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Original Article

ASSESS THE IMPACT OF MEDITATION OF SUSPECTS ON TRIAL ON CRIMINAL OFFENCES IN SRI LANKA

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ABSTRACT

The term Meditation is a process whereby one can make a conscious effort to relax and achieve profound peacefulness in mind. Meditation supports people to strive for transformation of the mind to take control of their inner self, understand the reality of life, practice the art of detachment and lead a simple lifestyle. This paper fundamentally assesses the impact of meditation of suspects on trial on criminal offences based on a selected prison in Sri Lanka.

According to the prison performance report 2017, there is a significant growth of inmates in readmission for island wide prisons in Sri Lanka. Some of the key previous findings (Blatt, 2002) highlights, meditation is of key importance to center the focus of one's life and enhance self-relaxation. The prime objective of this study is to assess the impact of current meditation applications for suspects on trial on criminal offences in Mahara Prison in Sri Lanka.

The total population of the study is 110 inmates, and the study population was demarcated to the inmates who have been convicted and served the punishment for more than 10 years for various offences. The study population was finally determined for 48 and the researcher distributed the questionnaire for 35 inmates which cover over 70% of the study population. The researcher used primary and secondary data and descriptive and inferential statistics to analyze the respective data.

One of the key findings of the study is that the Content of the meditation programme has a significant positive impact on mediating the inmates. It also highlights that the duration of the programme also has a positive impact on meditation, not only that the knowledge and the

skills of the presenter also have a positive high impact on the meditation programme.

Index Terms: Impact of meditation, Meditation Programms, Criminal offences

INTRODUCTION

This paper fundamentally assesses the impact of meditation of suspects on trial on criminal offences based on a selected prison in Sri Lanka. When considering the Prison Institutions in Sri Lanka, There are four closed prisons which are situated at Welikada, Bogambara (Dumbara), Mahara and Angunakolapalassa. In addition, there are eighteen remand prisons, ten work camps, and two open prison camps, two correction centers for youthful offenders, twenty three lock-ups and one training school. There is a clear distinction maintained between convicted and unconvicted prisoners. Suspects are unconvicted prisoners awaiting trial. Between the period of 2016 to 2020 considering the total population of suspects, the statistics under the government website; Buddhists had been around 65,000, Hindus about 20,000, Muslims about 15,000 and Christians about 6,000. Rehabilitation of prisoners is a vital fact not only for their own self-discipline and correction but also a social responsibility. The selection of Mahara Prison was due to being one of the largest prisons in Sri Lanka which was built by the British authorities in 1875 situated in the western province. Other factors such as obtaining approval, easy access and finally the numbers of those who remained as criminal suspects comprising of a statistically viable size, enabled the study to be completed within the anticipated time frames.

The simple meaning of the term Meditation is a process whereby one can make a conscious effort

to relax and achieve profound peacefulness in mind. Meditation supports people to strive for transformation of the mind to take control of their inner self, understand the reality of life, practice the art of detachment and lead a simple lifestyle. Meditation requires continuous perseverance, clear focus and self-training. Things that happen in life mostly, remains beyond our control. However, a mind that has been developed to take control and ownership in facing challenges in life, during sudden unexpected situations, understand the way people react and interact with the society which would result in peace and harmony.

Roger Walsh & Shauna Shapiro (2006) further explores that there are various types of Meditation such as body scan or progressive relaxation, mindfulness meditation, breath awareness meditation, Kundalini yoga and Zen meditation. These are the basic types of meditation which help to relax and achieve profound peacefulness in mind. One of these particular practices of Meditation which will pave way to understand the mental patterns and state of the mind better and understanding the path of disuniting 'suffering'. Continuous practice with a clear focus under a capable teacher will provide on-course corrections and achieve desired results.

Meditation and mindfulness are one of the ways to reduce the anxiety and depression of the people. Mindfulness meditation is a form of meditation that has been prevalent for thousands of years and is only becoming increasingly more popular to address variety of issues in the community.

