Original Research Article

Kitchen activities and hands-on experience during lockdown COVID-19, informal to formal education core subject concepts an empirical study, Karnataka, India

ABSTRACT

Aim - Cooking and the kitchen have always been used to promote healthy eating habits in the home. However, there is little information about the learning while doing kitchen activities and the family member's contribution in balancing family and COVID-2019-2021 phobia. . School closer not impacted learning concepts from the present study explore the unexplored acts and the concepts behind them with an emotional bonding.

Design – the study with a questionnaire to assess their experience being in the kitchen with the family members and to recall the relationship with the core textbook subjects.

Place and Duration of the Study: The schools from 7 taluks of Shivamogga district Karnataka. But the present study used kitchen room as an informal learning area during the COVID years (2019-2021).

Methodology: We evaluated school students from 5-10 grades a total of 3800 students actively registered in the survey. The present study was an attempt to engage children (students) and family members to overcome the first phobia of school closure, what is next in the academic future. The later phobia was COVID symptoms; as a result, to connect people, family, and community with academic activities we examined how informal learning kitchen actions meet the goals of formal education (2019-2021).

Results: The student involved in the study varies from Lower primary school (LPS – standard 1 to 4) 18.23%, Higher primary school (HPS – standard 5-8) 22.3%, and High school (HS – standard 8 to 10) 59.2%. The correlation was performed to know the relationship between sites with their interest in response to know the kitchen activities and children's (students) recalling /remembering based on the subject.

Conclusions: The study revealed many interesting findings based on the family member's interaction within the kitchen. The present paper describes how homely activities evolved as continuous education without textbooks, pen, and pencil how hands-on experience remains forever, how they compared their actions being in the kitchen how it helped in remembering and recalling the core concepts of the textbook and how family played their mentor role, and how it benefitted them. COVID-19 and school closer opened new opportunities to learn and evaluate

Comment [V1]: Failing to get the sense

Comment [V2]: students

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their subject concepts with experiments and Kitchen the super lab of Mother benefitted from experiential learning.

Keywords – Cooking; family intervention; formal and informal learning; kitchen as a laboratory; subjects.

Comment [V3]: punctuation

INTRODUCTION -

Parental interactions with the children, the activities they engage in together, and the social and physical environment are considered in understanding the ecology of school-going children at home in engaging in various activities routinely. Fletcher & Wolfe [1] how routine activities like food making (cutting, processing, cooking, and cleaning) in a kitchen socialize family members and their children's school success [2].

Schoellman [3] stated that the parents rather than the environment play a major role in early childhood human capital formation. Parent's and family member's role is important in developing their children's social and emotional skills [4].

This study focuses on the perception of family members being together and sharing kitchen skills and how children have redefined their textbook contents. Research studies assert that the home learning environment for children's early learning and readiness for school [5&6]. Family involvement with children's learning and parents are internationally regarded as children's first teachers [7]. Most of informal activities can lead to a range of desirable skills and knowledge for children [8]. However, parents choose to engage in different households, often based on social class and ethnic differences [9&10]. But during the lockdown, it was only how to engage children with us always. The impact of COVID and school affected in other countries like [11]. The impact of COVID -19 and school close affected learning opportunities and education system in Bangladesh and [12] study focused on different aspects to know the challenges faced by school heads, teachers and parents in COVID-19, in Puerto Princesa city

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Home-based learning practices involve academic and social/emotional skills [13]. The activities of educational content, the benefit of promoting children's learning and development through everyday activities which are regular [14]. Descriptive studies of children's everyday experiences have found that any one location, such as a playground, is the source of many kinds of activity settings (e.g., sandbox, swings, slides, etc.) and provides different kinds of learning opportunities and experiences [15]. But the same has been observed in the home garden as well as the kitchen with subject concepts all of these natural learning opportunities constitute the life experiences of a developing child [16]. According to Bronfenbrenner, [17] the amount of time spent with parents (microsystem), a parent's relationship with the child's teacher (mesosystem) was relatively more during lockdown how it benefited both. The relationship between practical intervention and food intake was positively connected with fruits and vegetables Stookey [18]. However, the involvement and interventions in food preparation skills on dietary and

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cooking confidence have not been studied in detail. Cooking skills help in gaining confidence as well as shopping level study conducted in Scotland [19]. Whereas the current study was to evaluate their involvement in kitchen activities and recall their textbook based on their practical experience (learning and feeling kitchen) study aimed at altering cooking confidence, food preparation, kitchen actions and supporter reaction and dietary choices in areas of social deprivation.

