

VOL 9 NO 2 DECEMBER 2017



ISSN 0975 - 5101

STAR RESEARCH REACH

Inter-Intra Disciplinary Journal



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Volume 9

Number 2

December 2017

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Editorial

Star Research Reach is proudly presenting the ninth volume December issue of research publication to its readers. The journal will continue to publish quality works in the forth coming issues too. It aims at providing a strong platform for the researchers, teachers and students who is need of publicizing their work. Star Research Reach possesses an International registration number, ISSN 0975-5101. The journal had its first issue in the year 2009.

Peer review remains a vital component of our assessment of submitted articles. We keep an eye on the quality of articles, usually accepted after peer review and after referees' comments and criticisms are dealt with; this process also helps to fetch trust of the reader.

The current issues deals with research articles from various disciplines, Nutrition, Zoology, Economics, History and English Literature.

Let me thank God Almighty for the bounteous blessings and grace showered upon us. Our appreciation and sincere gratitude goes to principal, Dr.Sr.Rosily A.V., education counselor Dr.Sr.Alphonsa M.K., and librarian Sr.Pushpa CSN. Special thanks to peer reviewers and all authors who had contributed to this issue of journal. The peer reviewers and the overseas editors had helped in maintaining the quality of each article. A special word of credit to Ms.Megha Thampy for her effort she had put forward in coordinating the authors' articles.

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EXPRESSION OF FEMALE DALIT AUTHORS THROUGH THEIR WRITINGS: AN ACCOUNT OF REPRESSION

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ABSTRACT

Dalits are considered as those who hail from low castes and have been marginalised and oppressed in all possible manner. As any other oppressed group, the dalits too attempt to track their feelings and emotions through the power of words. They utilise the written words as a weapon against the inhuman oppression of Dalits by the Brahminical social order that hinders the basic human rights and dignity. Apart from other stream of literature that intent for entertainment, Dalit writing attempts to discard social injustice by revealing the harsh realities of Dalit life. Dalit women writers chose the medium of autobiography to give life to their emotions and feelings. The writings of Dalit women writers are based on the lives experiences and consciousness. Dalit women writers portray their outburst for justice. Through their autobiographies, they express their attitudes towards work which helped them to conquer their enemy and achieve their own identity.

Keywords: casteism, dalit literature, quest for equality, marginalisation.

Dalits are considered as those who hail from low castes and have been marginalised and oppressed in all possible manner. They belong to the lowest order of Indian society, facing discrimination from all walks of life like education, social and political aspects. They are being excluded from social, economic, cultural, civil and political strands. Initially referred as “Shudras”, they have been untouchables based on the traditional Indian Brahminical caste system. In a way, the term ‘Dalit’ acts as an umbrella term that encompasses many lower caste people and many other below poverty line people.

As any other oppressed group, the dalits too attempt to track their feelings and emotions through the power of words. They utilise the written words as a weapon against the

inhuman oppression of Dalits by the Brahminical social order that hinders the basic human rights and dignity. “It expresses the pains and pangs of the Dalit existence; it is the lived reality of cores of people living on the margins of life in India; it verbalises the suppressed anger and wounded pride of those existing outside the caste identities” says the author of a Marathi autobiography, *Akkarmaashi*.”The so-called mainstream literature is the product of the imagination of upper caste writers about middle-class issues, but Dalit literature is based on the lived experience of the writer.” Apart from other stream of literature that intent for entertainment, Dalit writing attempts to discard social injustice by revealing the harsh realities of Dalit life.

It has a history that can be rooted back to centuries. It can be pinned authentically from the middle of the twentieth century. The term ‘Dalit Literature’- Dalit meaning oppressed, broken and downtrodden- was formally used in 1958 at the first conference on Dalit literature in Mumbai. The emergence of Dalit panthers in 1972 in Maharashtra is a noteworthy movement in the history of Dalit literature. From then, it was a start by various literary movements throughout India.

For a long period, the genre of Dalit Literature was being completely neglected by the literary circle. The publication of the Marathi work *Poisoned Bread* edited by Arjun Dangle (1992) and Arun Prabha Mukherjee’s translated work of Om Prakash Valmiki’s *Joothan* (1997) into English in 2003 resulted in the acceleration of acceptance of Dalit genre into the mainstream of literature in India and abroad.

In 1969, the element of modern Dalit Literature is detected in an article, “A Discussion: Literature of Dalit Consciousness, Direction and Inspiration.” by M.N Wanknade. The Emergence of “Dalit Literature” or “Dalit Sahitya” is seen in “The Times Weekly Supplement” of November 25, 1973 with the term Dalit Panthers founded by Namdeo Dhasal and Raja Dhala, reports Literarism, the journal.

Bagul reports, “Dalit Sahitya is not a literature of vengeance. Dalit Sahitya is not a literature which spreads hatred. Dalit Sahitya first promotes man’s greatness and man’s freedom and for that reason it is a historic necessity... Anguish, waiting, pronouncements of sorrow alone do not define Dalit Literature. We want literature heroically full of life for the creation of a (new) society.” (3)

Dalit literature that symbolises a quest for equality tries to establish a rational attitude towards the problems of society. At the offshoot of Dalit Literature, the presence of noteworthy writers was few. Dr. Ambedkar's writings and views resulted in an effective movement in the field of Dalit Literature. Through the works of Dalit writers, they provide various useful insights into the question of Dalit identity. They portray the element of realism in day to day life of a Dalit, resulting in the authenticity and liveliness of Dalit Literature. Autobiographies of Daya Pawar *Baluta*, Madhaw Konduilkar's *At Post Devache Gothne*, Shankarrao Kharat's *The Sky and Heights of the Soul*, *Gawaki* by Rustam Achalkhamb, Shantabai Kamble's *The Illustrated Story of My Life* are few representations of the realistically portrayed life experiences of a Dalit writer. Through their narrations and discourses, they fight against the casteist tradition in the society.

The presence of Dalit women that write are noteworthy in their works that contribute in breaking the shackles and resisting the oppression faced by them, in a way the double discrimination. Being a Dalit and being a woman. Their need was to make their plight known to whole world through their words. Because of most of female Dalit writers lacked proper education, they traced the outbreak of their emotions through their own vernacular language. But by late 20th Century, most of their works had been translated into other languages that helped them to propagate their ideologies they intended. By the advent of English education, their works were all translated into English language to a promising the writers, a worldwide readership and fame. Dalit women writers too chose the medium of autobiography to give life to their emotions and feelings.

A Tamil Dalit woman pen named Bama is a noteworthy for her autobiographical as well as other works. She is much known for *Karukku*, the autobiography that has been translated by Lakshmi Holmstrom. Originally written in Tamil language, it tells the story of a marginalised Dalit Christian women. Even an educated, she faced many suppressions, marginalisations and crushings being a lady from Paraya Community. Through her work, *Karukku*, she tries to empower other fellow Christian Dalit women to break their traditionally set roles by their society, to promote their education and protest and proclaim their selfhood in the society.

Karukku is an experience of a Dalit woman, a long torment, through which she could identify herself. Bama did not only create a space for her caste but also for women who were the victims of two-fold hierarchy. Dalit women were victims not only of caste but also of

patriarchy. In the novel she has shown the plight of Dalit women, their sufferings and discrimination at the hands of their patriarchy, but through her own story she has evolved herself as a role model for the rest of Dalit women. Although she was born in a Pariah community, it was through her hard work and ardent interest that could establish a place for her in her community. In a society where women were paid lesser wages than men for the same amount of work, had to do the household tasks, were beaten up by their husbands and not allowed to go to school, Bama was able to fight the odds. She carried on with her higher education, and also at times thought about the ways in which the Dalit children could be educated and treated better.

Unlike most autobiographies, Bama's narrative is not direct. She does not describe events only in terms of the impact they had on her later life, but writer of the experiences she had as moments of subjugation that composed her daily lived reality. In the book, one sees Bama's search to understand and present how her multiple identities as Dalit, Christian and women have impacted her oppression.

Karukkku is a requiem to the community Bama grew up in. She writes of life there in all its vibrancy and colour, never making it seem like a place defined by a singular caste identity, yet a place that never forgets, and is never allowed to forget its caste identity. She writes concurrently of humorous incidents she remembers from her childhood, the games she used to play with her friends, good meals with her family and the oppression of her community by the police, upper-castes, and the nunnery. In this manner, she presents the ripeness of caste oppression- how it not only punctuates everyday life, but is an integral part of it, even in the memory of a community.

Shantabai Kamble, a Marathi writer who ardently believed that education is the only way through which one can protect the rights of Dalit wrote the first Dalit women autobiography titled *Majhya Jalmachi Chitarkatha*, translated as *The Kaleidoscopic Story of my Life* (1988). As a follower of Ambedkar's views and opinions, she is the first Dalit women teacher in Sholapur district. Her work highlights the burden of class, caste and gender upon a poor Dalit woman. The protagonist of the work descends from the Mahar caste, the Dalit community of Maharashtra, who represents the plight of Indian Dalit woman in her own society.

She wrote *Mazhya Jalmachi Chittarkatha* after she retired from teaching in 1981. It was first serialised in Purva Magazine in 1983 and was teleserialised as *Najuka* on Mumbai Doordarshan in 1990. It has also been translated into French. The word Chittarkatha literally means a picture story but also specifies a sense of pieces of pictures being put together like a jigsaw puzzle.

This is the first work in Dalit literature which is written by a woman. It is the book deals with the two major problems of the society. Firstly the oppression and mistreatment of the Dalit by the upper class, secondly the discrimination towards women in a patriarchal society. In this work the narrator writes about the struggle that does not take the form of direct physical violence. The resistance in Dalit autobiography appears in the form of incongruity.

Jeena Amucha translated as *The Prisons We Broke* (1986) is yet another autobiography that represents the darker sides of Hindu caste system in our country. Baby Kamble, the author of the work portrays the position of Indian Dalit women who are being ostracized twice by both the upper caste community as well as within the community because of being a woman. She puts light on to her village called Veergaon and to her community Maharwada. The people of Maharwada community suffered from illiteracy and starvation. They were considered as dirty by the upper caste, reflecting them as pious as God. Through her work she puts voices to all the miseries of the downtrodden and attempts to react towards the age old tradition of the society.

Baby Kamble's autobiography throws light on self-affirmation. It is a socio cultural analysis of the society. She voices against the Hindu caste system which degraded dalits for centuries and praises Dr. Ambedkar who fought for his people and brought a drastic revolution. Baby Kambli was brought up in this tradition movement and has witnessed the torment of dalit women in the pre and post Ambedkar period. It is not only the story of dalit women prisoners but about the fighter in her who broke her chains to assert herself.

The Prisons We Broke is considered as the Dalit feminist analysis of patriarchy. She graphically describes the physical and psychological violence women have to undergo in both the public and private circles. Baby Kamble shows the remarkable dignity and flexibility of the Mahar women in their struggle through which they have emerged as the agents of transformation in their community.

If the Mahar community is the 'other' for the Brahmins, Mahar women become the 'other' for the Mahar men. Baby Kamble demonstrates how caste and patriarchy converge to prolong exploitative practises among women. In her self-narration Baby Kamble portrays how Dalit women were the worst victims of superstition, hunger, poverty and the exploitative patriarchal order of Dalit men as well as the men of higher castes.

In her autobiography Baby Kamble presented the live picture of Mahars life in past 50 years living in western Maharashtra. She frankly showed her anger towards the Chaturvarna system of Hinduism as well as against the patriarchal order prevalent among Mahars which gave a lower status to their women. The autobiography is a social critique of the Hindu social system as well as the patriarchal order of Mahars. Baby Kamble's self and honest analysis made her autobiography totally different from the autobiographies of higher caste women as well as Dalit male autobiographies where the presence of Dalit women as an independent human being rarely felt.

Baby Kamble's autobiography *The Prison We Broke* is deeply rooted in historical and social processes of community. She by using the free flow of prejudice questions both the interior and exterior nature of oppression that her community had to undergo. The book is a peek into the inhuman sufferings of Dalit with no sense of self-respect and identity. Her poverty-stricken, undernourished people were forced to live on the fringes of the village with threads as the marker of their caste.

Throughout her autobiography she tries to bring home the point that ignorance was the biggest factor which led to the despairs of her community. She stresses the fact that social bonding and self-awareness is only key to the prison. Social attachment of her community is reflected in various customs and practices that people of her society adhered.

The Prisons We Break sarcastically attacks the immoral practices existing within the community. Kamble breaks the myth of Mahar community being an ideal society. This she does by highlighting the triple oppressions-caste, class and gender, which women of her society had to face.

Urmila Pawar's *The Weave of My Life* is originally translated from her Marathi autobiography, Aadyan. Urmila throws light on the 'private' and 'public' aspects of her life. She talks openly about the household and marital conflicts. She frankly offers a strong critique of feminist and Dalit politics. The author links her mother's act of wearing baskets,

aadyans, to her own 'act of writing'. Urmila Pawar's memoirs describe the long journey from the Konkan to Mumbai, bringing to realisation the struggle of three generations for Dalit modernity.

Urmila Pawar's *The weave of My Life: A Dalit Woman's Memoirs* belongs to the genre of autobiography which presents the major issues of class, caste, and gender in the Indian context. Apart from recording a woman's discovery of selfhood and assertion of identity it also offers a background picture of the Indians especially Maharashtrian culture including inter personal and strong relations, clashes, and tolerances. Urmila Pawar's *The Weave of My Life* speaks not of a single person but the struggles of the entire society.

The problem of poverty is closely linked with her dalit-hood i.e., her caste of Mahars, which is one of the lowest in the Hindu varna order and with the problems of gender i.e., of being born as a woman in the patriarchal Indian society. Throughout her life, she has to struggle against these antagonist forces to emphasize her selfhood and achieve a sense of fulfilment. The narrator, like most of her community suffers from economic disability. Because of their poverty they do not have adequate food, clothing, proper shelter and other creature-comforts.

The Dalit community of Konkan region of Maharashtra, whose caste based occupation, weaving bamboo baskets were put into lime light by Urmila Pawar in her autobiography, *Aaidan* translated as *A Weave of My Life* (2009). She locates the discrimination, untouchability, labour, gender and sex inside and outside Dalit community. They were considered as racially inferior and polluted by nature itself and were forced to live in secluded part of the locality. She too as other woman writers of Dalit autobiography, through revealing the cruel actualities attempts to break the traditions of her community with the help of power of words.

One of the major areas of focus of Dalit writings is rural tyranny. Dalit writers sparkled their ink in emphasizing the caste, class and gender bias faced by Dalits in the society where they themselves form a part of it. Through their writings they attempt to make a small change in the viewpoint of the society even though many of the practices are still continuing in the society even today.

Dalit women are exposed to tremendous forms of social, economic, physical and mental torture and exploitations. Dalit women are victims of caste based killings. They are

raped when working in the fields. They are casually exposed and molested and even invite death if they dare to quench their thirst from a common well. The writings of Dalit women writers are based on the lives experiences and awareness. Dalit women writer portray their upsurge for justice. Their life is quite similar to their upper caste equivalent but the fact is that Dalit woman have been victims of patriarchal society for ages and still have very little right over human rights. Their attempt to declare their rights are often met with strong resistance from the higher castes resulting in merciless torture rapes, massacres and other atrocities, The images of reality come out the level of violence through Dalit autobiographies. The Dalit autobiography stands as honoured ends where processes of self-investigation, examining awareness, assertion and identification display a quest of self.

In Dalit autobiographies the writers have articulated their positive attitudes towards work which helped them to conquer their enemy and achieve their own identity. Dalit literature claimed with the mainstream literary theories, upper caste ideologies and explored the neglected aspects of life keeping away fantasy and illusionary aspects of life paving the way to much authenticity and liveliness of art. Unfortunately they are yielded to the situations that they are forced to delink a ‘total revolutionary’ genre of literature. They act totally indifferent towards the whole question.