A 'suspect' is a person who is accused of committing a crime state by Donna S (2010). The suspicion would have arisen based on evidence, statements recorded from eye witnesses, certain suspicious activities, video footage, the last person who was with the victim, someone who has threatened to kill the victim in public etc. A suspect is someone arrested for a criminal activity and by no means indicate that he has committed the crime. The fundamental rule of 'not guilty until its proven' will apply.

A criminal offence needs to be proven 'beyond reasonable doubt'. A criminal act is done against

the state, as a crime is considered having done against all citizens. Hence the Respondent is an officer representing the state. The Penal Code will specify the criminal activities and the punishments imposed if proven guilty. Similarly, a person on trial or pronounced by courts as guilty of a Criminal Offence, an individual on Trial means a person who is subject to the process of litigation and the case against him/her is still pending and not concluded yet. In contrast, a person who is guilty of a criminal offence has to face the punitive action imposed on him whereby the maximum punishment would be life imprisonment.

The Mahara Prison is one of the largest prisons in Sri Lanka. Situated in the old city of Mahara in the Western Province, it was built in 1875 by the British colonial government. Currently the total unconvicted population of the Mahara prison is 5727. According to the prison statistical report of 2018, there are no female inmates at Mahara prison. It further highlights that there is an exponential growth in admission of convicted and UN convicted inmates since 2013 to 2018 due to various offences that they have made. This may be one such reason that inmates do not undergo a proper meditation activity to strive for transformation of the mind to take control of inner self.

The prime objective of this study is to assess the impact of current meditation applications for suspects on trial on criminal offences in Mahara Prison in Sri Lanka. This study is geographically limited to a specific prison (Mahara Prison) and specific ward (K Ward) where inmates currently reside, due to the difficult access of information of all the prisons in the island.

Currently, various spiritual, religious, and cultural rehabilitation programs such as Meditation Programs, Buddhist Dhamma Sermons, Mindfulness Programs, Observe Sil programs, Counseling Programmes and family unification programs are being conducted weekly, fortnight and monthly basis by the Mahara Prison for the betterment of the inmate's future.

A. Research Objectives

Primary Objective

- The prime objective of this study is to assess the impact of current meditation applications for suspects on trial on criminal offences in Mahara Prison in Sri Lanka.

B. Research Question

- What is the impact of current meditation Practices for suspects on trial on criminal offences in Mahara Prison in Sri Lanka?

LITERATURE REVIEW

Literature review includes the current knowledge including substantive findings, as well as theoretical and methodological contributions where other scholars have done on meditation of suspects on trial on criminal offences. Some of the key findings highlights (Blatt, 2002) meditation is of key importance to center the focus of one's life and enhance self-relaxation. Furthermore, as viewed by the author, meditation is solely a spiritual practice bringing about vast benefits for the human kind such as relieving stress, enhancing self-esteem, reducing anxiety and reducing depression. It also highlights that the duration and the content of the meditation program is also vital to reap the benefits of the meditation.

As per a study conducted in United States for inmates, it was revealed that the inmates who were prisoned due to drug abuse were treated using meditation as one of the key treatment mechanisms, which is identified as a major treatment mechanism for inmates with addictions (Lyons & Cantrell, 2016). Among most of the studies being carried out to treat inmates, most of the studies revealed that perception of the presenter and perception of the mediation programme as one of the key meditation mechanisms used to control the behavior of inmates. For example, as per a study conducted among male inmates in "Oregon State" it was revealed this mechanism of meditation drastically reduced trauma of mail inmates ranging from

anxiety, depression up until hypertension (Nidich, et al., 2016).

America is a country battling severe crime which causes costs over \$700 billion annually. As a result, they have pin point techniques for crime eradication such as "Drug Abuse Resistance Education" and midnight basketball, which weren't resulting in proper rehabilitation of criminals due to failure to address the root cause behind crime which is "stress". However, the study recognized "Transcendental Meditation" as one of the techniques for proper rehabilitation of inmates, because it addresses the root cause behind crime which is "stress" (Alexander, Walton, Grme-Johnson, Goodman, & Pallone, 2003).