Anderson [20] earlier studies have shown that when children are involved in kitchen-related activities like preparing food, they consume more food because they feel proud of their own preparation [21 & 22]. A recent review also indicates a lack of cooking methods and food knowledge for preparation as barriers to preparing home-cooked meals. [23] . In the study by Caraher [24] practicing cooking skills improves the eating behaviour of children, rather than demonstrating whether a causal link does or does not exist. Burgess-Champoux [25], Cooking with Kids (CWK) in southwestern city United States is a school-based food and nutrition education curriculum that has been positively evaluated and successfully adopted by elementary schools but does not have a research evidence base. Condrasky & Hegler [26] A study on Americans has shown that the time spent in the kitchen is reduced the factors behind it are time constraints, labour force and long working hours, [27 & 28] as a result, this will lead to lack of healthy eating styles, cooking skills, food knowledge [29] results in lack of intimacy with most of the food. Whereas the Puerto Layton, [30] assessment study revealed food security strategies by home and school gardens in the post-COVID.

Maina [31] study focused on children's education and parental influence during COVID-9, the study was to explored parental awareness and their role for children in academic work.

Vansdadiya [32] Learning in mathematics from conventional to activity based like group studies, debate hands-on activities resulted in better performance by students.

'Formal learning' is usually equated with institutions that are highly structured and strictly organized, even regimented, and whose primary and sole purpose is for learning. 'Informal' and 'non-formal' learning, on the other hand, often signifies a lack of organization and structure. In actuality, workplaces are highly organised and structured, and many affordances to learn [33] reside in these establishments. Why have we not yet considered our community or home as one of the major big informal institutions? How the COVID – 2019-21 phobia was minimized being in the kitchen and what new things they learned are described based on hands-on experience: a).Mother and family members as a teacher and mentor, b). Subject concepts and how they interlink c). Things handled in the kitchen, d). Time management, e) Discipline, f). Action and evaluation, and g). The kitchen is not a mere cooking place and how it is a living theory and practical classroom.

OUR RESEARCH GOALS AND OBJECTIVES

Our main research focus was to assess student's experiential learning skills and gain knowledge of the percentage of direct and indirect guidance evolved based on the actions performed in the kitchen. What sorts of actions are a prerequisite for school-going students and what do they recall being in the kitchen

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when school, college, and university is closed how actively does the kitchen teach so many things of the core subject and why do we say it is a failure of learning in the absence of school. Most of the Institutions, organisation and universities have shown their studies during COVID-19 is a failure in learning and might fail to know where actual learning begins. Home is the first school of learning, acting and independence. Hence we wanted to address the following questions based on experiential learning in the present study. 1. What skills are learned in the kitchen being with family members? 2. How are skills and knowledge learned in a kitchen related to the textbook subject's core concepts? 3. How do the activities in a kitchen promote continuous learning skills?

METHODOLOGY

Methods – the present study was an attempt to engage children (students) and family members to overcome the first phobia of school closure, what is next in the academic future. The later phobia was COVID symptoms; as a result, to connect people, family, and community with academic activities we examined how informal learning kitchen actions meet the goals of formal education (2019-2021). We covered the Shivamogga district. Maland region of Karnataka [Figure. 1], where all the seven taluks have different socio-cultures, lifestyles, practices, and interests.

The study was performed with a questionnaire, the student's response was collected and the analysis was performed to meet desired basic objectives. Descriptive statistics and Spearman's rank correlation were performed to check the significance within the study limits.