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THE BELIEFS AND NUTRITIONAL STATUS OF VEGANS

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ABSTRACT

Vegans represent a group of individuals, who abstain from the consumption, of Dietary or otherwise, of any animal product. Examining the beliefs of vegans provides insight into the beliefs, motivations, practices and difficulties related to vegan diets; diets that go in opposition to the dominant meat-eating culture. The purpose of this research project is to investigate vegan's experiences and beliefs in relation to the use of animal products. Vegan's knowledge and attitudes towards vegetarian, vegan, and omnivorous diets are explored. A vegan community in Kottayam and Trivandrum were selected for the study. Sixty vegans was selected for the study by Simple random sampling. In order to collect information regarding the beliefs and nutritional status of vegans, an interview schedule was formulated. Details regarding demographic profile, socio-economic status, dietary pattern of the vegans were collected with the help of a set of pre structured interview schedules. From the study done it can be concluded that vegan life style is good for controlling life style disorders but judicious planning diet is required to reduce vitamin and nutritional deficiencies.

INTRODUCTION

Vegans represent a group of individuals, who abstain from the consumption, of Dietary or otherwise, of any animal product. The history of veganism goes back to 1944 when The Vegan Society was formed in England, as an offshoot of The Vegetarian Society. The founding members intended veganism to be a philosophy and a way-of-life, not simply a dietary practice. The Vegan Society in England, in its Articles of Association defines veganism as follows; Veganism denotes a philosophy and way of living which seeks to exclude as far as it is possible and practical all forms of exploitation and Cruelty to animals for food, clothing, or any other purpose and by extension, promotes the development and use of animal-free alternatives for the benefit of humans, animals, and the environment (Stepaniak, 2000).

The reasons of becoming vegan include many reasons that motivated the change it may be related health, moral concern about the treatment of animals, distaste for animal flesh or products, and a preference for the taste of vegetarian foods. Critical reflection on experience is the key to transformational learning. Having an experience is not enough to effect a transformation. It is the reflection on an experience that leads to growth, not simply the experience.

The pros of becoming vegan may help lower cholesterol and blood pressure, according to the AARP (American Association of Retired Persons), but vegans also have nutritional concerns that aren't as prominent among those with a balanced, omnivorous diet. Nutrition experts don't agree on whether vegetarian and vegan diets are healthier than balanced diets that include meat and other animal products, but this doesn't mean being vegan is an unworthy goal. It does mean one need to be aware of the disadvantages of being vegan and work to minimize them to enjoy a nutritionally sound diet.

Examining the beliefs of vegans provides insight into the beliefs, motivations, practices and difficulties related to vegan diets; diets that go in opposition to the dominant meat-eating culture. Vegans are a relatively unstudied group and their experience may add to our understanding about other marginalized groups and how these groups respond to the hegemonic forces that they operate against.

The purpose of this research project is to investigate vegan's experiences and beliefs in relation to the use of animal products. It explores what the experience is like becoming and living as a vegan. Each person would have consumed animal products at some point and made a decision to eliminate those products from their life. Vegan's knowledge and attitudes towards vegetarian, vegan, and omnivorous diets are explored.

In this context the study entitled "**The Beliefs and Nutritional Status of Vegans**" is carried out to understand more about veganism with following objectives.

Objectives

1. To find out the beliefs regarding vegans life style
2. To assess the nutritional status of the vegans and find out the nutritional impact on them
3. To find out the reasons behind adopting veganism
4. To find out the sources of information regarding veganism
5. To find out the nutrient deficiencies.

METHODOLOGY

A vegan community in Kottayam and Trivandrum were selected for the study. The investigator approached the vegan community for seeking the permission to conduct the study. Sixty vegans were selected for the study by Simple random sampling.

In order to collect information regarding the beliefs and nutritional status of vegans, an interview schedule was formulated. Details regarding demographic profile, socio-economic status, and dietary pattern of the vegans were collected with the help of a set of pre structured interview schedules. Since the selected subjects were residing in different parts of the selected area, data collection was made more comfortable and easy through telephonic conversations and emails. The anthropometric details and biochemical values were collected from the data stored by the community members in their register.

The discussions with the vegans were informal in nature and were aimed to collect maximum information, regarding the beliefs and nutritional status of the vegans.

RESULTS AND DISCUSSION

ANTHROPOMETRIC DATA OF THE SELECTED SUBJECTS

Table 1 depicts the BMI information of the selected subjects

Table 1
BMI of selected subjects

N=60

BMI	Frequency	Percentage (%)
Underweight	10	16.7
Normal	44	73.3
Overweight	2	3.3
Obese	4	6.7

Majority of the selected subjects (73%) have a normal Body Mass Index. Sixteen percentages of the subjects are underweight. Very few subjects are overweight (3.3%) and obese among the selected subjects (6.7%).

BIOCHEMICAL DATA OF THE SELECTED SUBJECTS

Table 2 depicts the Biochemical information of the selected subjects which includes hemoglobin, cholesterol, glucose and blood pressure.

Table 2
Biochemical values of selected subjects

N=60

Biochemical assessment		Frequency	Percentage
Hemoglobin	Mild anemia	60	100.0
	Normal	0	0
Total serum cholesterol	Desirable	54	90.0
	Border line	3	5.0
	High	3	5.0
Glucose fasting(plasma)	Non-diabetic	57	95.0
	Type2 diabetes	3	5.0
Glucose pp(plasma)	Non diabetic	57	95.0
	Type2 diabetic	3	5.0
Blood pressure	Normal	49	81.7
	Pre hypertension	8	13.3
	Stage 1 hyper tension	3	5.0
	Stage II hyper tension	0	0

From the table above it is clear that all of the (100%) selected subjects were mild anemic. Majority of the subjects have desirable level of cholesterol (90%), 5% of them are borderline and have high level cholesterol. From the table 4.2 almost all the respondents are non diabetic (95%). Majority of the respondents have normal blood pressure (81.7%). Thirteen percentages of the selected subjects are pre hypertensive and 5% are in stage on hypertension. None of them are in stage II hypertension.

GENERAL INFORMATION REGARDING ADOPTING VEGANISM

Details regarding adopting veganism by the selected population are discussed under the head. General information on adopting veganism which includes the age of transformation, duration etc. are discussed.

Table 3
General information regarding adopting veganism

N=60

General information regarding adopting veganism		Frequency	Percentage (%)
Age at which turned vegan	Below 18 years	3	5.0
	18-30 years	31	51.7
	30-40 years	16	26.7
	40-50years	8	13.3
	Above 50 years	2	3.3
Period of time being vegan	Below 6 months	11	18.3
	1 year	9	15.0
	2 year	15	25.0
	More than 2 years	25	41.7
Able to continue veganism for longer period	Yes	52	86.7
	I tried but I couldn't	6	10.0
	No	2	3.3
Difficulties encountered after adopting a vegan diet	Health issues	3	5.0
	Reducing body weight	10	16.7
	Difficulty in food choice	1	1.7
	No problems	32	53.3
	More than one reasons	14	23.3
Effect of vegan lifestyle on relations	Affected	15	25.0
	Not affected	45	75.0

The most of the subjects (51.7%) turn to vegan at the age group of 18-30 years and least percentages (3.3%) of vegans were found in the age group above 50 years. According to this data we can assume that majority of the vegans fall in the younger age group.

Most of the subjects (86.7%) were able to continue veganism without dropping it. Very few (3.3%) were not able to continue veganism for a longer period without dropping it. Ten percentages of them continued veganism by dropping in between consistently. The data shows that vegan lifestyle did not affect family and friends relationships for large percentages

of the subjects (75%). Twenty five percent of the subjects mentioned that it affected their family and friends relationships.

SOURCES OF INFORMATION ON VEGANISM

Table 4
Sources of information on veganism

N=60

Sources of information on veganism	Frequency	Percentage
Internet	22	36.7
Magazines	3	5.0
Television	0	0
Books	3	5.0
Nutritionist/dietitian	0	0
Natural care process	7	11.7
More than one reasons	28	46.7

Information regarding veganism motivated many to turn into a vegan. The data collected reveal that most of the subjects gained information through internet (36%) and natural care process (11%). Many acquired information through books and magazines (5% each). None of the subjects gained any information regarding veganism from a Nutritionist/dietitian. About 46% of the total population had more than one sources of information.

REASONS BEHIND ADOPTING VEGAN DIET

Table 5
Reasons behind adopting vegan diet

N=60

Reasons behind adopting vegan diet	Frequency	Percentage
Religious reasons	1	1.7
Influence of peer group	0	0
Sudden aversion towards non vegetarian items	0	0
Animal right reasons	1	1.7
Environmental issues	4	6.7
Health related problems	4	6.7
Ethical reasons	12	20.0
More than one reasons	38	63.3

People who adapt a vegan lifestyle for ethical reasons are often called “ethical vegans”. These vegans are concerned with the exploitation of animals and people. They believe it is unethical to take body parts from animals for food, clothing, or household items. They are against the torture and killing of animals for any reason, including medical research, entertainment, and for products (Jabs *et al.*, 1998; Larson *et al.*, 2003). A smaller number of people adapt a vegan lifestyle for environmental reasons, often called “environmental vegans” (Kalof *et al.*, 1999; Oppenlander, 2013).

The table shows that the selected subjects had more than one reason (63%) to adopt vegan diet. Among the other reasons, most of them were influenced by ethical reasons (20%). Other common reason was health related problems and environmental issues (6.7% each). Very few adopted veganism due to religious reasons and animal rights reason (1.7% each). None of them were influenced by peer group or had sudden aversion towards non vegetarian items.

VEGANS ATTITUDES AND BELIEFS

Table 6 depicts the Statements about meat of the selected subjects

Table 6
Beliefs of vegans on veganism

N=60

Statements	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
Veganism is not just a diet it is a lifestyle	00	00	5.0	16.7	78.3
A vegan’s diet helps in weight control	00	00	00	46.7	53.3
Vegans diets have less saturated fat, hence protect against many diseases	00	00	00	46.7	53.3
Vegan’s diets help people live longer and have a better quality life	00	00	00	43.3	56.7
Vegan’s diets help save money	00	00	00	36.7	63.3
A vegan’s diet minimizes the intake of chemicals, steroids, and antibiotics found in meat	00	00	8.3	43.3	48.3

From the above data, it can be concluded that majority of the selected subjects have strong belief in the vegan lifestyle. None of them disagree with the statements that show their beliefs.

Table 7
Attitude of vegans towards statement about non vegetarian diet

N=60

Statements	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
Meat is an important source for building strength.	46.7	53.3	00	00	00
Meat is an important part of the diet at all stages of life.	41.7	58.3	00	00	00
Meat is the best absorbed source of iron.	43.3	55.0	1.7	00	00
Meat such as beef and lamb is unhealthy to eat.	00	11.7	23.3	31.7	33.3
Meat is disgusting.	00	8.3	20.0	40.0	31.7
Humans have no right to kill animals.	00	00	6.7	40.0	53.3
Meat production is cruel to animals.	00	00	1.7	48.3	50.0
Meat is expensive.	00	00	16.7	46.7	36.7
Meat causes heart diseases and cancer.	00	3.3	5.0	56.7	35
Meat tastes good. I enjoy eating it	50.0	50.0	00	00	00

Table 7 illustrates the percentage of respondents regarding their attitude towards non vegetarian foods. The above data clearly states that the majority of the subjects strongly disagrees or disagrees with the comments that support non vegetarian foods.

Table 8
Response of vegans towards disadvantages of vegan diet

N=60

Statements	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
It is hard to become a vegan	66.7	33.3	00	00	00
There are not many vegans' choices to shop	1.7	23.3	16.7	41.7	16.6
The non vegetarian food takes too long to prepare	00	00	00	28.3	71.7
My family or peers don't eat vegan's food	18.3	66.7	10.0	5.0	00
The food doesn't seem interesting and tasty	21.7	73.3	5.0	00	00
Not enough knowledge about cooking techniques and nutritional recipes	6.7	65.0	6.7	18.3	3.3
Vegan's food choices are limited when eating out	26.7	66.7	5.0	1.6	00
Diet is important in treating illness and disease	3.3	6.7	00	38.3	51.7
There is not enough protein and iron in a vegetarian diet	25.0	36.7	25.0	11.7	1.7
Vegan's diets are boring	20.0	75.0	00	3.3	1.7
Vegans diets don't give enough strength and energy	18.3	65.0	10.0	6.7	00
I love fruits and vegetables	00	00	00	31.7	68.3
There are very less vegetarian choices	48.4	33.3	18.3	00	00
Vegans are hippies and weirdoes	56.7	11.6	26.7	5.0	00

From the above data it can be concluded that majority of vegans disagree with the disadvantages of veganism. All most all of them support veganism and strongly believe and follow it.

ASSESSMENT OF NUTRIENT DEFICIENCIES AND FOOD CONSUMPTION PATTERN OF SELECTED SUBJECTS

Table 9 depicts the dietary assessment of the selected subjects

Table 9
Assessment of nutrient deficiencies for selected subjects

N=60

Dietary assessment		Frequency	Percentage
Use of supplements	Protein	0	0
	Iron	3	5.0
	Calcium	2	3.3
	Vitamin B12	38	63.3
	No need	10	16.7
	More than one options	7	11.7
Use of milk and milk products	Yes	0	0
	No	60	100.0
Use of egg and egg products	Yes	0	0
	No	60	100.0

Table 10
Food Frequency of Selected Subjects

Food items	Daily (%)	Weekly (%)	Monthly (%)	Occasionally (%)
Cereals	12.6	12.8	7.8	19
Pulses	11.8	26.1	12.2	9.7
Green leafy vegetables	13.3	58.4	20.0	8.3
Roots and tubers	48.3	43.3	6.7	1.7
Other vegetable	28.3	56.7	10.0	5.0
Fats and oils	11.8	5.8	5.4	37
Sugar and jaggery	33.3	21.7	5.0	40.0
Deep fried foods	13.3	26.7	16.7	43.3
Fruits	16	17.4	14.1	12.5
Chocolates/ ice creams	8.3	15.0	5.0	71.7
Nuts	10.6	8.8	14.4	26.2
Tinned foods/ junk foods	0.3	2	9.4	48.3

Tables 9 and 10 clearly show that protein and vitamin B12 deficiencies are two nutritional problems that are often mentioned in relation to a vegetarian diet. Most of the subjects do not consume pulses which is a major source of protein for vegans on a daily basis. Vitamin B12 is found mostly in animal products and a deficiency can pose a risk to an uninformed vegan. Since majority of them (63.3%) consume vitamin B12 supplements it shows that they are deficient in it. However, eating a well-balanced, whole-foods diet, taking a vitamin B12 supplement along with minimal dietary knowledge will eliminate these potential problems.

CONCLUSION

From the study done on “**Beliefs, Attitudes and Nutritional Status of Vegans**” it can be concluded that the subjects strongly believe in the vegan life style. They have a strong positive attitude towards veganism. When considering the nutritional status; majority fall in the normal category of BMI, but all of them have mild anemia and vitamin B12 deficiency. The cholesterol and sugar levels where normal for majority.

From the study done it can be concluded that vegan life style is good for controlling life style disorders but judicious planning diet is required to reduce vitamin and nutritional deficiencies.

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Ted Hughes' poems – "Crow's Account of the Battle" and "Hawk Roosting": A Panopticon Reading

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ABSTRACT

A reading of Ted Hughes' poems "Crow's Account of the Battle" and "Hawk Roosting" in the light of Foucauldian concept of power exposes the victory of the birds, namely the crow and the hawk, as the emblematic proponents of power. Power and knowledge tempt these birds to ridicule human psyche and intelligence as trivial. The poems also reflect upon the meaninglessness of life on earth after the Second World War, as the people have lost their faith in God. The disillusioned human beings are examined by the birds through their rational thinking and diplomatic outlook. The study leads us to the realm of the birds' world where, on the one hand, the crow is packed with the sparks of knowledge, which are acquired through panoptic surveillance and on the other; the hawk is embedded with the possibilities of strategical and relational power which prompt the bird to subjugate human beings' will and fancy.