An addictive behavior such as drug abuse has an increasing trend, where a study has revealed, the trend towards drug usage has reduced drastically from transcendental meditation. As per a study conducted in year 1971 in Sweden, two groups of drug addicts were tested in a controlled experiment where one set of participants were forwarded for a meditation program, whereas another set of participants were not provided with medication program. These two groups were separately analyzed later and was revealed that there is a drastic decrease in drug use by the group provided with multiple sessions of transcendental meditation. Moreover, the study revealed some benefits of meditation as an increase in "adjustment" and "psychological stability", whereas a reduction in "anxiety", "tension" and "psychomotor coordination" were also evident among the participants who followed the medication program (Aron & Aron, 1980).

METHODOLOGY

This study is focus on assessing the impact of meditation of suspects on trial on criminal offences in Mahara prison Sri Lanka. The researcher mainly focuses to assess the impact of the meditation by measuring the effectiveness of the current meditation programs conducted by the Mahara prison. The researcher used a quantitative approach to collect the data through a multi structured questionnaire based on 05 grade Likert scale measurement. The questionnaire contains

the information about the psychological aspects of meditation and demographic background of the inmates. At the same time the researcher interviewed 10 prison officers in the rehabilitation unit to identify their perception on such programs to assess the impact on mediation programs.

To obtain a more realistic result that could be used to represent the entirety of the population, the study used non-random sampling technique. The researcher used purposive and convenience sampling method to gather the respective data with reference to the access issues and the sensitivity of the information. The total population of the “K” ward was recorded as 110 inmates and the study population was demarcated to the inmates who have convicted and serving the punishment for more than 10 years for various offences. The study population was finally determined for 48 and the researcher distributed the questionnaire for 35 inmates which cover over 70% of the study population. The statistical software of SPSS used to analysis the gathered data. Researcher used both descriptive and inferential statistics tools to analyses the data.

A. Conceptual Framework

The theoretical and conceptual framework explains the path of a research and grounds it firmly in theoretical constructs. The overall aim of the two frameworks is to make research findings more meaningful, acceptable to the theoretical constructs in the study. The researcher obtained the independent variables derived from the literature such as content of the programme, duration of the programme, knowledge and the perception of the presenter, practical application of the content and the demographic factors. The moderate dependent variables of the study were taken as the effectiveness of the programme which delivers positive or negative aspect of the programme. Moderate dependent variables such as change in the mind set, inmates feel more relax and consulate, effective anger management, improvement of metabolic conditions have taken into consideration to measure the impact of the mediation of the current programmes. The following figure-01 shows the conceptual frame of the study.

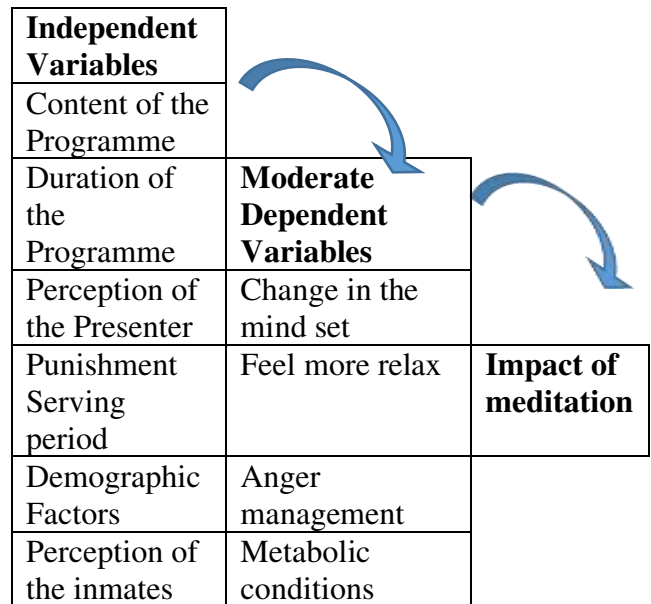


Figure 1: Conceptual Framework

The above independent variables and moderate dependent variables are measured through a multi structured questionnaire based on 05 grade Likert scale measurement. Total questions were altogether 20. For example, is content of the programme” is helpful to change your mind set?” is the content so important? These questions were measured 05 grade Likert scale from highly agreed to highly disagree. Likewise, all the dependent and independent variables were respectively measured.