Comment [V6]: students'

Study area

The present study was carried out in Shivamogga dist, Karnataka. (13°55'53.65" N 75°34'4.48" E). The present study aims to know the Covid-19, learning in the kitchen from the different demographic distribution of seven taluks (Sites I to VII) Shivamogga district Karnataka. [Figure. 1]. Site –I – Bhadravathi, Site –II – Hosanagara, Site –III – Sagar, Site –IV – Shikaripura, Site –V – Shivamogga, Site –VI – Soraba, Site –VII – Thirthalli.

Analysis:

The student involved in the study varies from Lower primary school (LPS – standard 1 to 4) 18.23%, Higher primary school (HPS – standard 5-8) 22.3%, and High school (HS – standard 8 to 10) 59.2%. The involvement of high school students is maximum because family members can easily handle them in the kitchen for most of the activities followed by HPS and LPS. LPS and HPS students have shown interest but parents minimized their entry for most of the activities due to precautionary measures. [Figure 2].

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Whereas the sex ratio indicates 68.55% female and 31.44 % male indicates their interest in learning, involvement, cleaning and curiosity to learn more accepting failures, learning attitude, time management, and repetition of maximum activities have favored girls to fare well in the kitchen. [Figure 3].

The Spearman's rank correlation was performed to know the relationship between sites with their interest in response towards the activities site – I and III, site IV and site II, site V and site I, site V and site II (r_s =0.94, $p<0.004$), had a strong correlation. Site VII and site VI had a poor correlation (r_s =0.37, $p<0.4$). The correlation response is very closely related to the number of participants and the willingness of the family members to connect with each other in kitchen activities.

The correlation was performed to know the kitchen activities and children's (students) recalling /remembering based on the subject relationship. A strong correlation was noticed in learning related to English and Hindi (r_s=0.88, $p<0.008$) Kannada and Hindi (r_s = 0.64, $p<0.01$), Science and Kannada (r_s= 0.70, $p<0.008$), English and Science (r_s= 0.66, $p<0.01$), English and social science (r_s= 0.48, $p<0.2$), social science with mathematics (r_s = 0.46, $p<0.2$). Science and social science (r_s= -0.39, $p<0.3$) and Hindi and science (r_s = -0.28, $p<0.05$) had negative interactions [Table 1].

The strong relationship with languages and subjects is the repetition of words of kitchen utensils usage, groceries, dishes, vegetables and basic concepts in the regional language (Kannada) made them understand easily and repetition of the simple experiments of kitchen activities without fear and answer and guidelines for the repeated mistakes from the family members have shown a strong influence.

RESULTS -

The major knowledge gained is how to use the space (the area occupied while working in the kitchen) and the difference between, as there are micro spaces where he/she contributes to the output by cooking his/her part of the menu, the macro space of the kitchen, in this area, whether it is for cleaning utensils, sorting groceries and cutting vegetables, etc. Kitchen work appeared to students as their homework activity because the routinized pattern of activity every day with practical experience made them learn maximum skills. In the present study, we interacted with 3800 students within the family members 15111 including (mother, father, grandmother, grandfather, sisters, brothers, aunty, uncle, etc.) and found the interaction very informative. The study revealed the involvement of students (Boys and Girls) in the kitchen and their learning for most of the activities as shown in graph [Figure 4] reveals the number is more in saying, I am learning regularly being in the kitchen, based on their answer (yes/no) the activities learned/ performed/practiced/helped in the kitchen.

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Most of the students expressed their elders who involved them in the kitchen [Figure 5] showing how their elders taught them the core concept behind kitchen activities and how much care they need to take for every action. Mother rank first followed by elder sister, grandmother, father, and aunty.

As a result, most of the parents felt that the COVID- 2019 and 2021 holidays gave them a chance to teach culture, discipline, recipe, knowledge, taste, ingredients, and timing of action. Meanwhile, children's recalled some textbook subjects while performing some activities within the kitchen as shown in [Figure 6]. How they recalled their core subjects reveals that children (students) need practical experience in anything and everything they want to learn and imbibe the concepts, as shown in [Table 2], the graph indicates they experienced more science concepts, theories, experiments, reasons why and how even students expressed the first such experiences in the informal kitchen laboratory. Followed by social science, Kannada, Mathematics, and English. The active place in the home is a kitchen which made learning fun and easy.