CONTENT

In this paper an emphasis is made on analysing the two poems "Crow's Account of Battle" and "Hawk Roosting" in the light of Foucauldian concepts of power. It will definitely prove the supremacy of birds over human beings. The concept of power is put forward by Michel Foucault, a German philosopher, psychologist and historian in his seminal work *The History of Sexuality: Vol-1* to a large extent. His reflections on power are vindicated in his other work *The Will to Knowledge and Discipline and Punish*. According to him power is relational. It is strategical and its impacts could not be neglected. The strategical concept of power radiates the capacity to make others docile and toe the line of the state. It has the capacity to influence others. This strategical power is ever present and ever changing. He ensures that some sort of power relation is emanating in various kinds of relationship between people and institution. Power has been interpreted as a monolithic, mysterious and autonomous force that works independently over the other. It has the supremacy over the

other. Therefore it has the capacity to develop a state of subjugation in any relationship. So power is a strategy that controls people. The term power has undergone radical transformation during the modern era. The person in power is discovering newer and newer methods to control people. During the post 1960s people became more innovative and discovered new methods to control people. Foucault being a revolutionary philosopher highlighted the peculiarities of modern means of power application like panopticon and discussed in detail about the old and new modes of punishment to discipline the society with order and correctness.

Panopticon is an architectural setting designed by Jeremy Bentham in the mid nineteenth century. It is one of the modes of regulatory power. It is applied in prison, asylums, schools, hospitals and factories to regulate and observe the people related to it. It allows the guard to observe each cell constantly from a distant point in a high central tower, unseen. Thus constant observation becomes a controlling and regulatory mechanism. Foucault cautions that this visibility is a trap. It is through this visibility that modern society exercises its controlling system of power. As a result, many of the everyday usual dealings and activities are regulated much by the modern modes of surveillance. In short, we can say that internalization of panoptic surveillance is the victory of panopticism.

Ted Hughes is an American poet who is ranked as one of the best poets of his generation. He served as poet laureate from 1984 until his death. He is reputed for his collection of poems namely *Hawk in the Rain*, *Lupercal*, *Wodow* and *Crow*. Hughes being a very serious poet, haunted by the violent memories of the Second World War and the refusal of mankind to learn from the mistakes of the past gives a grim and pessimistic picture of the world around him through his poetry.

The poem "Crow's Account of Battle" is one of the famous poems of Ted Hughes which appeared in *Crow*. In this poem the crow is perched on a privileged position. Sitting on the top of the world, the crow surveys the havoc and ruin that man has inflicted upon his planet. The genocides, the tortures, the pain and the collapse of ideologies during the Second World War, the crow realises the outcome of a state's solemn allegiance to social theory that Foucault describes in his book *Discipline and Punish*. The Urge for power and craze for dictatorship are the root causes of waging war. It brings no peace to human beings. The monarch heeds for no humanitarian aspects. As a result war occurs. They could not understand the uselessness of war. In contrast with this predicament, the crow is projected

herewith a little more understanding about life. The panoptic surveillance provides a new knowledge to the crow. It realises life as a battlefield where only screams and groans can be heard. The battle cries are so heart breaking that “Many eardrums burst and some walls / Collapsed to escape the noise” (6-7).

The second stanza vindicates a realistic depiction of war and violence. It did not spare anybody or anything. The bullets continue its courses. “Through clods of stone, earth and skin / Through intestines, pocket-books, brains, hair, teeth” (16-17). By supervising the battle field, crow becomes overpowered with a new knowledge. The crow realises that “There could not be more than learning more or more to the point / Reality was giving its lesson /Its mishmash of scripture and physics”(28-30). It learns that life on earth has been suppressed in the clash between the power oriented male dominance and the advancement of science and technology. Consequently, it brings death and destruction to the world. Jeremy Bentham who invented the central tower around it for the prisoners was not aware of the theoretical ramifications of his innovative scheme which was for simplifying the work of a prison. Hughes’ Crow is imbued with human attributes. It exposes the tragic impact of the world itself that has been converted to a prison through the progress of science and man’s inventive mechanism of tortures. Hughes’ moral philosophy revolts at the very concept of Panopticon, because the crow has nothing positive to say about the world he lives. The crow, a detached observer, watches that thousands of people are disciplined to follow an ideology. Crow’s account of battle calls upon us to contemplate the plight of man from the point of view of an outsider. Here devastation reels under the repression: Then everybody wept, / Or sat, too exhausted to weep. / Or lay, too hurt to weep. (41-43)

“Hawk Roosting” is also one of the greatest poems of Hughes which appeared in *Lupercal*. The bird hawk is depicted as an autocrat. The bird perches firmly on the bark of a tree from where it could survey the world around it. It represents the smack of arrogance, egotism and an obsession of power. The bird has no dignity of other creatures and its self-righteous contempt for human beings shows that it is a symbol of a megalomaniac. Hawk asserts that:

I kill where I please because it’s all mine.

There is no sophistry in my body:

My manners are tearing off heads –

The allotment of death (14-17).

It is also a symbol of tyranny and inhumanity. It has all the qualities of a fascist. It expects other creatures to stand in awe of its strength and capacity for inflicting pain and violence. Very obviously, the poem satires on the continuous desire of tyrants to impose their will upon others. It is this ever hungry obsession of an autocrat that Foucault analyses in his philosophical pursuit of power.

To conclude, we can say that in the modern world the concepts of power and panopticism have much relevance. Being a sensitive poet Ted Hughes has reflected upon the impending dangers that mankind is exposing itself to. There is a mistaken notion that with the passage of time, society is moving toward a more democratic and egalitarian way of political dispensation. However, late capitalism proves that this notion is far away from the truth. Information technology in its contemporary manifestations has wiped all privacies that man is entitled to. In a very subtle and discursive way society is now being disciplined and controlled by forces, sometimes even beyond the comprehensions of man. Needless to say the victims of this mechanisation are mostly the underprivileged and marginalised. Ted Hughes poems are more prophetic today than when it was written. In a nutshell we can say that Ted Hughes' poems catapult into contemporary times with powerful resonance.

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DECENTRALIZED PLANNING IN RURAL INDIA

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ABSTRACT

Indian economy is predominantly a rural one with majority of the population living in the rural areas. Facilitating public services to this huge proportion of population is quite an uphill task for any government. Ineffective public service provision in rural areas is a key concern for policy makers. Therefore an effective local government and its efficient delivery of services is important to achieve targeted goal of rural development and inclusive growth all over the country. Decentralization, in simple, terms that dispersion or distribution of functions and powers to lower levels. In the context of development, decentralization means the delegation of powers from a central authority to regional and local authorities. It implies transfer of decision-making powers from the centre of an organization to sub-units. The paper focuses on the concept of decentralized planning in rural India, examining the meaning of decentralized planning, its objectives, rationale, challenges and the opportunities ahead.

Keywords: *decentralized planning, rural development, public services, inclusive growth, regional development.*

INTRODUCTION

India is predominantly a rural country. Almost seventy percent of the population lives in the rural areas (Census of India, 2011). Facilitating public services to this huge proportion of population is quite an uphill task for any government. Despite efforts from all corners, we can see that almost forty percent of India's population still lives below poverty line. Failure in timely and efficient delivery of key public services is one the core reason of India's poverty. Ineffective public service provision in rural areas is a key concern for policy makers. Therefore an effective local government and its efficient delivery of services is important to achieve targeted goal of rural development and inclusive growth all over the country.

From the end of twentieth century, dissatisfied with centralized approaches to delivering local public services, a large number of countries have been delegating responsibility for these services to lower- level, locally elected governments (Ahmed et al., 2005). As a result, there arises a shift from a model of central provision to that of decentralization to local governments, whereby it introduces a new relationship of accountability between national and local policymakers. Decentralised planning always strives to promote equitable development at the grass-root level by prioritising the people's needs and aspiration. In this type of planning, people are considered as

an important and inseparable part and they are made to actively participate in the decision making process of the local governments which ultimately helps towards effective implementation of the development programs. Thus decentralised planning creates opportunities for effective people's participation in the planning process.

Decentralized Planning

Planning is an indispensable means to promote development. Planning for well-being of the people requires proper understanding of the local context including economic, social and cultural issues relevant for the area. Development is essentially a human problem and planning means bringing some changes in human lives. Thus, planning should bring about a fundamental change in human attitudes, institutions, values and aspirations on one hand and at the same time, promote growth in production and income on the other. This can be attained only if the attention of planning is diverted to the development of backward and rural areas. For this, it is necessary that planning should come down to local level, which can be achieved only through decentralized planning involving active participation of the people at the grass-root level.

Decentralization means transfer of certain authority and power in the matter of formulation and implementation of development plans from the highest organization or institution at the national level or state level to organisations or institutions at the sub-state level. It is a type of planning where local organisations and institutions formulate, adopt, execute actions and supervise the plan without interference by the central body. Decentralisation process in planning has acquired considerable significance with the passage of the 73rd and 74th Constitutional Amendment Acts.

True decentralization implies three things:

1. Assigning of responsibilities with matching powers and requisite finances.
2. Rendering the decentralized level fully accountable for its activities.
3. Ensuring participation of the local population in planning and implementation.

Thus the decentralized planning is a kind of 'planning from below'. Planning process in a country is having various tiers, viz., centre, state, district, sub-division, block and village. Under decentralized planning, emphasis has been given on the initiation of district planning, sub-divisional planning and block-level planning so as to reach lastly the village level planning successfully.

Objectives of Decentralized Planning

Decentralized planning is introduced in India with certain definite objectives, which includes:

1. Effective accomplishment of poverty eradication programme
2. Ensuring balanced regional development for meeting minimum needs of the people, and
3. Ensuring active public participation in the development process of different sectors.

Thus the prime objective of the decentralized planning is to attain balanced development throughout the country with active participation of the people and to eradicate poverty.

Rationale for decentralized planning

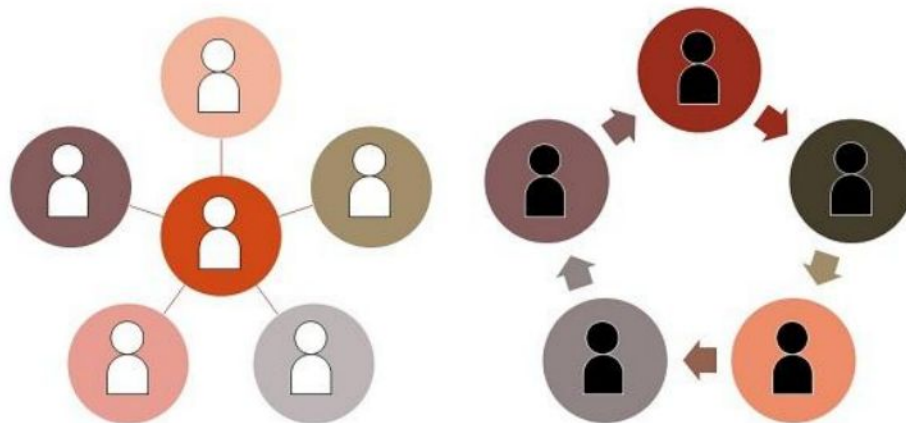
There are several important reasons for bringing decentralization in planning process for the development of any country. India is a vast country with different developmental needs and as such, one proposal for the whole country does not fit all. In such a single proposal, plans are usually worked out sector wise with little convergence and often ignorant of widely varying ground realities, particularly in the poor or backward regions. Planning at the local level can take care of the minute problems affecting the common people in a particular locality, since the problem and developmental needs are known more precisely at that level. Also, the participation of the people in the planning process has intrinsic value in making governance inclusive and the development sustainable. These would facilitate fuller utilisation of resources according to the needs of the local people by making them capable of achieving a minimum standard of living.

Following are some of the important factors responsible for adoption of decentralized planning in India:

- (i) Better Linkages between the Villages and Small Towns can be developed under local conditions, priorities and resources
- (ii) Planning Becomes Realistic and Flexible by fulfilling the normal requirements of the rural population.
- (iii) Decentralized planning is suitable for the development of agricultural and allied activities in the local level
- (iv) Promote People's Participation in decision making at local levels
- (v) Minimizing Wastage of Resources by keeping a close watch over the utilization of fund and implementation of plan projects.
- (vi) Trickle down Effects in respect of poverty alleviation programmes and employment generation in rural areas.
- (vii) It helps in launching Social Services for the well being of the local community.
- (viii) Decentralized planning process is more simple and transparent

Centralised v/s Decentralised Planning

Maintaining the decision making process and planning with the top administration authority is called Centralization, whereas the distribution of power, accountability and responsibility to the different administration levels, is called Decentralization.



CENTRALIZATION VS DECENTRALIZATION

In Centralized planning, the power of making decisions is there in some powerful hands. All the critical decisions and activities at the local level are liable to the approval of top administration. At the same time, decentralized planning involves an efficient assignment of power at all levels of administration. It indicates a grass root level planning, which provide opportunities for the local people in decision making process, whereby their needs and necessities are truly represented.

Thus, all powers and authorities are in the hand of top management in centralization while powers are distributed among multiple persons in decentralization

Decentralized planning in rural India

The planning process in India started in 1951 with the launching of the first five year plan. Since then India's planned development has been guided mainly by two objectives-

1. to build up a democratic, rapidly expanding and technologically progressive economy
2. to maintain a social order based on justice and offering equal opportunity to every citizen.

In the present day system, development is looked upon from a new angle as a human problem, and is directed towards the transformation of man and his traditional social set up. The satisfaction of basic human needs becomes the primary goal of development in any nation. This radical change in approach to development through mass participation as well as bridging the gap between rich and poor has created an urgent necessity for decentralisation of planning. Development without improvement in the living conditions of the people and without representing their basic needs and requirements seems to be in vain at present. To this end, the move to strengthen planning at the local level is a welcome development.

Decentralized planning is highly significant in a country like India, where majority of the population resides in rural areas. Moreover, decentralized planning is being prepared in the light

of local issues and on the basis of local resources, representing local needs and priorities. In India, the process of decentralized planning and its performance is depending upon the activities of Panchayati Raj Institutions established at the district, block and village levels. At the district level there are Zila Parishads or Councils, at the block level there are Panchayat Samitis and at the village level a number of Gram Panchayats are working for the implementation of various plan projects.

Challenges faced by decentralized planning in india

In spite of all the benefits and opportunities as part of decentralization, planning in Indian economy is not free from a number of challenges and limitations on its trajectory. Following are some of the important factors which are responsible for the dismal performance of decentralized planning in India:

- (i) Lack of Proper Administrative Bodies at the local level
- (ii) Unsuccessful Land Reforms due to the fact that Panchayati Raj institutions are dominated by landed interests, whereby they failed to show much interest in the implementation of beneficiary oriented programmes in rural areas of the country.
- (iii) Lack of Adequate Resource Transfer
- (iv) Absence of Effective Organization of local community, leading to lack of proper representation of their economic interests.
- (v) Regional Disparities or regional backwardness in various states in respect of development
- (vi) Use of Inferior Resources, as the superior and productive resources are under the effective control of elite section of rural society

Thus, the performance of decentralized planning as an instrument of development and change is not at all satisfactory due to these above mentioned factors.

The way forward

After half a century of planning and rural development, it is time for serious planning in this area. In India, decentralized planning is considered as the sole machinery for the control and way out of many serious economic problems like poor growth rate, poverty, inequality, unemployment, unbalanced growth, regional inequalities, etc. During the last many years of centralized planning, the country has failed to deal with its economic problems in a proper manner. Thus, in order to tackle these issues effectively, it is an urgent requirement that the planning process in India should be decentralized effectively at the grass root level in a suitable approach.

Today, decentralized planning has become both necessary and possible. It is a fact that there is no short cut solution for proper adoption of decentralized planning. The process has to be

planned and implemented from the very basic level with all its objectives, representing each and every corner of the country without any exclusion on any ground. Thus, the need of the hour is nothing, but to bring about decentralization of the planning process in all its complete sense throughout the country.