ANALYSIS OF THE RESEARCH

The statistical software of SPSS used to analyze the gathered data. Researcher used both descriptive and inferential statistics tools to analyze the data. The researcher initially tested the consistency and reliability of the independent variables using the tool of Cronbach alpha, the value denotes from each variable from 0.68 to 0.85 which means all the independent variables are highly constant and reliable to create as an independent variable. The mean of all the independent variables are moderately deviated as the mean was stood around 3.6, standard deviation also moderately deviated from 0.20 to 0.56, The distribution Skewed between -1 to +1 and the absolute values of kurtosis are less than

three times of standard error of kurtosis, based on the value denoted by the variables. Which means that the distribution is normally distributed, and researcher can further analysis the date using inferential statistical tools.

According to the Karl Pearson correlation coefficient, the value of the independent variables denotes, Content of the Programme .0.86, Duration of the Programme 0.788, and Perception of the Presenter 0.66, Punishment Serving period 0.67, Perception of the inmate 0.75, which means that all the independent variables are positively highly correlated with the dependent variable.

Based on the study following inferential statistical tools are further utilized to estimate the population factors.

A. *Effect of the current meditation programme*

Effect of individual independent variable factors on dependent variables have been tested using regression model. Model summary is given below.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.630 ^a	.564	.558	.32824	2.083

Table 1: ANOVA Model Summary Table

Source : Research Data

Multiple correlation “R” is 0.630. This says that there is a strong association between the individual factors and impact of the current mediation programme. R-square is 0.564. This indicates that 56.4% of dependent variable has been covered by the model. Adjusted R-square is also representing that 55.8% of the dependent variable has been covered by the model. As the value is more than 60%, regression model is nicely fitted.

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	23.870	4	3.410	31.650	.000 ^a
Residual	8.296	31	.108		
Total	32.165	35			

Table 2: Anova Table

Source : Research Data

a.Predictors: (Constant), content, duration, Knowledge, perception, demographic

b.Dependent variable:
Impact of the meditation

Probability of F test statistics of the regression ANOVA is highly significant. This means that the model is jointly significant. Therefore, independent factors jointly influence the current meditation.

Table 3: Coefficients Table

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error				Tolerance	VIF
1 (Constant)	.862	.563		1.513	.134		
Content	.571	.112	.452	4.204	.000	.390	3.452
Duration	.415	.124	.219	2.215	.000	.343	3.316
Knowledge	.673	.110	.672	6.001	.000	.283	5.451
Perception	.112	.155	.119	1.316	.002	.540	6.619
Demographic	.376	.101	.301	3.501	.000	.215	3.955
Punishment Serving Period	.528	.114	.112	5.114	.000	.544	5.322

Source: Data Research

a. Dependent variable: Impact of the meditation programme

Probabilities of content of the programme, knowledge of the presenter and punishment serving time items are highly significant with

positive beta values. Other variable such as duration and demographic factors are also since the p value is less than 0.05. This implies that they influence positively on current meditation programme conducted by the prison. Therefore, following regression formula can be developed.

$$Y = \alpha + \beta x_1 + \beta x_2 + \beta x_3 + \dots + \beta x_n + \epsilon$$

$$Y = 0.862 + 0.571(\text{Content}) + 0.415(\text{Duration}) + 0.673(\text{Knowledge}) + 0.112(\text{Perception}) + 0.376(\text{Demographic}) + 0.528(\text{Punishment})$$

Based on the above formula for example, it shows that content of the programme has nearly 57% impact on the meditation programme and changing the content of the programme by one unit has had an impact of 57% to the entire programme. Other variables are also having similar kind of impact to the current meditation programme.

CONCLUSION AND RECOMMENDATIONS

Based on the descriptive and inferential statistical analysis, it shows that the current meditation programmes has a significant impact on the suspects on trial on criminal offences in Sri Lanka. With reference to the outcome of the analysis following points can be highlighted and make certain recommendation for the betterment of the inmates.

Content of the meditation programme has a significant positive impact on practice of mediating the inmates. Thus, when content of the programme is developed, it should be equally important for the all inmates and should not be religion bias. It was revealed that convicted inmates for the drug offences, are reluctant to attend the meditation programmes because of the inappropriateness or impractical aspects of the programs.