As a result, the questionnaire given to students noticed they have learned most science as well as social science principles, literature, different names of ingredients and their meaning in local as well as market names, etc. Among the parents, children learned maximum from their mother, grandmother, and elder sister. The bonding among the family members and even father, and elder brother taught some skills of kitchen and supported them in learning the culture of cooking.

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Parents realized they felt even though their school education/formal education, attendance, traveling, homework, and the uniform was absent, the learning was continuous with informal education, finally, the community realized education from school was absent, but recalling, remembering the concepts of core subjects with simple handling experiments with knowledge skills are present in the home and community was realized. [Figure 7]. The experiences students learned based on the interaction and being physically and mentally in the kitchen and subjects, and concepts recalled with the experiential learning are as shown in [Table 2]. Hence our informal study to check the link of formal education was found interesting and very informative. One of the major cultural activities begins with the kitchen where we spend/follow most of the cultural practices; I think it is better to expose our children to the kitchen.

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DISCUSSION

The present study is very happy to share the findings with the community of how homely actions in every activity especially in the kitchen where major activities related to food, health, discipline, hygiene, etc. are maintained apart from this how actions in the kitchen supported students to remember their subjects with practical knowledge and enjoyed being practical.

Comment [V9]: The findings of the study reveal how homely actions affect education. The kitchen is a place where major activities such as those related to food, health, discipline and hygiene are carried out. Kitchen actions supported students to remember subjects with practical knowledge and they enjoyed being practical.

A study in urban communities in Scotland [22] evaluated food skills like cooking and food choices with a trial design based on the diaries of participants, consumption of food and vegetables before and

after gradually increased within the community of adults living in areas of social deprivation. Whereas in the UK The limited awareness of food literacy, cooking skills, and knowledge about how foods are grown and harvested can create barriers to consuming a healthy diet [34]. Most of the domestic cooking skills are in transition they are influenced by socio-economic and culture in London [35]. If adults do not have cooking skills they lack confidence that might accompany their development, as observed in several studies reviewed [36 & 37] programs to educate adults with respect to food preparation knowledge and skills are also important. Some studies have suggested major interventions in cooking are the relationship between food preparation knowledge or skills and consumption of particular foods was strongly related to knowing how to prepare. Chen & Gazmararian, [38] Studies have shown that if cooking skills are taught in an education program for children the same skills will persist in adulthood [39] to enhance their confidence in cooking as well as food selection.

Lichtenstein & Ludwig, [40] The frequency and duration of exposure to cooking sessions by elders needed in order to impact perceived ability and improve confidence is not known. While there was some indication of the change in knowledge, attitudes, dietary practices, and perceived cooking ability, none of the programs included long-term follow-up to determine the sustainability of impacts. Thus, little is known about the impact of longer-term programs, or the impact of short-term interventions on long-term knowledge, eating habits, or food preparation behavior in the home [24]. The findings suggest that practical cooking sessions are effective in supporting and reinforcing knowledge presented in the classroom and support the claim that cooking skills are important for understanding what constitutes a healthy diet [41]. Liquori [42]. This is consistent with research on children and cooking, which recommends a focus on concrete experiences rather than abstract concepts

COVID-19 and school closer opened new opportunities to learn and evaluate their subject concepts with experiments and Kitchen the super lab of Mother benefitted from experiential learning. School closer is not impacted by learning concepts from the present study explore the unexplored acts and the concepts behind them.

However, there are few studies examining the food preparation and cooking skills of youth, especially at-risk youth. There are also few studies examining youths' understanding of the local agri-food industry and how it relates to their ability to select, prepare, cook, store, and enjoy foods prepared from "scratch." Cooking programs for youth with a focus on the local agri-food industry are an integral component of food literacy development to facilitate healthy lifestyles in this population [43].