CONCLUSION

Decentralised planning has a noble objective which can be achieved only through a systematic strategy. The major focus should be on integrating people's participation with the democratically decentralised local governments. Lack of decentralised planning has proved to be a serious impediment either to growth or social justice of any country. It is high time that Panchayat, as the local government, has to plan for 'economic development and social justice' as per the Constitution and with participation of the people by fully appreciating the local context for effectiveness of such plan and efficiency of its implementation. It should be noted that proper measures should be taken for improving the initiatives and awareness among the people, particularly the beneficiaries from the local level planning by organising them into activity-specific groups, associations and cooperatives, and also by using mass media to disseminate useful information to them. The role of voluntary or non-governmental organisations is exceptionally important in this respect. With more organised, and motivated actors, better equipped facilitators and new sophisticated tools, rural development in all its dimensions may now be planned more professionally and more effectively

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EFFECT OF WASHING AND STIFFENING AGENTS ON THE GROWTH OF EARTHWORM SPECIES

Eudrilus euginae

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ABSTRACT

Earthworms maintain soil fertility by acting as aerators, grinders, crushers, chemical degraders and biological stimulators in the soil. Soil contamination has enormously increased during the last decades due to intensive use of biocides and fertilizers in agriculture, industrial activities, urban waste, xenobiotic chemicals and atmospheric deposition. Soil pollution causes decrease in soil fertility, alteration of soil structure, disturbance of the balance between flora and fauna residing in the soil, contamination of the crops and groundwater constituting a threat for living organisms. The effect of soap, detergent, dish wash bar and stiffener on the growth of earthworm species *Eudrilus euginae* was evaluated by maintaining the earthworms in an experimental setup resembling top soil. The earthworms were treated with equal concentrations of washing and stiffening solutions for 15 days and the growth rate was determined. Comparative results of the treatments showed deleterious effects of detergent and dish wash solutions on the growth of the earthworms and in the appearance and texture of the soil.

INTRODUCTION

Earthworms like *Eudrilus euginae* are highly adaptive, widely distributed and have been established with introduction by man in countries other than their natural homes (Bhatnagar and Palta, 2007). On the basis of ecological strategies Bouche (1977) classified earthworms into three categories-epigeics, anecics and endogeics. *Eudrilus euginae* (common name, African night crawler) are epigeic, phytophagous surface dwellers that live in the top soil and prefer an environment of loose organic litter (Sushama, Bindhu and Gopinathan, 2009). Growth (assimilation and conversion to biomass) is faster than other species and ranges up to 4.3 mg/individual (Bhatnagar and Palta, 2007).

Earthworms are advantageous to composting –the process of converting dead organic matter into rich humus, a medium vital to the growth of healthy plants. Earthworms by their burrowing and tunnelling activity help in improving soil aeration, porosity, permeability, water filtration and absorption rates helping soil to drain better. Castings can hold more water than equivalent amounts of soil and absorbs water faster than soil (Tewatia, 2007).

Soil pollution is caused typically by improper disposal of waste and adversely affects the microorganisms present in the soil causing the soil to lose its fertility. The lower pyramid levels of the food chain may ingest alien chemicals which become more concentrated and biologically magnified for each consuming rung of the food chain. Alkyl phenoxy polyethoxy ethanols found in laundry detergents are slow to biodegrade in the environment causing chronic health problems. Likewise, toxic chemicals like alcohol isopropyl, alkanol amines and alkyl benzene sulphonates (identified as anionic surfactants) found in laundry detergents are slow to biodegrade and are toxic to the environment.

Grey water is waste water generated from domestic activities such as dishwashing, laundry and bathing. Grey water may contain toxic chemicals like bleaches, bath salts, artificial dyes, chlorine based cleaners and strong acids/alkalies which are discharged into the environment during day to day cleaning activities. In India, domestic waste water is used for irrigating kitchen gardens and crop lands may ultimately cause nutritional imbalance, disorders and toxic effects on growth and metabolism of organisms.

Hence the present study on “The effect of washing and stiffening agents on the growth of earth worm species *Eudrilus euginiae*” is relevant.

The project has two main objectives –

- Comparative analysis of the effects of solutions of laundry soap, detergent, dishwash bar and stiffener on the growth of earthworms
- Comparative study of the physical appearance and texture of soil on treatment with washing and stiffening agents

MATERIALS AND METHODS

MATERIALS

- 1) Experimental organism :75 earthworms -*Eudrilus eugeniae* (african night crawler)
- 2) Containers for experimental setup: five small plastic pots
- 3) Materials used for treatment: laundry soap, detergent, dish wash bar and fabric stiffener of popular brands.

METHODOLOGY

Necessary amount of garden soil was collected from top soil layer and cleared of any unwanted substances. Earthworms used in vermicomposting (*Eudrilus eugeniae*) were purchased from the vermicomposting unit of the Solid Waste Management Centre at Vedimara, Paravoor municipality. They were counted, measured and fifteen were allotted for each experimental setup. The experimental setup was maintained for a period of 25 days in which treatment was carried out for 15 days. The pots were filled with a layer of laterite rock and coarse sand to act as base for the soil and cow dung soil mixture (in the ratio of 3:1) and 15 live worms were gently released over it. Wet gunny bags wrapped around the lids were used to cover the pots.

Laundry soap, detergent, dish wash bar and stiffening agent of popular brands were measured and solutions were made. Small sized pots set as top soil composition were labelled as **A, B, C, D and E. Pot A**-Control (normal water) In pots B, C, D, E (experimental groups), instead of normal watering, following treatment agents were applied in identical concentrations. **Pot B**- Laundry soap **Pot C**- Detergent **Pot D**- Dish wash bar **Pot E**- Fabric Stiffener

From the prepared solution of 75 gm of laundry soap dissolved in 3litres of water (2.5% solution) , 200 ml was measured and added to pot B every day. This resulted in addition of 5 g of solute into the soil per day. Similarly, 200 ml of the solutions of detergent, dish wash bar and stiffening agent were added to respective pots on a daily basis. To estimate the growth and survival of the 15 earthworms in each pot, a sample of earthworms were counted, measured and recorded after every 5 days of treatment. Three observations were made during treatment period at intervals of 5, 10 and 15 days. After 15 days of treatment, pots were retained until last observation taken on the 26th day.

OBSERVATIONS AND RESULTS

1. The Effects of Solutions of Laundry Soap, Detergent, Dishwash Bar and Stiffener on the Growth of Earthworms

TABLE 1: The number of earthworms recovered from pots A-E

DAY	Number of Earthworms				
	POT A	POT B	POT C	POT D	POT E
0	15	15	15	15	15
5	15	7	0	0	13
10	5	5	0	0	5
15	5	5	0	0	5
25	15	7	0	0	9

FIGURE 1: Component bar diagram showing the number of earthworms that survived the 25 day treatment

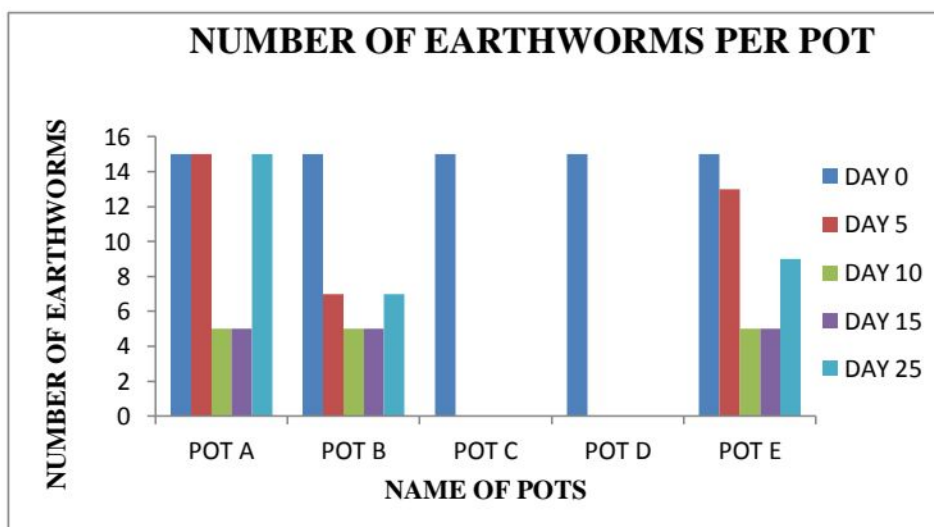


TABLE 2: Growth of earthworms in the experimental setup resembling top soil

DAY	Average length of Earthworms (in cm)				
	POT A	POT B	POT C	POT D	POT E
0	6.65	6.74	6.18	6.34	6.39
5	7.1	7.24	0	0	7.33
10	7.64	7.48	0	0	7.76
15	7.9	7.68	0	0	7.96
25	8.4	7.98	0	0	8

FIGURE 2: Bar diagram showing the growth of earthworms in pots A-E

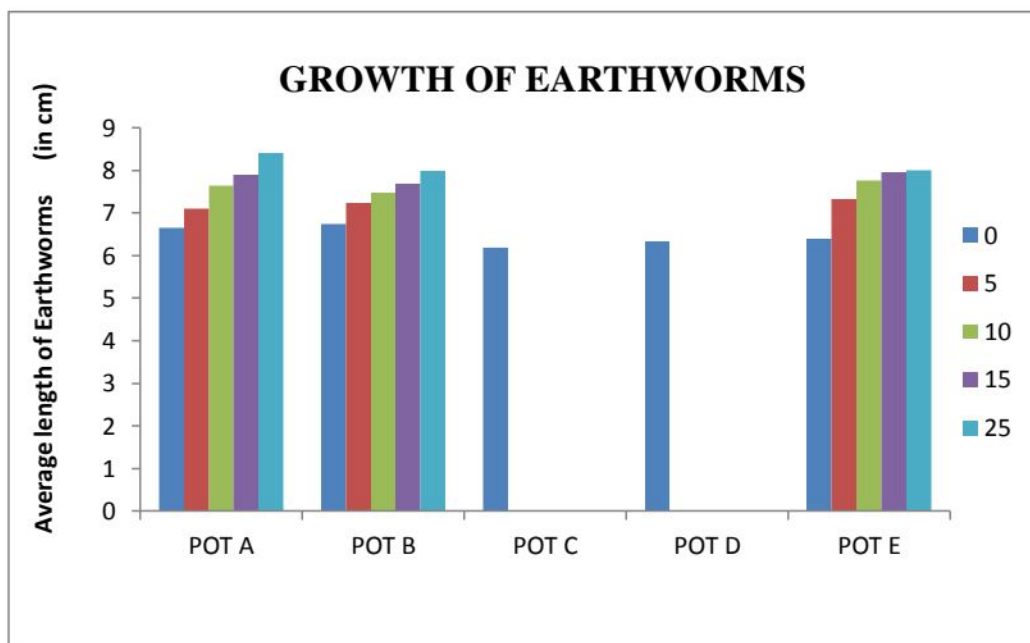
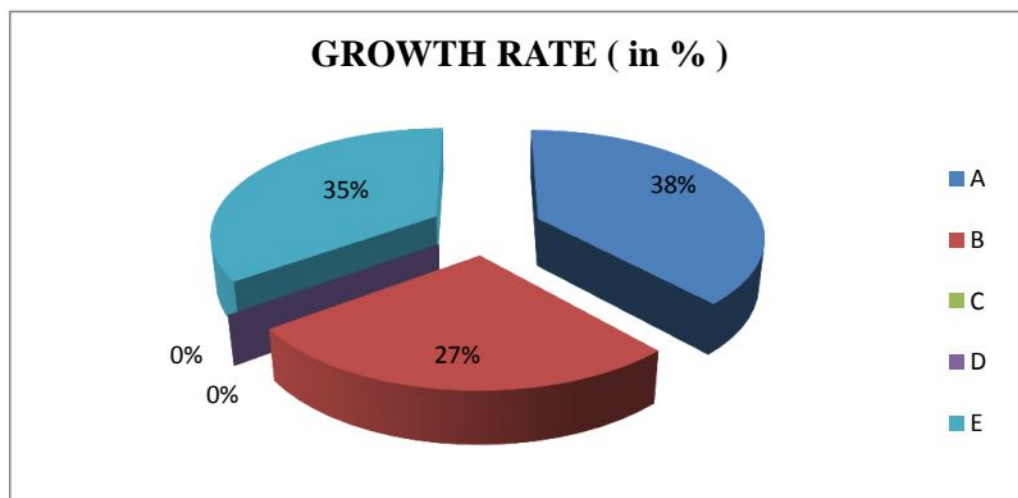


FIGURE 3: Pie diagram showing the effect of washing and stiffening agents on growth rate of earthworms (in %).



2. The Physical Appearance and Texture of Soil on Treatment with Washing and Stiffening Agents

TABLE 4

NAME OF POT	APPEARANCE OF SOIL	TEXTURE OF SOIL
A	Normal, no odour	Mostly decomposed, moist
B	Clogged with thick yellow slime	Wet and sticky
C	Foul odour, blackish decayed foliage	Water logged
D	Odour of decay, unhealthy dark greenish residues	Dry ,slightly decomposed
E	Milky layer of solution on top	Moist and partially decomposed

DISCUSSION

Soil dwellers such as earthworms are inevitably subject to the toxicity effects of pollutants (Chao, 2009). Among soil invertebrates earthworms are relevant organisms for soil formation and organic matter breakdown in most terrestrial environments. Because of their particular interactions with soil, earthworms are significantly affected by pollution due to intensive use of biocides in agriculture, industrial activities, and atmospheric deposition. Hence, earthworms are valuable bioindicators of soil pollution (Lionetto et.al, 2012). Growth

and reproduction have been recommended as useful sublethal criteria to evaluate chemical toxicity in earthworms (Yasmin, D'Souza, 2010).

The effect of soil pollutants (washing and stiffening agents) on the growth of earthworm species, *Eudrilus eugeniae* was tested. In POT A a steady growth pattern was observed and an increase of length of 1.75 cm was noted in a time period of 25 days. All 15 earthworms were successfully recovered. In Pot B initially 15 earthworms of average length 6.74 cm were added and after treatment with laundry soap solution for only 7 were recovered. On an average 1.06 cm of length has increased and this value is lower than that of the normal setup (Pot A). In Pot C and D 15 earthworms were introduced and it was observed that none survived after 5 days of treatment. The experiment was repeated and the worms did not survive either and the experiment was concluded with the inference that the experimental organism is highly sensitive to detergent and dishwash. In POT E initial no. of earthworms is 15 (average length 6.39 cm). After 25 days of treatment only 9 were found and a total increase in length of 1.61 cm was observed. EDTA(ethylene diamino tetra acetate) and NTA (nitrilotriacetic acid) used in laundry detergents does not readily biodegrade and once introduced into environment, can redissolve toxic heavy metals trapped in underwater sediments allowing them to re enter and recirculate in the food chain. Chlorine found in dishwasher detergents has direct effect on living organism and react with organic matter in the environment to create other hazardous and carcinogenic toxins including trihalomethanes. In Pot A the observed growth rate was 7 % while in Pot B and Pot E there was 4.24% and 6.4% growth rate respectively. Since no worms survived in Pot C and Pot D growth rate is 0. Therefore it can be inferred that the effect of stiffening agent on the growth of earthworms in top soil is lesser than laundry soap, detergent and dish wash bar and detergent and dishwash bar are most harmful to the earthworms. The toxic effects of chemicals or heavy metals through soil contamination and land particles will affect their populations, activities and subsequently the grazing and detritus food chains (Oboh *et.al*, 2007). The appearance and texture of the top soil is completely altered by treatment with detergent and dish wash bar. The use of synthetic detergents is on increasing ladder due to shift from soaps to detergents. Exposure of soil to xenobiotics makes it hostile for microorganisms. This in turn affects the microbial enzymes and soil fertility (Asok and Jisha, 2012).

CONCLUSION

In India, the reuse and recycling of grey water both domestically and for use in commercial irrigation without realising that the surfactants and other additives may directly affect soil and crops or may bioaccumulate. Growth parameters of earthworm exposed to washing and stiffening agents seem to be useful bio indicators of soil pollution. Additional studies with different species of earthworms including different end points, effluents, temperature regimes and soil types may provide comprehensive knowledge on the malfunction in soil biological processes due to soil pollution. Also better waste water disposal practices must be followed to minimize the release of grey water directly into the soil. The Grey water Treatment and reuse systems (GWTRS) which treats and recycle the wash water generated from Bathrooms/shower tubs or Laundry for toilet flushing or gardening water requirements, are domestic or custom built treatment systems operated on eco-friendly biological process further purifying treated water by micro filtration process. Biodegradable detergents and dish washing agents must be promoted and indiscriminate release of toxic chemicals must be restricted.