The duration of the programme also has a positive impact on meditation. Accordingly, the research suggests limiting the duration of the programme for 01 hour since inmates reluctant to continue beyond one hour. It could dilute the effectiveness

of the meditation and may tend to defeat the objective of the programme if the duration is more than one hour.

The knowledge and the skills of the presenter also has a positive high impact on the meditation programme. Thus, suggest outsourcing the meditation activities or hire qualified, experienced and skillful presenters on a contract basis at for a short period. This will enable to explore new avenues of meditation best practices.

Inmates serving punishments for more than 10 years have a significant willingness to attend meditation programmes. Therefore, such programmes should be implemented in a regular interval rather than being held once a month.

Inmates serving punishments for drug smuggling and illicit drug dealing are having high tendency of skipping most of the mediation programs. Therefore, short courses of meditation programmes or simple best practices such as talking to them personally more often, should be implemented for them as they have a very high re admission rate not only in the Mahara prison but also island wide.

The prime objective of this study is to assess the impact of current meditation programme applications for suspects on trial on criminal offences in Mahara Prison in Sri Lanka. Based on the findings of the study it is apparent that there is a significant impact of practicing various types of meditation programmes for the people who are serving long term punishment. Many inmates have had changed their mind set based on the meditation. Also many inmates have managed their anger or controlled their animosity towards others by adopting spiritual techniques of meditation. This has a direct impact on increasing the health and wellness of the inmates. Currently there is no legal provision in the prison system to carry out permanent mediation programmes inside prisons in Sri Lanka. This study enables to open avenues to implement such programs island wide and suggest considering the necessary changes in terms of policy making. Consequently, the rehabilitation and correction of prisoners plays a key role which need not be ignored or condoned. Even though certain small types of suspects pay

less interest towards meditation; some have taken it quite seriously exhibiting positive results. The irony of the exercise of practice of meditation apparently by nature being a voluntary aspect practiced by individuals, the value addition needs to be realized within the suspects themselves, the impact of it on the society as a whole will be a great reward.

In addition, providing sustainable legal provision also will create a great platform to enhance the life style of the inmates.

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Early Childhood Education Degree programme for Non-State Higher Education Institutes in Sri Lanka – Need Survey

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ABSTRACT

Early Childhood Education (ECE) is the foundation of education which helps to develop the child's cognitive, emotional, and physical aspects. Unquestionably ECE educators play a vital role. Hence, teacher education in early childhood context is very important. However currently in Sri Lanka only very few state universities conduct Bachelor of Education in ECE and Primary Education and while other Non-State Higher Education institutes (NSHEIs) offer Early Childhood Education degrees affiliated to foreign universities. Further, presently no NSHEI offer the Ministry of Education or University Grants Commission approved degree in Early Childhood Education. Hence in this context objective of the study is to investigate the need for the Bachelor of Education ECE Degree programme at NSHEI in Sri Lanka. Study conducted in one of the prominent NSHEIs (ABC institute) in Sri Lanka. Therefore, Case study method adopted, and quantitative measures have been complemented with the qualitative measures. Sample size is seventy-five student teachers at ABC institute. This is a survey research and data collection methods are questionnaire for student teachers and key informant interviews conducted with some key stakeholders in the state universities and three preschool owners in Colombo district. Results of the study revealed that benefits of the ECE Degree to students and for the country and emphasized it is very crucial to commence the ECE programme as it provides more opportunities to students since few opportunities and capacity restraint in state universities. Furthermore, study highlighted that ninety six percent student like to start ECE Degree and if the institute commence the programme ninety percent student would like to join the programme. Therefore, study can be concluded

that ABC as a NSHEI there is a good potential and opportunity to proceed with the ECE Degree and contribute to the foundation of the education in the country which add value to the system.