CONCLUSIONS: School education is the basis of life education in the existing theory and phenomenon, but we found through this study that informal education leads to help formal education with practical knowledge, the major reason noticed is in formal/school education, lack of practical classes, laboratory and practical experience students face difficulty in understanding the concepts, but the study revealed some interesting things, understanding science concepts made easy and continuous in knowing the concept based on hands-on learning. COVID-19 and school closer opened new opportunities to learn and

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evaluate their subject concepts with experiments and Kitchen the super lab of Mother benefitted from experiential learning.

Future avenues of kitchen knowledge

From our observations and family member's interactions with children's realized the benefit of routine activities in the literacy of exposure to many untold skills through their hands-on cooking related to textbook core subjects. The present study methodologies need to be a part of the curriculum in designing textbooks in the future to make every subject and core concept living.

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Table 1. Correlations performed in the study area subject-wise.

Subjects	Correlation	p-vale	Subjects	Correlation	p-vale
English vs. Kannada	0.45	< 0.3	Science vs. Kannada	0.70	<0.008**
Hindi vs. Kannada	0.64	<0.01*	Mathematics vs. Kannada	0.46	<0.02*
English vs. Hindi	0.88	<0.008**	Social science vs. Kannada	0.17	<0.7
Hindi vs. Science	-0.28	<0.05*	English vs. Science	0.66	<0.01*
Hindi vs. Mathematics	0.17	<0.7	Hindi vs. Social sciences	0.25	<0.5
English vs. Social sciences	0.48	<0.02*	Mathematics vs. Science	0.42	<0.03*
Mathematics vs. Social science	0.46	<0.02*	Science vs. Social sciences	-0.39	<0.3

P*<0.01, **<0.001

Table 2. The concepts and activities performed in the kitchen and their relation to core subjects.

Activities	Things handled	Concepts	Subjects recalled
Principles of kitchen	Utensils, machines,	Hygiene, clothes wearing, distance, space maintained,	Science, biology, chemistry, physics, languages
Cleaning floor	Utensils, tap	Hygiene, health	Science, biology - microbes
Cleaning utensils	Utensils, tap	Hygiene, health and handling	science
Handling utensils	Utensils, supporting materials	Science and mathematics behind handling and holding	Science, kannada, mathematics

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Cutting vegetable	Knife – mixer	Quantity, size, shape, numbers, hygiene, health and handling	Science and Mathematics
Minimizing vegetable waste	Knife, dustbin, segregation of waste	Waste management, hygiene, health and handling	Science, Economics
Stove - LPG connection	LPG cylinder, stove, fire, help	Indoor pollution, health and concentration, consciousness	Science, kannada
Boiling water and milk	Utensils, tap	Boiling point, color of fire	Science, mathematics
Cleaning milk utensil	Utensils, tap, cleaning agents	Health, microbes, hygiene	Science, mathematics, physical education
Handling utensils	Utensils, cloth, tap, cleaning agents	While boiling, holding, weight, difference between metals, history of usage of utensils	Science, kannada, mathematics, physical education
Art of making curd	Utensils, cloth, tap, cleaning agents	Health, microbes, hygiene	Science, mathematics, physical education
Art of making Ghee	Stove, Utensils, cloth, handling, tap	Health, microbes, hygiene	Science, mathematics, physical education
Minimizing food wastage	Utensils , cloth, tap, cleaning agents	Proper eating method, eating with a proper gap period, health issues, poverty and starvation.	Science, mathematics, physical education
Art and skill of Cooking	utensils	Patience, gap interval, difference between spaces, health and concentration, consciousness	Science, kannada, social science
Machine handling (Refrigerator, mixer, jars)	Utensils, cloth, time sense	Timing sense, handling, standing posture, concentration, health	Science, kannada, mathematics, physical education
Drinking water	Utensils,	Hygiene, health and handling	Science, biology -