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A STUDY ON PROFILE, UNMET NEEDS AND STRESS AMONG CARE GIVERS OF BEDRIDDEN PATIENTS IN NORTH KERALA

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ABSTRACT

A caregiver is an unpaid person who helps the patient with his physical care and management of the disease. Normally, the caregiver is a family member or a friend. Despite the positive aspects of care giving, prolonged care giving has negative effects on the physical health of caregivers such as interrupted sleep, chronic fatigue, myalgia and irregular eating. Psychological health is also severely affected. As compared to the general population, primary caregivers are frequently depressed and anxious, having symptoms of psychological distress. Unmet needs of caregivers can be classified into domains namely inadequacies in caregiver knowledge, lack of communication between patient, caregiver and service provider, weak social support, lack of financial support, physical, psychological and emotional setback of the caregiver, little or no respite care options and lack of public and technical awareness about caregiver issues. Unmet needs over a period of time leads to caregiver stress or burden. In order to strengthen the caregivers, the most pressing unmet needs and burdens of family caregivers must be addressed.

Key words: caregiver, bedridden, unmet needs, caregiver stress.

INTRODUCTION

The demographic transition has resulted in increasing life expectancy and an increasing proportion of the elderly people all over the world. A parallel epidemiologic transition has led to a predominance of chronic diseases. Global life expectancy at birth was 65 years in the year 2002 while the health-adjusted life expectancy was 56 years. This means that on an average, every citizen of the earth will live about 9 years of their total life span with some disease or disability. Many of such people need long term personal assistance in their activities of daily living of life due to severely disabling and chronic nature of their diseases. Informal care is the most important form of care of disabled persons throughout the

world. The care burden for elderly requiring care is a serious social issue due to increasing life expectancy and the resulting need for long-term care. Schulz, R., Sherwood, P.R (2008).

Caregiver burden, one of the consequences of care giving has been defined as “the physical, psychological or emotional, social and financial problems that can be experienced by family members caring for impaired relatives.” Care giving is an engaging task, which may result in subjective feelings such as abandonment, entrapment and demoralisation. Therefore, treating care givers becomes important, since stress holds back the quality of support they can give to the patient. In developing countries where the backbone of the long-term health care system is informal care givers, strengthening support for family caregivers becomes essential. Kulkarni, P., Kulkarni, P., Ghooi, R., *et al.*,(2014). In order to do so, the most pressing unmet needs and burdens of family caregivers must be addressed. Most of these patients are cared for at home, with family members and friends providing the bulk of the care. The Studies on caregiver stress are very few in India and no such study has been done in this part of the country. Thus, it was decided to study the extent of unmet needs and burden among caregivers with the following objectives.

Objectives

- To find out the socio economic background of caregivers of bedridden persons.
- To assess the unmet needs of caregivers of bedridden.
- To understand the stress pattern of caregivers of bedridden persons.

METHODOLOGY

110 totally bedridden patients were identified from three nearby panchayath of Pariyaram Medical College, Kannur. One hundred and four primary caregivers of totally bedridden patients were selected for the study. A cross-sectional study was conducted among caregivers after obtaining informed consent using a pretested semi-structured questionnaire based on specific local and cultural situations to assess the profile, unmet needs and the stress factors of caregivers of totally bedridden patients. Unmet needs were assessed by asking the patient to answer in the affirmative if there was an unmet need. Different aspects of stresses-physical, social, and psychological were assessed on a 5-point scale. Overall stress was assessed on 10-point scale where 0 was taken as having no stress, 1-3 mild stress, 4-6 as being moderately stressed and 7-10 as being severely stressed.

Table I**Disease profile of the patients being looked after by the care givers**

Disease Profile of the Patient	No. (%)	No. (%)
Diseases		
Stroke		41 (39)
Old age with co morbidities (Contractures, dementia, diabetes, hypertension, etc.)		32 (31)
Cancer		11 (10.5)
Fractures		9 (8.5)
Parkinsonism		4 (4)
Cerebral Palsy		4 (4)
Multiple sclerosis		1 (1)
Transverse myelitis		1 (1)
Diabetes with above knee amputation		1 (1)
Duration of being Bedridden		
<1 year		43 (41)
1 – 5 years		40 (38)
5 – 10 years		13 (13)
>10 years		8 (8)

Out of the 104 caregivers, 100 (96%) were females. The mean age of the caregivers was 51.07 ± 13.94 years.

Table II
Profile of the Caregivers

Profile of the Caregivers	Number (%)
Age (In years)	
21 – 30	12 (11.5)
31 – 40	13 (12.5)
41 – 50	26 (25)
51 – 60	26 (25)
>60	27 (26)
Relationship with the Patient	
Daughter	33 (32)
Wife	31 (30)
Daughter-in-law	21 (20)
Mother	5 (5)
Husband	4 (4)
Grand daughter	4 (4)
Sister	3 (3)
Mother-in-law	2 (2)
Sister-in-law	1 (1)
Marital Status	
Married	89 (85)
Unmarried	5 (5)
Widowed	9 (9)
Separated	1 (1)
Religion	
Hindu	75 (72)
Muslim	19 (18)
Christian	10 (10)

Table 111

Socioeconomic status of the study population

Socio-Economic Status	Number (%)
Education	
Illiterate	7 (6.7)
Primary	21 (20.1)
Secondary	35 (33.7)
High school	27 (26)
Plus 2	12 (11.5)
Semi-professional	2 (2)
Occupation	
Nil	84 (80.7)
Unskilled	14 (13.3)
Skilled	2 (2)
Clerical	2 (2)
Semi-professional	2 (2)
Monthly Family Income (In Rs.)	
≤ 5000	21 (20)
5001 – 10000	25 (24)
10001 – 20000	37 (36)
20001 – 40000	19 (18)
>40000	2 (2)
Social Scheme Pension Availed by CG or Patient	
Old age	32 (31)
Widowed	4 (4)
Caregiver	5 (5)
Farmer's	7 (7)
Disability	1 (1)

While 49 caregivers were availing social scheme pension of the government, 20 were employed with an income ranging between Rs.1500 and 15000 and another 6 were utilizing retirement pension of the patient’s or their own

Table IV
Unmet need of care givers

Unmet Needs	Yes Number (%)	No Number (%)
Lack of recreation	68 (65)	36 (35)
Lack of sleep	65 (62)	39 (38)
Totally responsible for the patient	69 (66)	35 (34)
Lack of respite care	89 (86)	15 (14)
Technically untrained	99 (95)	5 (05)
Ill themselves	55 (53)	49 (47)
Have no time/inclination to see a doctor	36(35)	68 (65)
No source of income for themselves	29 (28)	75 (72)
Income insufficient for themselves	66 (64)	38 (37)

Table V
Physical stress in care givers

Physical Stress	Nil No. (%)	Rarely No. (%)	Sometimes No. (%)	Frequently No. (%)	Always No. (%)
Feel tired	11 (11)	18(17)	25 (24)	46 (44)	46 (44)
Single person Responsible	13 (12)	32(31)	24 (23)	26 (25)	26 (25)
Deterioration of health	21 (20)	28(27)	23 (23)	20 (19)	20 (19)
Find no time to relax	6 (6)	22 (20)	32 (31)	5 (5)	5 (5)

Table VI
Emotional and Psychological Stress

Emotional and Psychological Stress	Nil No. (%)	Rarely No. (%)	Sometimes No. (%)	Frequently No. (%)	Always No. (%)
Have a constant feeling that you are not taking enough care of the patient	25 (24)	34 (32)	35 (34)	9 (9)	(1)
Feel mentally tired	12(11)	18 (17)	12 (11)	54 (53)	8 (7)
Worry about relative's death	8 (8)	21 (20)	20 (19)	43 (41)	12 (12)

Table VII
Social stress in care givers

Social Stress	Nil No. (%)	Rarely No. (%)	Sometimes No. (%)	Frequently No. (%)	Always No. (%)
Feeling of isolation	29 (29)	34 (32)	18 (17)	17 (16)	18(17)
Feel that social life has been affected	13 (12.5)	37 (36)	13 (12.5)	29 (28)	13 (12.5)
Feel embarrassed in front of visitors	40 (38)	16 (15.5)	29 (28)	16 (15.5)	29 (28)
Find time for social activities	13 (12.5)	11 (11)	29 (27.5)	40 (38)	29 (27.5)

Table VIII

Stress Due to Technical Uncertainty and Physical Environment of the Caregivers.

Technical Uncertainty	Nil No. (%)	Rarely No. (%)	Sometimes No. (%)	Frequently No. (%)	Always No. (%)
Uncertain about technical skills	48 (46)	9(9)	16(15)	27(26)	4(4)
Patient affected relationship with other family members	63(61)	9(9)	18(17)	13(12)	1(1)

Table IX

Social stress in care givers

Stress Level	Nil-to-Mild No. (%)	Moderate No. (%)	Severe No. (%)
Physical stress	14 (13%)	59 (57%)	31 (30%)
Psychological and emotional stress	18 (17%)	77 (74%)	09 (9%)
Social stress	30 (29%)	58 (55%)	16 (15%)

DISCUSSION

Out of the 110 totally bedridden home-based care patients, 104 caregivers participated. All of them were family members of the patient. Out of the 104 caregivers, 100 were women. Women dominate over men as caregivers because it is defined in the traditional division of labour between sexes. The reasons mentioned by them were because they were expected to do this traditionally due to love and affection and also because they had no other option. Home based care usually means care by women, because it is assumed that women should look after the family and because men get higher wages should work for the family. The few studies done on caregiver burden in India also show that mostly caregivers are women (Reinhard, Given, Petlick, *et al.*, 2008).

The mean age of the caregivers was 51.07 years. There are studies which show mean age of caregivers to be between 45 to 60 years. The common relation of the caregiver to the

patient was a daughter followed by a wife. Two were second wives married to look after the patient in his old age and in the event of an illness. Daughters-in-law constitute 20% of the caregivers, again keeping up with the traditional norms of India. In a study done on caregivers in North India, spouses- and daughters-in-law were the main caregivers. Bains and Minhas, 2011).

There were 7 caregivers who did not go to school, 21 of them studied up to primary level, 35 up to secondary and 27 up to high school level. Twenty caregivers were employed. Out of the 20, 14 were unskilled laborers and 2 each were skilled, clerks and semi-professionals. Another six were utilising retirement pension of the patient's or their own. Forty nine pairs of the caregivers and patients were drawing a social scheme pension for either one, which was being utilised by the caregiver for both self and patient needs. Thus out of the 104 caregivers, 75 had an income of their own either as social or job pension or as wages and this ranged between Rs. 1500 and Rs. 15000.

Monthly family income ranged from Rs 1500 to 40000. There were 2 families with income more than Rs 40000. The families with a higher income range had more than 1 person generating income (2 earning members in 8 families and 3 earning members in one family) or had a relative working abroad. One very poor family was supported by a mosque and another poor family was supported by a relative not living in the same house. Ninety eight percent of the 104 families belonged to the lower socioeconomic strata.

Informal care giving creates several unmet needs among the caregivers, especially women and brings with it several unintended and undesirable outcomes, stress and ill health being the most important of them all.¹¹ Stress is both a cause and effect of a disease. The stress caused by the disease and the poor quality of life in the patient is perceived to be more by the caregivers than the patient himself. Taking care of a chronically ill patient demands a lot of patience, compassion, commitment and kindness. Bedridden patients, due to helplessness tend to lose their patience and take out their frustrations on their primary caregivers. The physical act of looking after patients, mental worries regarding their prognosis, the social isolation faced, expectations and criticisms of other family members, other responsibilities in the family, technical and financial insufficiencies are all factors that cause stress in the caregivers and eventually lead to disease amongst them.

This study made an attempt to study the unmet needs of the care giver. Thus 65% did not have time for recreation, 62% did not get enough sleep, 66% were totally responsible for the patient and 64% said that they did not have sufficient money for themselves, 86% did not

have a scope for respite care and 95% were not technically trained initially (Usha, Binoo, Salini *et al.*, 2016)

In various aspects of physical stress, emotional and psychological stress, social stress, technical skill and physical environment, answers no, rarely, sometimes, frequently and always were obtained while total physical, psychological and social stress were obtained on a 10-point scale, 1 being nil, 2-4 mild, 5-7 moderate and 8-10 severe.

Lack of recreation, lack of sleep being totally responsible, being ill and insufficient income were factors associated with moderate-to-severe physical stress, while lack of recreation being totally responsible and insufficient income were factors associated with moderate-to-severe social stress. Lack of recreation was associated with psychological stress. Although, more than half of the caregivers said they frequently or always worried about their relative's death or they were mentally tired; this stress was seen among all caregivers irrespective of the unmet needs.

Keeping up with the expected socio-cultural norms of India, very few caregivers felt they were trapped to do the work of care giving. Majority had a sense of inborn responsibility and had a positive attitude towards care giving. For the same reason, they also did not blame the patient for strained relationship with other relatives. The very few who agreed were the younger women who had young children to look after (Usha, K., Binoo, D., Salini, K., *et al.*, 2016).

CONCLUSION

Informal care is the dominant mode of helping people with disabilities with their long-term care needs. Services to be aimed primarily at informal caregivers may be designed to increase the level of knowledge and emotional support of caregivers, provide relief from the unending burden of caring for a disabled person or provide financial benefits to those who take on this responsibility. Caregivers will benefit from information about patient prognosis, measures to improve quality of life and end of life issues which may result from enhanced direct relationship with clinicians. Technical training may further decrease burden.

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DIETARY MODIFICATION THROUGH NUTRITION EDUCATION IN FAT TISSUE DISTRIBUTION AMONG SELECTED OBESE MENOPAUSAL WOMEN

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ABSTRACT

The study was aimed at determining effects of health-oriented education in nutrition and the resultant changes in diet composition, dietary habits and fat tissue distribution in obese menopause women. The study involved 100 obese menopause women aged 45-55 years. The subjects were given education using teaching aids like Power point presentation and folder after collecting and assessing their dietary habits and other data. The education was given individually. The education programme was evaluated using a questionnaire. A sub-sample of 25 women were selected randomly for evaluation. The selected sub-samples were again taken to measure the fat tissue distribution using BMI, WHR, total body fat percentage and skin fold thickness. The fat tissue distribution was above the normal range. It was seen that before the education programme majority of the samples were pre obese and came under class I obese followed by class II and then class III obese. After imparting the education there was small significant change in BMI of the samples.

Keywords: menopause, fat distribution, dietary modification, nutrition education

INTRODUCTION

A woman has been the torchbearer of the society for centuries. She is responsible for the miracle of birth. As life goes on, there are a lot of changes that occur in women's life cycle. Major concern in woman's life is reproductive health, and it needs much attention than her counter parts (John, 2009).

Good nutrition is important for all women around the time of menopause. Irregular eating can make certain symptoms worse, such as feeling tired or even the hot flashes that sometimes accompany menopause. For any healthy diet, balance is imperative. The right foods in the right portions and correct amount of both food and water to promote digestion and to ensure a healthy body weight (Leef, 2015).

Nutrition education plays a key role to make general population aware about the importance of diet and exercise. Nutrition education is viewed as the process of persuading people to act in their own interest. Menopausal women have an increased tendency for gaining weight thus a study which aims at reducing fat tissue distribution through nutrition education was conducted.

MATERIALS AND METHODS

The area chosen for the study was Ernakulam District under this Vytilla, Elamkulam and Kaloor was selected. A total of 100 obese menopausal women in the age group of 45-55 years were purposively selected for the study. Before giving the nutrition education the base line information on life style pattern, menopausal history, assessment of fat tissue distribution like Body Mass Index (BMI), Waist Hip Ratio (WHR), total body fat percentage and skinfold thickness, dietary pattern were collected. The investigator collected information with the help of a questionnaire. After assessing the data obtained from the baseline study, nutritional needs of the sample were determined and messages were developed and appropriate teaching aids were prepared for the nutrition education. The process of education was done individually, implemented with the help of the prepared teaching aids. Then evaluation of the education programme was done with the help of a questionnaire which included questions related to the information given in the content of the teaching aids. Sub samples of 25 women were selected randomly for evaluation. An evaluation questionnaire was given to each sample after the education. The selected sub-samples were again taken to measure the fat tissue distribution using BMI, WHR, skin fold measurement and total body fat percentage.

