. H., Stacey, F. G., Rissel, C., Flood, V., ... & Wolfenden, L. (2020). Child-level evaluation of a web-based intervention to improve dietary guideline implementation in childcare centers: a cluster-randomized controlled trial. *The American Journal of Clinical Nutrition*, 111(4), 854-863. [sciencedirect.com](https://doi.org/10.1093/ajcn/111.4.854)
154. Yu, K. H., Zhang, Y., Li, D., Montenegro-Marin, C. E., & Kumar, P. M. (2021). Environmental planning based on reduce, reuse, recycle and recover using artificial intelligence. *Environmental Impact Assessment Review*, 86, 106492. [\[HTML\]](#)
155. Zubair, A. D. (2022). Participation of Rural Dwellers in Community Self-Help Activities in Kwara State, Nigeria. [\[HTML\]](#)