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	cloth handling		microbes
Closing lids	Utensils,	Hygiene, health and handling to minimize repellents	Science, biology - microbes
Serving foods	Handling utensils	Hygiene, health and handling to minimize repellents	Science, biology - microbes
Tasting (time while cooking)	Handling utensils	Hygiene, health and handling to minimize repellents	Science, biology - microbes
Segregation	Utensils, plastics, paper,	Hygiene, health and handling to minimize repellents, minimizing waste and management	Science, biology - microbes
Multiple names for dishes, groceries, vegetable, utensils	Utensils, boxes, machines, vegetables, fruits and dishes.	Activities performed repeatedly and getting chance to perform with a mentor and guidelines	Languages
Kitchen as laboratory	Kitchen utensils, machines, knife, etc.,	Activities performed repeatedly and getting chance to perform with a mentor and guidelines, participation and repetition of experiments	Core concepts of physics, chemistry, biology, mathematics, languages, physical education and social sciences.
Area occupied / Space	Instruments, utensils, family members	How to manage space within the kitchen	Science, geography, history,
Role of mentor/family members and their commitment	Kitchen as a subject laboratory	Activities learnt with involvement, mistakes, care, concentration and consciousness.	Subjects (remembering all school subjects) and teachers who taught different concepts.

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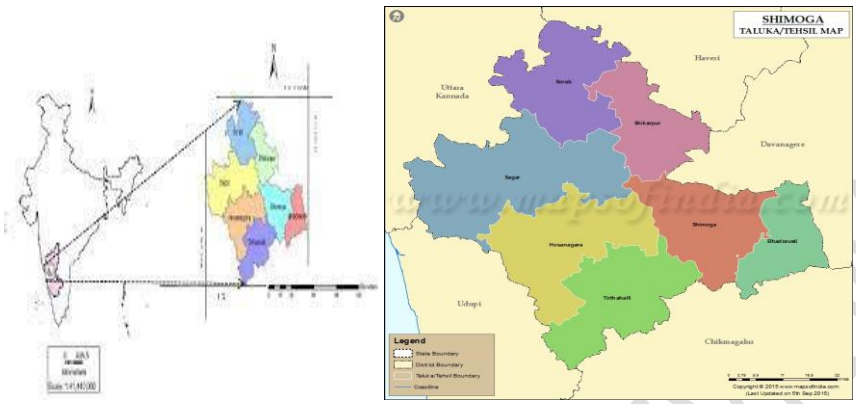

Fig. 1. Map of Shivamogga, Karnataka, India showing all the taluks of the study area.

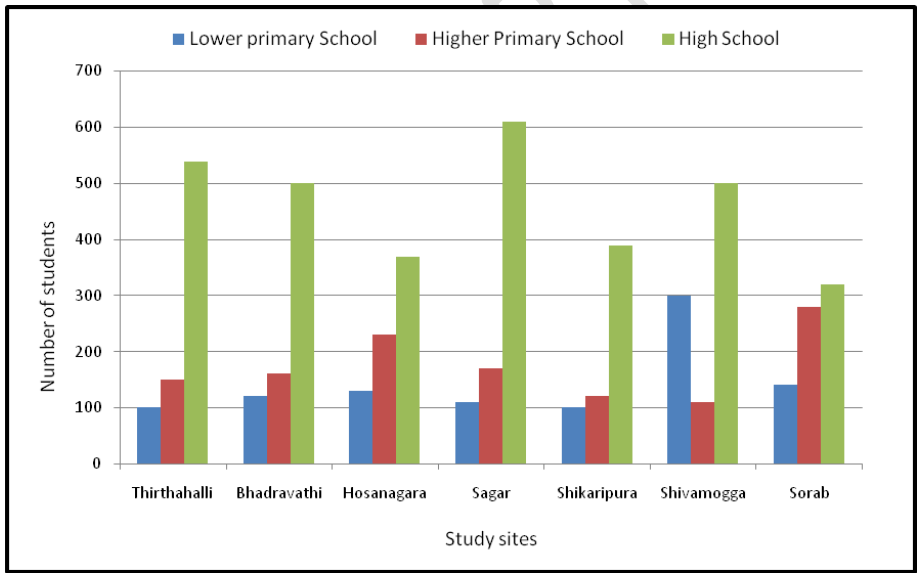

Fig. 2. Different class-wise students from different study sites.