RESULTS & DISCUSSION

Total of 100 obese menopausal women in the age group of 45-55 years were selected. Menopause for 63 subjects occurred at the age range 45-55 years and for 37 subjects at the age range 55-65 years. The subjects had normal sleeping hours(6-8 hours), some of them were physically by doing exercises. More than half of the subjects preferred taking food from outside like packet food, aerated drinks, etc. The mean nutrient intake of the sample reveals that the amount of energy, protein and fat were excess than the RDA where as the amount of calcium and iron seems to below than the required amount.

Table 1
Average daily intake of nutrients by 24 hour recall method
(n=100)

Nutrient	RDA*	Mean nutrient intake	Percentage(%)
Energy(kcal)	1900	2098.39	+ 198.39
Protein(gm)	55	56.83	+ 1.83
Fat(g)	20	40.9	+20.9
Calcium(mg)	600	425	-175
Iron(mg)	21	20.4	-0.6

*National Institution of Nutrition, 2000.

All the samples experience menopausal symptoms like mood swing, fatigue, 84% aching and sore joints, bloating, etc. So as to suppress the symptoms some consume multivitamin tablets. The BMI (Table 2) shows that 32% of the samples comes under pre-obese and Class I obesity respectively. 21% come under Class II obesity and 15% come under Class III obesity.

Table 2
Body Mass Index of the samples
(n=100)

BMI range	No. of subjects	Percentage(%)
Pre-obese	32	32
Obese		
Class I	32	32
Class II	21	21
Class III	15	15

WHO, 1995, WHO, 2000 and WHO 2004.

The entire sample had a waist-hip ratio above normal (Table 3).

Table 3
Waist Hip Ratio of the selected subjects
(n=100)

Waist Hip Ratio*	No. of subjects	Percentage (%)
<0.85	-	-
>0.85	100	100

*National Institute of Nutrition, 2000

More than half of the sample had skin fold thickness between 35.4 - 40.0 which is obese and the rest come under 29.3-35.3 group which is average (Table 4).

Table 4
Skin Fold Thickness of the selected samples
(n=100)

Skin Fold Thickness	No. of subjects	Percentage (%)
Lean	-	-
Ideal	-	-
Average	42	42
Obese	58	58

Source: Howley, *et al.*, 2017

Majority had body fat percentage more than normal and the rest had average body fat percentage (Table 5).

Table 5
Total Body Fat Percentage of the selected subjects
(n=100)

Total Body Fat Percentage	No. of subjects	Percentage (%)
Average	47	47
Obese	53	53

American Council on Exercise, 2009

After collecting the baseline data proper needs were found out and appropriate teaching aids were prepared. The aids used were folder and power point slides.

After conducting the education programme it was evaluated using a five point scale and scored. It shows that 48% scored excellent, 32% scored very good and 20% scored good.

The post measurements of BMI of the selected samples which reveals that 40% were normal, 32%, 16% were under class I and 12% were under class II obesity (Table 6).

Table 6
Post evaluation of fat tissue distribution among selected sub-samples
(n=25)

BMI range	No. of subjects	Percentage (%)
Normal	10	40
Pre-obese	8	32
Obese		
Class I	4	16
Class II	3	12
Class III	-	-

The total difference in knowledge level (pre-test Vs post test) was statistically tested by applying *t* test. It was found that the characteristic weight was found to be significant at 0.5 levels and the characteristic BMI was found to be not significant at 0.5 levels (Table 7). Thus it can be concluded that there was a significant change in weight for pre and post evaluation.

Table 7
Comparison of pre and post test measurements

Characteristics	Mean	SD	<i>t</i> value
Weight	-0.78	0.20	-3.81*
BMI	-0.12	0.23	-0.52**

*Significant at 0.5 level

**Not significant at 0.5 level

CONCLUSION

By conducting the study it was found that the samples had a habit of having food from outside. The fat tissue distribution was above the normal range. It was seen that before the education programme majority of the samples were pre obese and came under class I obese followed by class II and then class III obese. After imparting the education there was small significant change in BMI of the samples. Thus, the education programme was effective.

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**ASSESSMENT OF NUTRITIONAL KNOWLEDGE AND FEMALE
ATHLETE TRIAD AMONG THE SELECTED COLLEGIATE
ATHLETES IN KOTTAYAM DISTRICT (18-25yrs)**

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ABSTRACT

In athletes, an adequate nutritional knowledge and proper intake of nutrients are essential for the maintenance of an appropriate nutritional status, optimal performance and recovery as well as the reduction of health risks associated with regular highly intensive exercise. The objective of the present study was to understand the nutritional knowledge of the subjects, to assess the occurrence of female athlete triad and to assess the impact of the nutritional awareness program among the subjects. The present study was conducted in Kottayam District; the study area was confined to two colleges namely, Assumption College Changanacherry and Alphonsa College Pala. The area selected based on convenient sampling. A total 70 Female Athletes were selected for the study by using purposive sampling. The questionnaire was used to collect the information about socio – demographic details, nutritional knowledge, assess the Female Athlete Triad. After assessing their nutritional knowledge, it was found that they have very poor knowledge in food and nutrients. So, the researcher conducts a nutritional awareness program among the subjects. The study was able to assess effect of nutrition knowledge before and after the educational intervention. Presently, these college athletes are not receiving nutrition education from reliable or credentialed sources. Even though there is poor nutritional knowledge among the selected subjects, the incidence of female athlete triad among them is not prominent.

Keywords: athlete, nutritional status, nutrition education

Introduction

Nutrition plays a very important role in attaining high level of achievements in sports. Hence, physical fitness and training are very much dependent on nutritional status of sports personnel. The diet of an athlete can have an effect on his or her overall performance (Bonci, 2011). Athletes, who have healthy and balanced diets, can perform better due to having adequate nutrient stores built up in their body. When those stores are maximized in the body, the body will utilize them as needed during physical activity. In poor quality diets, these nutrient stores will not be replenished to their maximized state. With these minimal stores, the body cannot perform to its full potential.

Jacobson, *et al.*, (1992), suggests that a large percentage of collegiate athletes still consume diets that do not meet their nutrient needs. There two are several potential factors that may explain inadequate dietary intakes among this population, including increased pressure to win in competitive sports, athletes' demanding schedules, the nature of the college environment, and nutrition knowledge.

Hoogenboom *et al.*, (2011) reported that there is a lack of nutrition knowledge amongst female collegiate athletes across a variety of sports. Furthermore, the dietary intake of female collegiate athletes is neither within the Recommended Dietary Allowances (RDA) nor the sports nutrition guidelines. Complicating matters are busy class schedules and demanding workout and competition commitments which may burden athletes and encourage a reliance on quick meals or "fast-foods" which can be low in nutritional-density (Shriver and Ziegler, 2013).

The female athlete triad is a syndrome that consists of three interconnected components: energy availability, menstrual function, and bone mineral density, which encompasses a range from optimal health to disease. At the severest end of the spectrum, clinical conditions including eating disorders, functional hypothalamic amenorrhea (absence of menses), and osteoporosis (low bone density) may be present (Nattiv, *et al.*, 2007).

Nutrition education among athletes is essential for maximizing performance. It is recognized that physical activity, athletic performance and recovery from exercise are all improved with the proper nutrition (Rodriquez, *et al.*, 2009).

Proper nutrition is essential to help athletes recover from workouts and competitions. In athletes, an adequate nutritional knowledge and proper intake of nutrients are essential for the maintenance of an appropriate nutritional status, optimal performance and recovery as

well as the reduction of health risks associated with regular highly intensive exercise. Hence the present study is entitled “Assessment of Nutritional knowledge and Female athlete triad syndrome among the selected collegiate athletes in Kottayam District (18-25 yrs)”.

The specific objectives of the study are:

To,

1. Understand the nutritional knowledge of the subjects
2. Assess the female athlete triad among the subject
3. Compare the association of nutritional knowledge and female athlete triad
4. Assess the impact of the nutritional awareness program

Material and Methods

The study was carried out at the training grounds at the campus of two renowned colleges namely, Assumption College, Changanacherry and Alphonsa College, Palai; both colleges take part in various events of sports. Some training grounds in these colleges are the basketball court, volleyball court, running tracks etc. A cross sectional survey involved a total of 70 female athletes actively involved in various sport events were selected for the conduct of study. Purposive sampling was used to select all consenting female athletes (N=70) to participated in the study. A semi – structured, self-administered questionnaire, were used to assess and analyse the nutritional knowledge and female athlete triad syndrome among the selected subjects. Nutrition education was given to the subjects with the aid of a well formulated booklet named ‘Nutrition Guide to Athletes’. Questionnaire which is used to understand the nutritional knowledge level of the subjects (primary data) was again distributed among the subjects to understand the effectiveness of nutrition education.

Results and Discussion

1. Nutritional knowledge of the subjects before nutrition education

TABLE – 1 Knowledge regarding Macronutrients N=70

Nutritional information	Frequency	Percent
Important nutrients for life sustenance		
Protein	15	21.4
Protein and Calorie	23	32.9
Protein, Calorie, and Fat	31	44.3
None of the Above	1	1.4
Body building nutrient		
Protein	38	54.3
Calorie	18	25.7
Fat	14	20.0
Concentrated source of energy		
Protein	10	14.3
Fat	16	22.9
Minerals	14	20.0
Vitamins	30	42.9
Nutrients stored in the body as		
Calorie	10	14.3
Protein	41	58.6
Fat	19	27.1

Among the total subjects, 44 percent were correctly answered that macro nutrients play an important role in the sustenance of life, whereas 33 percent have incorrect opinion about the importance of protein and calorie for life sustenance. About 54 percent of the subjects knew that body building nutrient is protein remaining 46 percent of the subjects had poor knowledge, regarding the functions of individual nutrients. Majority of the subjects (57%) were had poor knowledge about the form of energy, which is stored in the body as fat.

Knowledge regarding Micro nutrients

The following table shows the knowledge regarding Micronutrients.

TABLE – 2
Knowledge regarding Micronutrients **N=70**

Nutritional information	Frequency	Percent
Vitamins and minerals essential for		
Growth and development	7	10.0
Brain development	3	4.3
Healthy nails, skin and hair	4	5.7
Disease prevention	1	1.4
Immunity power	3	4.3
All of the above	52	74.3
Sources of vitamin A and vitamin K		
Fruits	25	35.7
Pulses	7	10.0
Cereals	1	1.4
Green leafy vegetables	37	52.9
Source of vitamin D		
Sunlight	69	98.6
Water	1	1.4
Iron containing food		
Cereals	3	4.3
Rice flakes and dates	47	67.1
Green leafy vegetables	13	18.6
Small fishes	7	10.0
Calcium rich source		
Crabs	6	8.6
Milk and milk products	46	65.7
Small fishes	18	25.7

About 74 percent of the subjects correctly replied that vitamins and minerals are essential for the growth and development, brain development, healthy nails, skin, hair, disease prevention, immunity. Regarding the sources of vitamin A and vitamin K majority of the subjects (52.9%) opinioned that green leafy vegetables are rich. Majority of the subjects (99%) answered that sunlight is the only source of vitamin D. Most of them (67%) were

aware that rice flakes and dates are the iron rich source. About 19 percent of the athletes replied that green leafy vegetables are good source of iron.

2. Assessment of Female Athlete Triad

The following table discusses the details regarding eating disorder, menstrual problems and skeletal problems, faced by the subjects

2.1 Assessing the Eating Disorder in Female Athletes

TABLE – 3 Dietary pattern followed by the subjects N=70

Criteria	Frequency	Percentage
Type of diet		
Vegetarian	14	20.0
Non vegetarian	56	80.0

Table – 3 depicts the dietary pattern followed by the subjects. It is clear that 80 percent of the female athletes were non-vegetarian and only 20 percent followed a vegetarian diet.

Meal pattern followed by the subjects

The following figure 1 shows the meal pattern followed by the subjects.

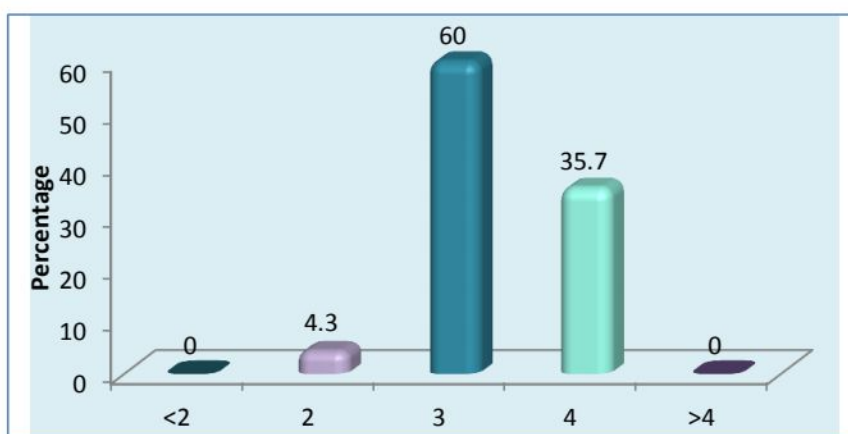


Fig. 1 Meal pattern of the subjects

Figure 1 shows, majority of subjects (60%) consume three meals a day. About 36 percent of the subjects consume 4 meals a day. None of them are consuming more than four meals a day. About 4 percent subjects consume two meals a day and none of them are consume less than 2 meals a day.

Consumption pattern of calcium rich foods

The table 4 shows the consumption pattern of calcium rich foods.

TABLE – 4 Consumption pattern of calcium rich sources N=70

Criteria	Frequency	Percentage
Frequency of milk consumption		
Once in a day	55	78.6
Twice in a day	8	11.4
Once in a week	4	5.7
2 - 3 times in a week	2	2.9
Never	1	1.4
Lactose intolerance		
Yes	1	1.4
No	69	98.6
Consumption of leafy vegetables twice in a week		
Yes	59	84.3
No	11	15.7

Table 4 shows that majority of the subjects (79%) are consuming milk once in a day while only 11 percent of the subjects had consumed milk twice in a day. Only 6 percent of the subjects had consumed milk once in a week. About 84 percent of the subjects were used to consume leafy vegetables twice in a week whereas 16 percent of the subjects had never consumed leafy vegetables.

Fluid Consumption Pattern

The following Figure 2 shows the fluid consumption pattern

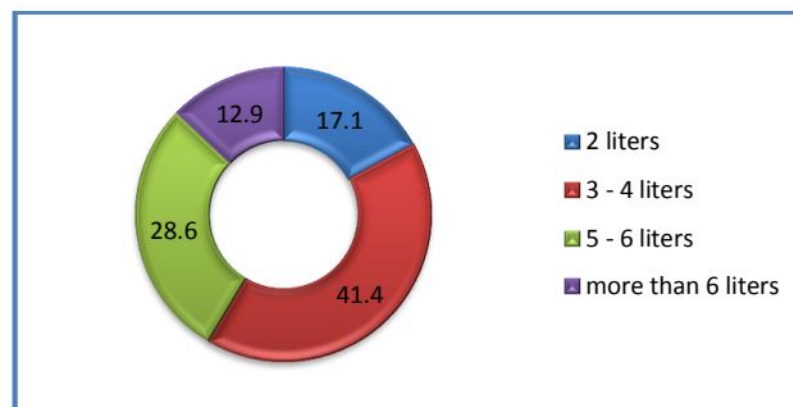


Fig.2 Fluid Consumption

From Figure 2, it is clear that, 41 percent of the subjects consume 3-4 litres of water in a day. About 29 percent of them consume around 5 – 6 litres of water in a day and only 17 percent of the subjects consume 2litres of water in a day.

2.2 Assessing the Menstrual Related Problems

Age of menarche

The following table discusses the age of menarche of the selected subjects.