Index Terms: Early Childhood Education, Teacher Education, ECE Degree, Non-state higher education institutes

INTRODUCTION

Early Childhood Education is the foundation of education which helps to develop the child's cognitive, emotional, and physical aspects. Early Childhood Education (ECE) has established via United Nation sustainable goal development and promoted the early childhood development [1]. Further The most vital favourable experiences in the early years of life come from fostering care and safety received from parents, family, and community, which have lifelong benefits including improved health and wellbeing, and improved ability to learn and develop [2]. In order to do this, teacher in early childhood education plays and crucial role in child's life. Therefore, teachers in early childhood education are the keystone. Hence the teacher education in early childhood context is very vital. Early childhood teachers or educators are the critical determinant of learning, and they help and place the basis for learning and exploration for the rest of a child's life. Previous studies indicated that deprived of early education, children are possible to fall over behind during the course of their academic careers [3].

Currently in Sri Lanka very few state universities conduct Bachelor of Education in ECE or Primary Education and while other Non-State Higher

Education institutes (NSHEIs) offer Early Childhood Education degrees affiliated to foreign universities. However presently no NSHEI offer the Ministry of Education or University Grants Commission (UGC) approved degree in Early Childhood Education. In this backdrop ABC Campus as a leading NSHEI realized the need for the Degree in Early Childhood education.

ABC-Campus is one of Sri Lanka's largest private higher education organisations, situated in an administrative capital of Sri Lanka. ABC-Campus was established in 30 years back with the vision of making every effort to build sustainable working partnerships with industry, professional organizations, and other stakeholders, and to serve in the best interest of its customers. Further ABC campus works very closely with the Ministry of Education (MOE) as a NSHEIs.

Due to the capacity restraint in state sector, Higher Education Institutes need for the participation in parallel system of private sector Higher Education has emerged [4]. Secondary school graduates who cannot enter the state university as a consequence of limited capacity need option to continue their higher education dreams. Therefore, it is required the long-term plans in Sri Lanka to increase the higher educational opportunities all over the country [5]. According to the budget proposal 2017 Interest Free Student Loan Scheme (IFSLS) is implemented by the Ministry of Education with the aim of increasing higher education opportunities to wider student community with the affiliation of NSHEIs [6]. Majority of students who were unable to secure their place in State University were not able to meet the expense of programme fees in local NSHEIs recognized under the Universities Act. Further, many students are unable to follow their programmes in foreign university affiliated local colleges and foreign universities due to financial constraints. Therefore, taking into consideration MoE implemented IFSLS under the direction of budget proposals in 2017 which gives more opportunities to NSHEIs. Therefore, this proposed ECE degree programme has potential to enter to this IFSL scheme as this would be a MOE/UGC approved degree programme which gives an excellent opportunity to students.

A Problem statement

Premature years of a child's life are base to their lifetime development. Early childhood educators play a vital role in in these early years of child's life by providing the good healthiness and nourishment, a safe, protected and approachable environment and opportunities for early learning, which nurture children and prosper. However, "the quality of preschool education in Sri Lanka is a key challenge" [2]. Further, 59.9 per cent of 28, 449 teachers who work in preschools have passed the Advanced Level Examination. Nevertheless 83 per cent of teachers accomplished a professional training of one year or more, 9.5 per cent of present teachers do not possess any aforesaid qualification [2]. However, this indicated that more teachers need qualification in early childhood education. Currently only very few universities offer early childhood education. Preschool workforce education development and preschool teachers should be well qualified and they should focus on their continuous professional development, further facilitating the universities, higher education institutes, teacher education institutes and other training providers to design and offer programmes for the preschool education workforce at certificate, diploma, degree and post-graduate degree-level is important [2].

Hence in this background it is clear that teacher education in preschool or early childhood education in Sri Lanka need to be developed. Therefore, NSHEIs are also recognized the need for the teacher education in early childhood education. Though there are some diplomas offered by the institutes, there are lack of opportunities for ECE Degrees.

B Objective of the study

To investigate the need for the Bachelor of Education Early Childhood Education Degree programme at NSHEI in Sri Lanka.