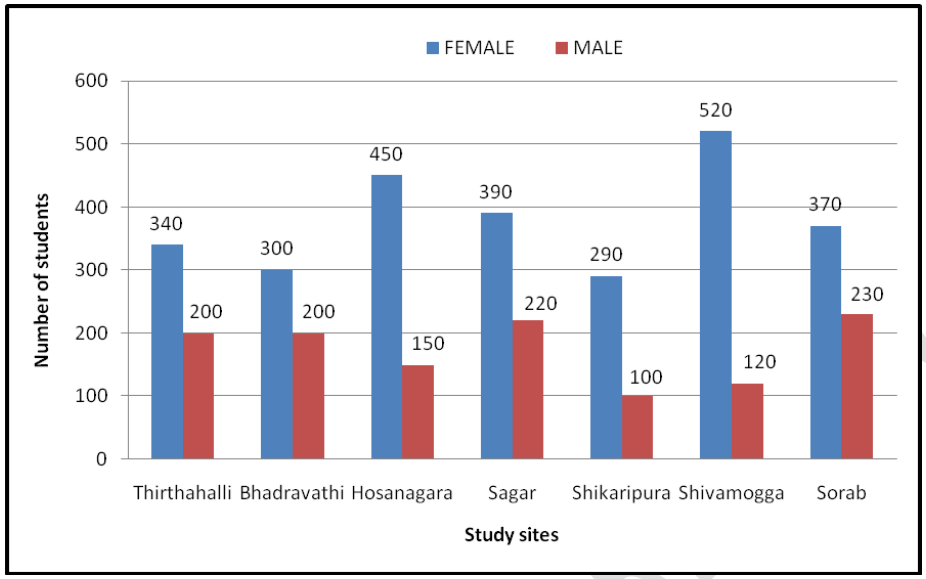

Fig. 3. Sex ratio and student involvement from the present study.

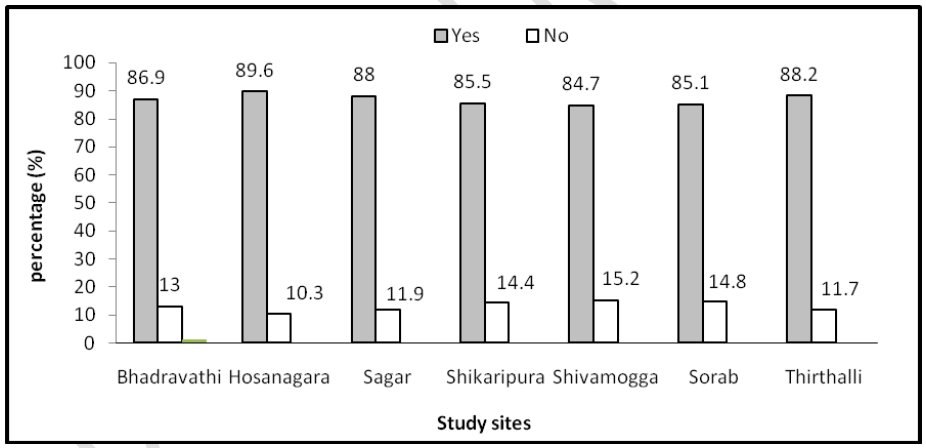

Fig. 4. The percentage of interacted students (children) who learned (yes – interested, No – not interested) in the kitchen is within family members.