TABLE -5 **Menarche** **N=70**

Criteria	Frequency	Percentage
Age of menarche		
<12 years	10	14.3
12 – 13 years	31	44.3
14 – 15 years	22	31.4
>15 years	7	10

About 44 percent replied that the first period started in the age between 12 – 13 years. About 31 percent replied that their period started from the age between 14 – 15 years. About 14 percent people responded that their first menarche started during the age less than 12 years. About 10 percent people said that their first menarche started above 15 years.

Menstrual associated problem

Figure 3 shows the details regarding the menstrual problems faced by the subjects.

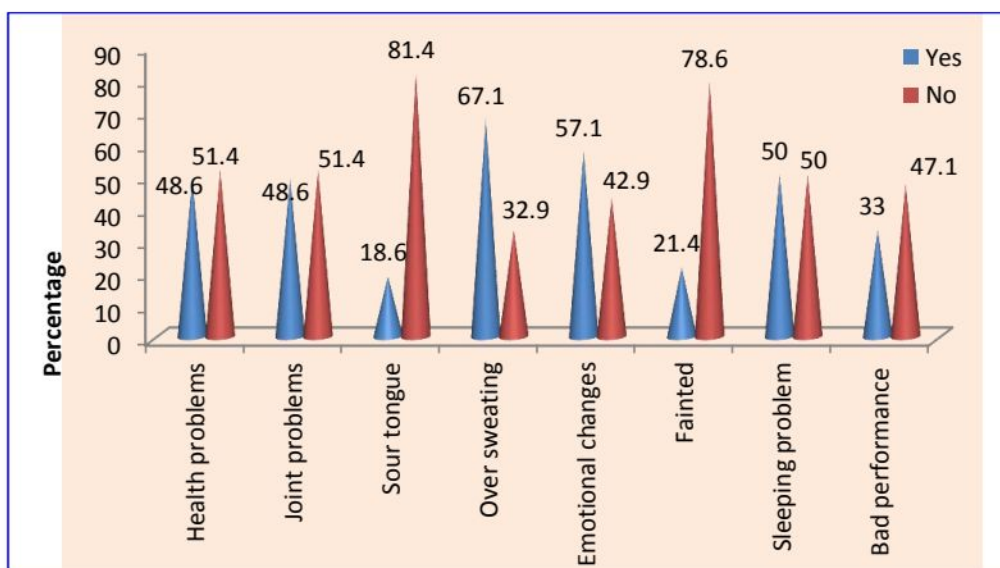


Fig:3 Menstrual Problems

Only 49 percent of the subjects have some health problems during the time of menstruation. Majority of the subjects (81%) does not complaint regarding sour tongue during, before or after the menstrual period, whereas about 19 percent replied that they have sour tongue during, before or after the menstrual period. Most of the players (67%) had the problem of sweating or excessively during the time. About 33 percent of athletes do not sweat unusually during the menstrual periods.

Fifty seven percent of the athletes had the problem of variations in their mood like anger, frustration and sadness during the time, whereas 43 percent had emotional stability. Only 21 percent had complained that they fainted during menstrual time. Among the total subjects half percentage of them felt sleepy during, before or after menstrual period, it may be due to the anaemic problems faced by the subjects. Fifty three percent had complained that they could not perform enough in their sport, during the menstrual time.

Female college athletes have a clinical eating disorder, which includes anorexia nervosa and bulimia nervosa. These clinical eating disorders and other disordered eating patterns can often lead to amenorrhea, or the absence of menstruation, which can have many detrimental effects (Quatromoni, 2008).

2.3 Skeletal injury and associated problems

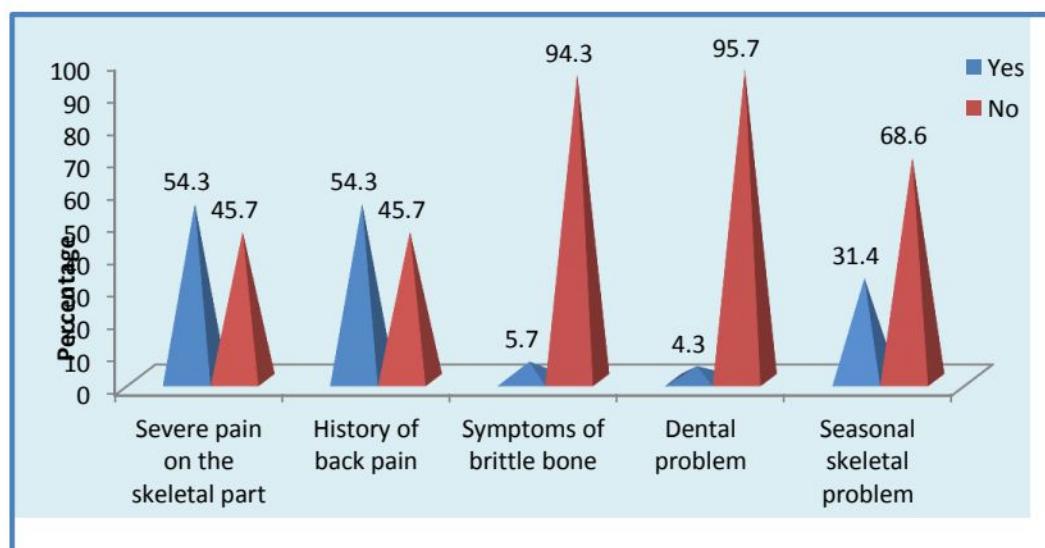


Fig: 4 Skeletal injuries and associated health problems of the selected subjects

Figure 4 shows that, about 54 percent of them were had severe pain on the skeletal parts after the exercise, performance or training while 46 percent did not complained about the past history of skeletal pain whereas 54 percent of them were suffered from back pain.

Majority of the subjects (94%) shares that they did not had symptoms of brittle bone, but 6 percent of the subject used detected with the symptoms of brittle bone in their body.

About 96 percent of the subjects had healthy teeth and gums whereas only 4 percent had the dental and periodontal problems. Sixty nine percent of the subjects did not suffer from any seasonal skeletal problems while 31 percent of them had the seasonal (summer, winter, rainy) skeletal problems.

Table – 6 Biochemical details of the subjects N=20

Biochemical values	Mean value	Normal value
Haemoglobin	11.3	11-14
Calcium	8.8	8.8-10.2

The above table depicts that none of the selected subjects suffered from anemia / osteoporosis.

3. Association of Nutrition Knowledge and Female Athlete Triad

The relationship between the Nutritional knowledge and Female Athlete Triads Syndrome such as, skeletal injuries, dietary pattern and menstrual problems were valuated under regression analysis.

TABLE – 7 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.221 ^a	.049	.006	.43165
a. Predictors: (Constant), skeletal injuries, dietary pattern, menstrual problems				

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.632	3	.211	1.131	.343 ^a
	Residual	12.297	66	.186		
	Total	12.929	69			

a. Predictors: (Constant), skeletal injuries, dietary pattern, menstrual problems
b. Dependent Variable: macronutrients

Association of nutritional knowledge and female athlete triad revealed that there is a significant relationship between the Nutritional Knowledge and Female Athlete triad syndrome. On studying the regression analysis, the significance level is greater than 0.05 it shows that the Null hypothesis (H0) is rejected. That means the Alternative hypothesis (H1) can be accepted.

4. EFFECTIVENESS OF NUTRITION EDUCATION

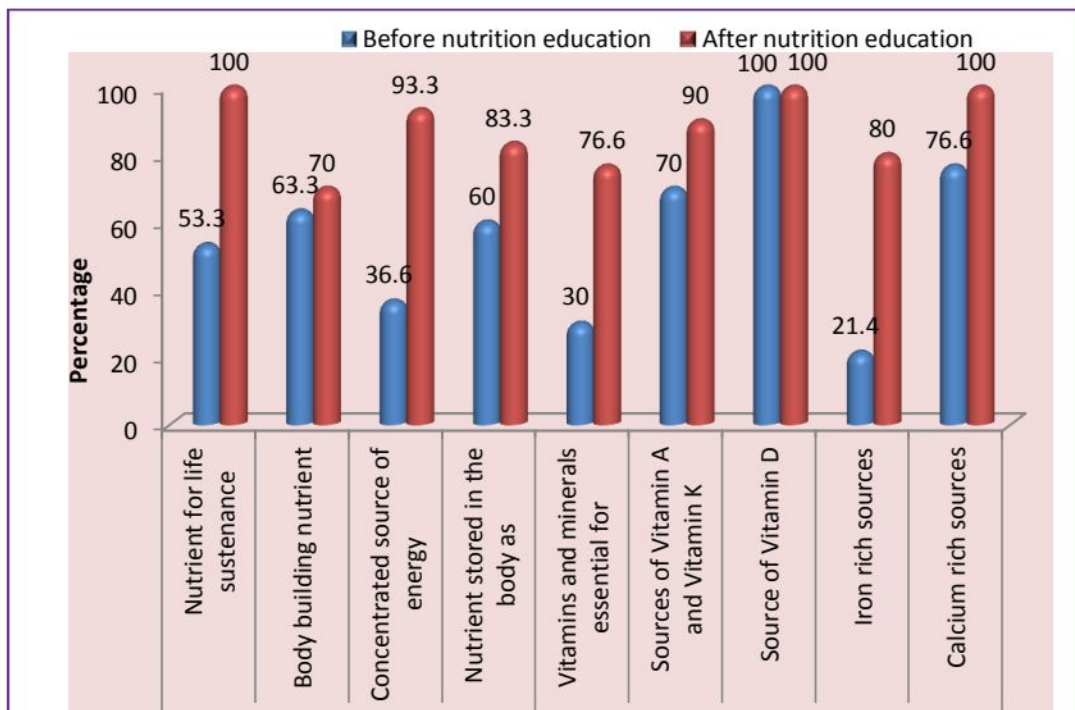


Fig. 5 Comparison of nutrition knowledge before and after nutrition education

Nutrition education was given to the subjects with the aid of a well formulated booklet named 'Nutrition Guide to Athletes'. Details in the booklet were included, basic idea about nutrients and its functions in connection with sports persons. Importance of hydration, consequences of dehydration, female athlete triad - its definition, associated problems, preventive measures and also included ten simple recipes of sports drinks.

Comparative analysis of before and after nutrition education shows that over all nutritional knowledge has improved after the nutrition education. This shows the effectiveness of nutrition education provided, which proves that proper nutrition knowledge will help to reduce the occurrence of female athlete triad among the athletes and thus improve physical performance.

CONCLUSION

The purpose of this study was to assess role of nutritional knowledge and its relation to the chance of getting female athlete triad among the subjects .The study was able to assess effect of nutrition knowledge before and after the educational intervention. Presently, these college athletes are not receiving nutrition education from reliable or credentialed sources. From the survey it can be observed that female athlete triad is not very prominent among the subjects but half of the subjects has shown minor symptoms of the same. The nutrition intervention was implemented among college athletes in hopes of achieving improved nutrition knowledge, dietary intake and perceived performance.

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TRAVANCORE CHRISTIAN SUCCESSION ACT (1916): TRAVAILS AND HURDLES IN THE COURSE OF ITS FORMULATION

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ABSTRACT

The Travancore Christian Succession Act of 1916 or the Regulation of 1092 M.E. marked the beginning of an important epoch in the history of the Syrian Christian community and emerged as one of the most publicly debated laws instituted in the early years of the twentieth century. Although the move to enact a law in support of the female members of the community reveals an extremely modern choice taken up by the Syrian Christians, the resultant law had very strong patriarchal and conservative strains. This paper will therefore discuss the making of the Trivandrum Christian Succession Act, highlighting the U-turn it made in the final enactment.

Keywords: Syrian Christians, Travancore, Succession, community, Christian women, *Streedhanam*

INTRODUCTION

In the history of law- making, the creation of a social legislation has always been subjected to vehement opposition (*The Travancore Law Journal*, 1917). In the development of a law, adherence to customs and public opinion are often overtaken by a rise in private property and a division of interests from the community (*The Travancore Law Journal*, 1919). In India there are numerous succession laws, each asserting to reflect the diverse and differing aspirations and customs of the different communities (Doshi, Manita. 'The Marumakatayam and Alivasantha Law'). The classification of the community into various sects without considering defined norms, diverse customs etc. has undermined the following of a specific law even within a community (Thulaseedharan, Sindhu, 2004).

Succession Practices of the Christians of Travancore

Prior to the laws relating to succession among the Christians being codified in Travancore, there was a good deal of uncertainty regarding inheritance and succession. The

early practices of succession were based on an amalgamation of laws drawn from various traditions among the Syrian Christians. The Latin Catholics, Protestants and Anglican Syrians followed the provisions of the Indian Succession Act of 1865 (equal share concept). The *Marumakkathaya* Christians followed the Hindu *Marumakkathayam* Law (descent through the female line). The South Travancore Christians who were primarily converts and descendants of converts to Christianity from various castes followed the *Mithakshara Law*, (Mitakshara is based on the principle of propinquity i.e. the property will go to the nearest in blood relationship) i.e., they followed the rules of inheritance of their non-converted fellow-men or of the communities in their locality (Report of the Christian Committee Travancore, 1912).

Land reform and Changes in Christian community

The inauguration of land reforms in Travancore during the nineteenth century led to unprecedented changes. The Travancore government followed a policy which was more conducive and helpful to opening up of the caste-bound land market to communities like Christians, particularly the Syrian Christians, and the Ezhavas (Prakash, 1982). Throughout the century, there was consistent dispersion of the Christian population over the wetlands of Travancore especially the Kuttanad region, the hillocks and hills in central uplands of Kerala, in addition to migration from highly populated lowlands to the high ranges like Mundakayam, Peerumedu, Mulamattam etc (Kurup, 1981).

Thus, land became a valuable asset in the hands of Christian families, and individual ownership of land emerged as an accepted norm, particularly among the Syrian Christians. The policy of amassing wealth especially through landed properties was greatly encouraged, even by the institution of the Church. In fact, the principle that governed the community was that no property was to be transferred from one family to another by way of inheritance, and all customs and practices that were followed was founded on this principle. Over the years, issues regarding property rights rose to prominence among the Syrian Christians. Being both patriarchal and patrilineal, they had at no period of their existence, allowed the female members to inherit any share in the family property in their capabilities as daughters, sisters, mothers or widows. Women were entitled to receive their allotted share only in the form of *shreedhanam* (dowry), an accepted norm in the community (*Nasrani Deepika*,1911).

Events leading to the formulation of the Act

With the English changing the legal system of Travancore, a general scheme of judicial administration was carried out by 1834. The establishment of courts helped in adjudicating those disputes of both civil and criminal nature, such as those of inheritance and succession (Azariah, 1932). As personal laws were vague and unsettled, it gave women the courage to take refuge in the court decisions. This provided the Christian women with a space to lay claim to their share in the ancestral property, their husband's property and their dowry. Most of the lawsuits had been civil disputes but there were also cases with criminal aspects to it. Among the civil cases, there were mainly litigations raising questions on the need for possession of both *sthreedhanam* as well as a share in the ancestral property on the basis of a woman's right as a mother, wife, daughter, and sister.

As early as the 1860's, judges in the courts of Travancore admitted that the absence of clear evidence based on the customary rules of inheritance followed by the Syrian Christians, often prevented them from adjudicating fairly whenever cases of disputed succession arose for their decision. The nature of the disputes shows that there was no uniformity in custom or law that was followed regarding the inheritance of the female heirs in the Christian community. The property litigations fostered individual ownership rights which in turn hindered the Syrian Christian representation in the legislative body of the state. Most of the verdicts proved to be warning signals to the upper and middle class members in the Syrian Christian community of a probable loss of landed wealth. Hence the need of the hour which was promoted by the community as well as the courts in several decisions was the need to make a succession law (*Malayala Manorama*, 1890).

An analysis of the articles, editorials and opinion editorials available on this topic in the regional papers such as *Malayala Manorama* and *Nasarani Deepika* makes it clear that until the appointment of the Travancore Christian Committee in 1911, the cry among the Christians, specifically by the Syrian Christians, was the need for an enactment of the Christian Succession practice. There were even articles written by Syrian Christian women voicing their rights, some of which were continued over many days. In one of the articles, it was mentioned that women had to unjustly sacrifice their rightful inheritance from their birth family. In contrast to the short life showered with parental love, traditional practices associated with marriage forced them to live 'a life of sorrow' (*Malayala Manorama*, 1911;

Nasrani Deepika, 1911) ,thus displaying a critical sense of frustration among the women members.