RESEARCH METHODOLOGY

In order to achieve the objective of the study case study method adopted and quantitative measures have been complemented with the qualitative

measures. This study can be identified as a survey and in order to collect the data both primary and secondary data collection methods have used. Primarily data collection techniques are self-administered questionnaire for students who follows Diploma in Early Childhood Education and Diploma in Primary Teaching. The researcher conducted key informant interviews with some key stakeholders in the state universities namely head of the departments in Education Faculties. In addition, another three key informant interviews conducted with the three preschool owners in Colombo district. Secondary data will be used to collect more information. Secondary information is readily available information to use for the research. Secondary data namely relevant reports and documents in the NSHEIs, magazines, newspapers, articles, gazette, and minutes of meetings, internet and intranet can be taken as secondary data.

Area of the study is ABC as one of the Non-State Higher education institutes in Sri Lanka. Though there are twenty-four nonstate higher education institutes registered with the Ministry of Education only one institution has been considered for the study. Population of the study can be identified as hundred teacher trainees from Diploma in Early Childhood education and Diploma in Primary school teaching at ABC Campus. In order to achieve the research objectives simple random sample have been used to select the respondents. Out of hundred teacher trainees from Diploma in Early Childhood education and Diploma in Primary school teaching only seventy-five teacher trainees selected and self-administered google form questionnaires presented on online mode and emailed to them and they were given responsibility to return the questionnaire to the researcher within five days. The process involved distributing one to hundred numbers to all teacher trainees from Diploma in Early Childhood Education and primary school teaching. Writing one to hundred numbers in pieces of paper and folded, placed in a container and assorted together. Seventy-five numbers have chosen and that was included in the study. Hence over all seventy-five teacher trainees from Diploma in Early Childhood education and Diploma in Primary school teaching participated in this study. Questionnaire consists of five main

questions and both closed and open-ended questions on top. Objectives of the study and worth of the questionnaire have mentioned at the top of the questionnaire and guaranteed the confidentiality of the information collected.

A Data collection and response rate

According to the table 1 below it indicated that sixty-nine per cent was the questionnaire response rate and fifty-two questionnaires were returned out of seventy-five. Most research, objective of the researcher is to achieve approximately sixty percent (60%) response rate [7]. Therefore, sixty nine percent can be considered as good response rate.

TABLE 1
RESPONSE RATE

	Numbers	Percentage (%)
Questionnaires administered	75	75
Questionnaires returned	52	69
Not responded	23	21

Table 1: response rate

Source: Survey Data (2022)

RESULTS AND DISCUSSION

The data analyzed by Excel software programme and interviews have been transcribed and coded. Further questionnaire comprises of both closed and open-ended questions. Open ended questions have arranged according to the thematic approach and analyzed.

A Demographic and socio-economic characteristics of respondents

Age distribution of teacher trainees indicates out of 52 respondents sixty percent are in age range between 20 to 25 years old. Thirty percent of

teacher trainees are age range between 26 to 30 years of age and four percent, two percent and four percent are age ranges of 31 to 35, 36 to 40 and above 40 years of old respectively. It denotes that more respondents (sixty percent) are in age range between 20 to 25. Due to fast growth of primary school enrolments and higher rate of teacher attrition, age profile of teachers has become younger in many countries [8]. Thus the researcher argued that more teacher trainees are young and are in age range between 20 to 25 that they focus more on their studies and career. Therefore the institute (ABC institute) has good opportunity to commence the ECE programme. Further results indicated that majority of teacher trainees (ninety eight percent) are female while only two percent are mail students. Furthermore more teacher trainees (sixty nine percent) have Advanced Level (A/L) qualification and twenty six percent have additional diploma qualification and only five percent have degrees. Hence the researcher argued since more ECE and primary teacher trainees have only A/L qualification ABC institute has future demand for the proposed ECE Degree.

B Need Survey

According to the second part of the questionnaire ninety six percent students mentioned that they would like to follow and obtain a degree in Early Childhood Education while four percent are not in favour of proceeding with the same since, they have another degree (Graph 1). Hence it indicated majority of the teacher trainees (ninety six percent) would like to follow the ECE Degree.