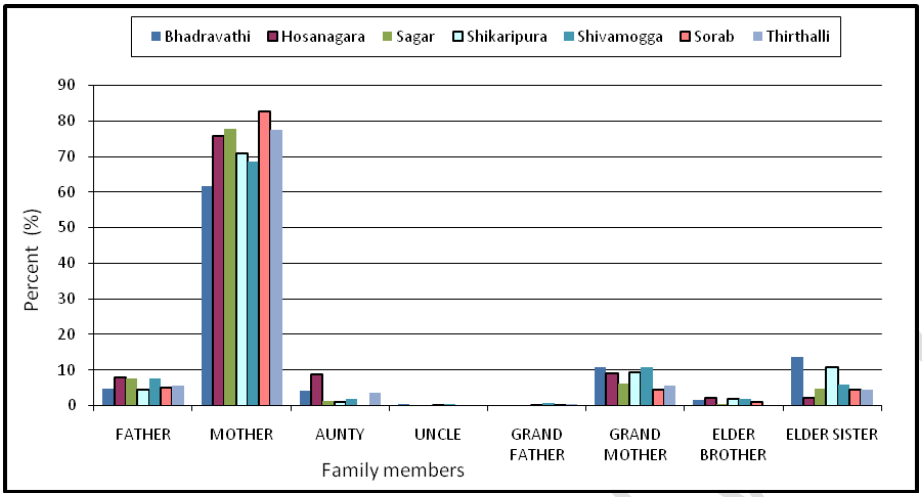

Fig. 5. The percent of family members in the present study.

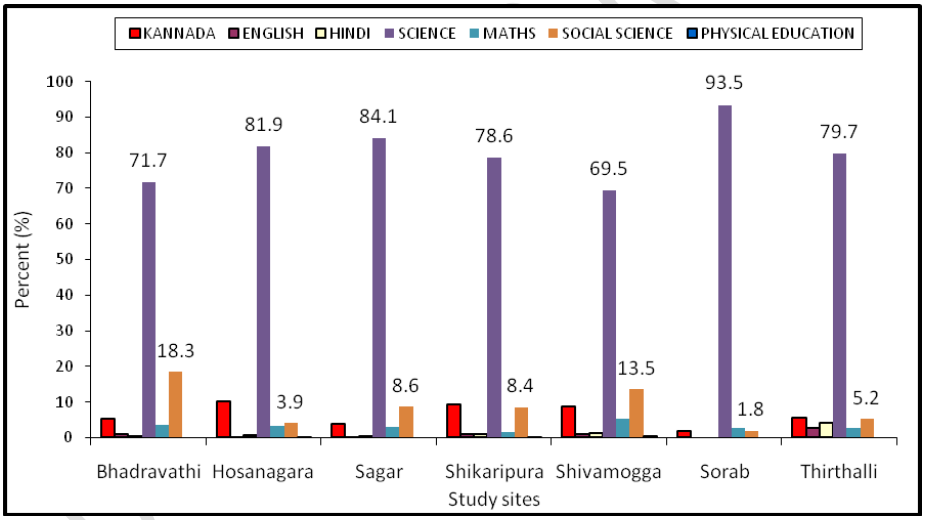

Fig.6. The percent of core subjects recalled during different activities in kitchen.

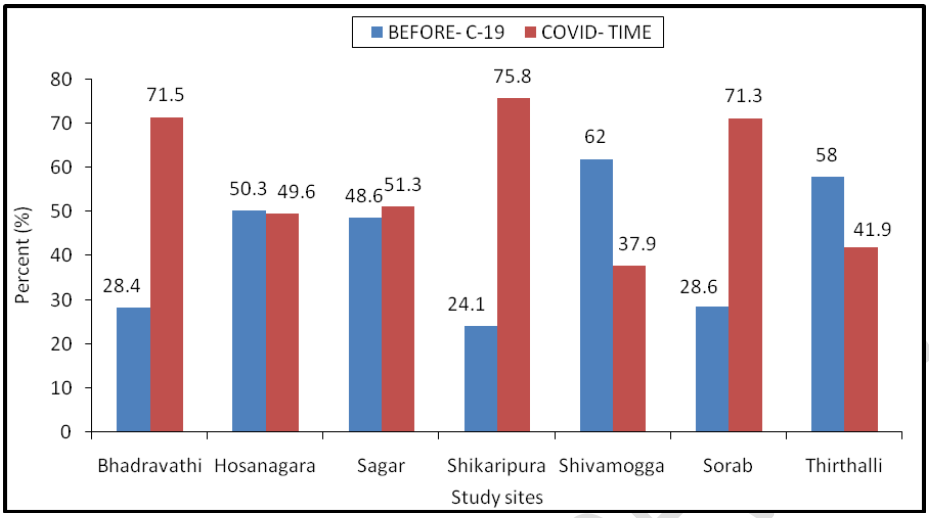

Fig. 7. The percentage of students interested in kitchen activities before and during Covid in the present study.

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