A petition regarding the enactment of a law defining the rights of succession to property among the Syrian Christians was first brought to the notice of the government at the second session of the Sree Moolam Popular Assembly in 1905, by Ouseph Kunju Avira Tharakan, a member of the Travancore and Cochin Roman Catholic Christian Association, Kottayam. The Government, however, did not pay notice to that representation (Proceedings of the Sree Mulam Popular Assembly of Travancore, 1905)

Nevertheless, the issue raised did not stop there. In the following sessions there were repeated representations by Christians for the fulfilment of an enactment in the Travancore Assembly. Later in the 1907, 1910 and 1911 sessions of the popular Assembly, the need for an enactment was raised as a serious debating topic. It is interesting to note that even clergies who were members of the Assembly expressed that there was a general feeling within the community that a law was necessary (Proceedings of the Sree Mulam Popular Assembly of Travancore. 1911) Following these, there were also several church dignitaries who wrote to the government that there was a great deal of confusion and a need for the appointment of a committee to enquire into and report on their customs (Proceedings of the Sree Mulam Popular Assembly of Travancore, 1916)

Under Sree Mulam Thirunal and Dewan Bahadur P. Rajagopalacharia, the Travancore government felt that a Christian committee had been appointed to study about this issue. The committee commenced their work on October 23, 1911 at their allotted office at Pettah in Trivandrum, presided by P. Cheriyan. The committee visited most of the important Christian centres in Travancore and examined as many as nine hundred witnesses, and about three hundred people sent in their opinions in writing to the committee. The main point of debate among the members was regarding the rights of the women – i.e., intestate succession and the rights of women as(a mother, a daughter, a sister and a wife) in the absence of male heirs, were investigated by the committee (Proceedings of the Sree Mulam Popular Assembly of Travancore, 1916) .

One set of people strongly held to the view that the unmarried daughter (on the death of her parent), the wife (on the death of her husband), and the widowed mother (on the death of her child) should have a definite and legally enforceable interest in the estate left by the deceased parent, husband or child as the case may be. This demand was based on the thought

that it would be unchristian if a specific provision was not made for the protection of the widow and the orphaned daughter (Cheriyam, 1917)

They were also of the opinion that the same set of rules should govern the devolution of all kinds of property over which the deceased person had an absolute power of disposal during his life-time. In other words, they maintained that a person's property, whether self – acquired or inherited from the paternal or maternal relatives, should all descend in one and the same way. The group held that, with regard to all kinds of property owned by a deceased, childless person, the stage at which the maternal relatives should come in as heirs, is when all the descendants of the deceased person's paternal grandfather are exhausted. The people who held these views supported the legislation proposed by the Christian Committee (Cheriyam, 1917)

On the other hand, there was a large body of persons who vigorously maintained that the daughter, the widow and the mother should have only the right to receive maintenance. They were however, willing to grant that the unmarried daughter should have the right to *sthreedhanam* but opposed to any hard and fast rule being laid down for determining the amount of *sthreedhanam*. Their views practically stated that the unmarried daughter should remain satisfied with any *sthreedhanam* given to her by her brothers (Cheriyam, 1917)

On the question of the order of succession, the above group of people opined that property inherited by an intestate person should return to the family of origin whether maternal or paternal, and were not to be given to the widow or sister or daughter. The supporters of this view fervently opposed the Bill (Cheriyam, 1917)

The Opposition

The opposition to the Bill was, at least in the later stages, confined to the Syrian Christians who form the wealthiest, most numerous and most educated section of the Christian community in Travancore. The opponents of the Bill and their views were published by all the leading newspapers (Cheriyam, 1917).

The committee considered these evidences carefully and submitted their report with a draft bill. The report and the draft bill were published in the Gazette of August 27, 1912. The government invited criticisms thereon, from the members of the community (The Proceedings of the Sree Mulam Popular Assembly of Travancore, 1916). In the following weeks the committee members were of the opinion that the share of a widow could

be even more than a son's share or they could be given a permanent claim like men. It is clear that in certain public place meetings conducted in central and north Travancore, the Syrian Christians expressed the view that they were not prepared to accept the provisions of the bill in respect to the widow, the mother and daughter. However, at the same time they believed that it was disastrous to leave the community without a legislation regulating their inheritance (*Malayala Manorama*, 1913)

The resulting situation eventually forced the government to appoint another body under a select committee to submit a report which was finally submitted on February 16, 1915. Even after the Council drafted the Succession Bill, some objection petitions were sent to the government for reconsidering the Bill. Later the council and the government opined that a majority of the community desire that the bill should be passed (*Malayala Manorama*, 1913).

The Christian Succession Bill was finally read and passed at the meeting of the Travancore legislative Council held on December 20, 1916. The next day it received the assent of the Maharaja and became a law -Regulation II of 1092 ME (The Travancore Law Journal). This regulation became a remarkable addition to the Statute Book of Travancore which followed the Nayar Regulation Bill of 1912 and a milestone in the context of Intestate Succession (It refers to succession in the absence of a will).

Though the Act claimed to be progressive in terms of legislation, the dark shades of discrimination towards women's right to inheritance remained. For example, Section 28 of the Act stated that a daughter was entitled to only one-fourth the value of a son's share or Rs. 5000/- whichever is less. Regarding a widow's share, the Act specified that the intestate's property was to be first devolved to the wife and then to be divided among his relatives. The widow would be entitled to the whole property only in the case of no existing kindred. A widowed mother would only receive maintenance and not any share in the property if there were lineal descendants. The sub clauses to each category reveal that they were framed in such a way that the woman (a daughter, wife, mother or sister) could rarely claim land ownership rights on the death of their male family member (father, son, brother or husband) (*Chempapilly*, 1997).

CONCLUSION

From the closing years of the nineteenth century, the demand for a Succession law among the Christians was evident in Travancore's public discourse. As the government initiated an investigation in the matter, it was welcomed among the various sects of the Christian community reflecting an attempt to modernize the social practices. This is more apparent in the opportunity provided for women to speak out publicly through media and the courts, displaying an otherwise revolutionary method in pre-independence India. Nevertheless, with the publication of the report and draft bill, there rose a wave of opposition. Through newspaper reports, it is clear that in certain public place meetings conducted in central and north Travancore, the Syrian Christians expressed the view that they were not prepared to accept the provisions of the bill in respect to the rights of widow, the mother and daughter. However, at the same time they believed that it was disastrous to deny a legislation regulating their inheritance. Thus, when the future of the wealth in a family was threatened, the reforming zeal fell flat, and the final Act resorted to accommodating patriarchal and conservative demands rather than women's rights.

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COOKING FUEL CONSERVATION PRACTICES ADOPTED BY SELECTED HOMEMAKERS

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ABSTRACT

There are many factors influencing the efficiency of cooking like the phenomenon of heat production, heat utilization, heat transmission and heat rejection during combustion. The basic principle of fuel conservation is to direct maximum heat into the food and allow minimal heat to escape. The fuel efficiency of cooking can be significantly increased with a few simple practices. However a consistent habit of fuel conservation techniques would be very effective even without the use of alternate sources of fuels. The study entitled “Cooking fuel conservation practices adopted by selected homemakers” found that majority of the homemakers were aware of the consequences of fuel shortages but they were not having proper idea about its conservation techniques or less usage. An informational package was developed to provide useful and applicable practices for the homemakers regarding the conservation of fuel.

Keywords: conservation, consequences, fuel efficiency, strategies

INTRODUCTION

There has been a progressive increase in the number of households moving over to cleaner fuels for cooking in accordance with the rise in the living conditions of the urban and rural class in India especially Kerala. This has created a dramatic growth in LPG connections in the state compared to the use of the conventional cooking fuel in Kerala, which is firewood. This rise in LPG connections has also led to severe shortage in its availability at several times in a year. Cooking requires the transformation of the potential energy in fuel into heat energy, which is influenced by factors , like the phenomenon of heat production, heat utilization, heat transmission and heat rejection during combustion. The basic principle of fuel conservation is to direct maximum heat into the food and allow minimal heat to escape. This project intends to collect such data and to formulate a list of recommendations

that may be adopted by households in order to conserve cooking fuel especially LPG (Pachauri, 2002).

OBJECTIVES

1. To find out the type of fuel most commonly used.
2. To find out the amount of money spent on household fuel.
3. To find out quantity of cooking fuel used by each household
4. To collect tips for energy /cooking fuel conservation.
5. To develop an informational C.D on fuel conservation techniques.

METHODOLOGY

The study was conducted in Thrikodithanam Gram Panchayat of Changanacherry Taluk. For this study 50 households were selected randomly and the respondents were women of the house who were mostly responsible for handling the family cooking. The investigators used a pre structured questionnaire to collect information regarding the various aspects of the study. An informational package was developed after compiling the data obtained to provide awareness.

RESULT AND DISCUSSIONS

The findings of the study are as follows-

1. Socio-economic status of the respondent

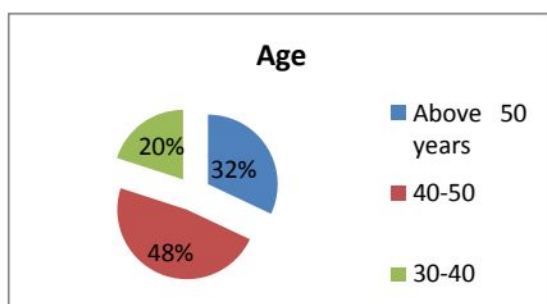


Figure 1

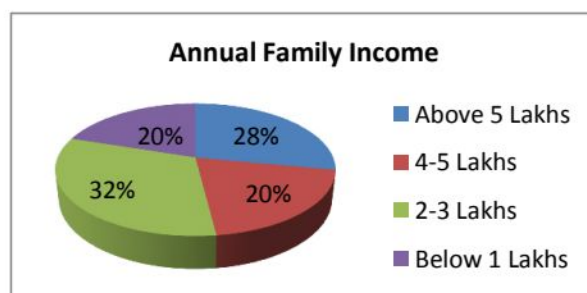


Figure-2

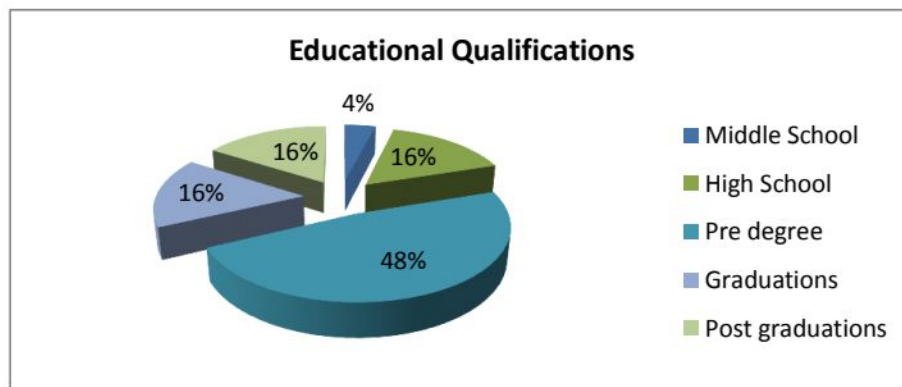


Figure-3

Background information collected include the age, educational level, employment status, annual income, and size of the family, physical and cultural aspects.

2. Fuel usage pattern

Factors	Details	Percentage of households
Types of fuel used	LPG	24
	Firewood	20
	Both LPG and Firewood	52
	Both Kerosene stove and firewood	4
Monthly Fuel Consumption Level	1 cylinder	48
	2 cylinder	12
	More than 2 cylinder	40
Monthly Expenditure on Fuel	Above 400/-	72
	Above 800/-	28
Awareness regarding fuel shortage and its after effects	Yes	16
	No	84

Fifty two percent of the households used both LPG and firewood as fuel for cooking, while twenty four percent used only LPG . About twenty percent of the houses still use firewood only for cooking, and four percent of them used both kerosene stove and firewood as cooking fuel.

Monthly consumption level of the gas varied, about forty eight percent of the families used one cylinder per month while forty percent of the families required more than two cylinders in a month. Seventy two percent of the households spent Rs 400 for fuel in a month while twenty eight percent of them spent above Rs.800 in a month.. Very few of them were aware of the fuel shortage and the after effects of fuel wastage and its impact on the environment.

3. Determinants of fuel usage

Determinants	Details	Percentage
Age of stove	Below 5 years	20
	6-7	24
	Above 8	56
Location of the Stove	Inside the kitchen	64
	Semi open space	36
Frequency of Use	Once	20
	Twice	24
	Thrice	36
	More than thrice	20
Type of food cooked	Veg	20
	Non-veg	68
	Both	12
Number of dishes cooked for each meal	Below 2	8
	3-4	52
	Above 5	40

The age and location of the stove mattered a lot in the efficiency of fuel use (Ecotype, 2003). It was found that in fifty six percent of the households used a stove which was more than 8years old. Thirty six percent of them have stoves kept in semi opened space outside the kitchen. Consumption of fuel also varied with the physical and cultural aspects of the family like-vegetarian meal and number of dishes prepared for each meal.

4. Strategies adopted to conserve fuel

Table -5 Fuel Conservation Strategies of Respondents

Determinants	Details	Percentage of Respondents		
		Always	Never	Sometimes
Cooking Practices	Reduce the flame once boiling starts	60	20	20
	Cooking rice in bulk	48	28	24
	Use of minimum amount of water for cooking.	24	48	28
	Cover the pan while cooking.	48	28	24
	Soak ingredients before cooking	48	24	28
	Cook in excess and store for subsequent days	28	60	12
Eating Habits	Eat food immediately after cooking to avoid reheating	32	28	40
	Avoid overcooking of the food	60	16	24
Equipment Used	Clean the stove very often	48	28	24
	Use of rice cooker, hay box, solar cooker for cooking	4	0	0
	Using copper bottom vessels for cooking	48	28	24
	Use utensils that fit burner	44	32	24
	Use ISI marked stove	40	28	32
	Use metal vessels than earthen ware	40	28	32
	Use of induction cooker for slow and long-time cooking	4	0	0
Work Management	Cooking maximum food using stove at once rather cooking each time	28	48	24
	Keep all materials needed for cooking near the stove.	48	28	24
	Allow frozen food to thaw before cooking	48	24	28
	Avoid doing other activities while the cooking is done	60	16	24
	Plan cooking schedule to avoid repetition	28	40	32

According to Abuja *et al.*, (1987) adopting simple behavioral changes and efficient cooking practices which do not require additional tools or devices, can save energy at little or no cost.

The fuel conservation strategies were different for each respondents. Cooking practices adopted to conserve fuel included reducing the flame once the boiling starts, cooking rice in bulk, using minimum amount of water for cooking, covering the pan while cooking and also soaking of selected the food items before cooking.

Eating habits of the respondents which helped to conserve fuel included avoiding overcooking of the food and reheating which was followed by sixty and thirty two percent of the respondents respectively.

Equipment used for cooking also lead to fuel wastage (Bhatt, 1994). Around forty percent of the respondents adopted strategies like cleaning the burner very often to prevent excess gas usage, using copper bottom vessels for cooking, preferred metal vessels rather than earthen ware and also used ISI marked stove. Four percent of the respondents always used induction cooker for slow and steady cooking.

Work habits of individuals also affect the fuel consumption pattern. Forty percent of the respondents always kept all the materials needed for cooking near the stove in order to avoid the wastage of fuel and delay in cooking. Forty eight percent of the respondents always allowed frozen foods to thaw before cooking. Sixty percent of the respondents always avoided doing other activities while cooking in order to concentrate on the cooking process and to avoid the wastage of fuel. Forty percent of the respondent's never planned cooking schedule to avoid repetition.

CONCLUSION

The study concluded that both LPG and firewood were used as the cooking fuel by majority of the samples. Majority (84%) of the respondents were not aware of the consequences of fuel shortage and it's after effects. An awareness class on fuel saving strategies was organized for the respondents. The developed informative CD contains all fuel conservation strategies and fuel saving tips that are useful for the households.

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