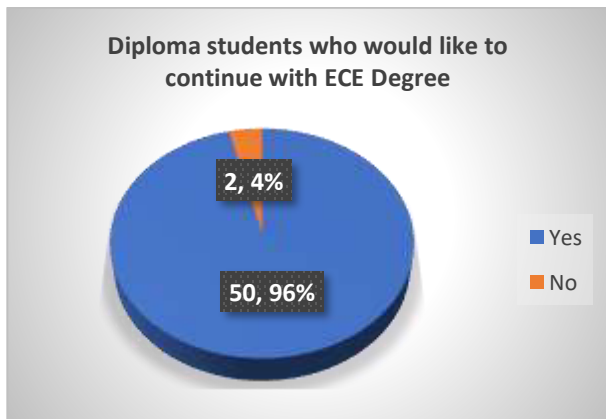


Fig. 1 Diploma students who would like to continue with ECE Degree in Graph 1

Source: Survey data (2022)

Question has directed to teacher trainees asking reasons for proceeding with the Early Childhood Education Degree. According to the responses, four themes were recognized viz gain more knowledge, migration purpose, career development and respondents like to work with children and teacher trainees believed fifteen percent, eight percent, seventy three percent and four percent respectively. Hence it indicated more respondents (seventy percent) would like to focus on their career and therefore it gives the opportunity to institute to commence on ECE programme (Graph 2).

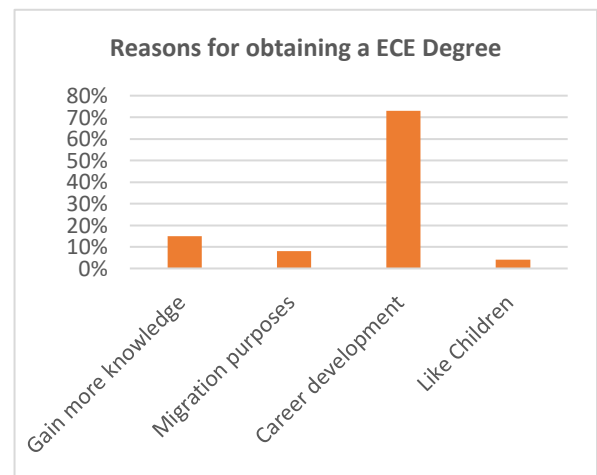


Fig.2 Reasons for obtaining a ECE Degree in Graph 2

Source: Survey data (2022)

Benefits of the Early Childhood education for the country is identified and analyzed under three themes namely students believe that Early Childhood Education (ECE) degree helps to develop knowledge attitude and skills, it's a foundation of education and this degree helps student to migrate to another country. Hence the fifteen percent respondents believed that ECE degree helps to gain knowledge attitude and skills, twenty three percent supposed the degree leads to migration purposes and sixty two percent believed that ECE degree is foundation of education and therefore more benefits to it (Graph 3). Hence it denotes that more respondents (sixty two percent) believed that ECE is vital since it is the foundation of education and therefore evidently it helps the country. Further, if the

institute commence ECE degree programme ninety percent of teacher trainees would like to join the programme while ten percent were not (Graph 4). Graph 4 results below indicated that ninety percent teacher trainees from Diploma in Early Childhood Education and Diploma in Primary Education would like to join the programme if the institute commence it. Thus, it implied that the ABC has reasons to commence the ECE degree programme since current students' responses are very promising.

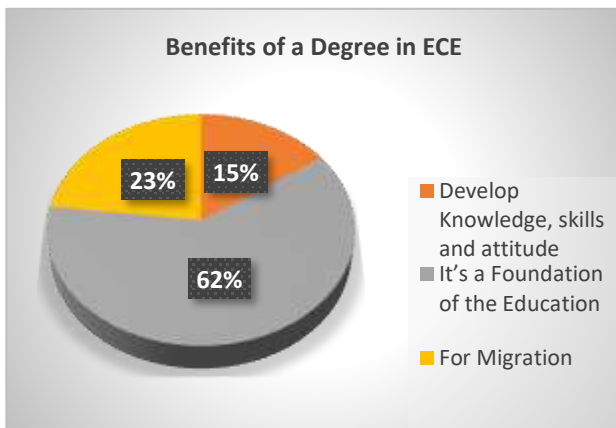


Fig. 3 Benefits of a Degree in ECE in Graph 3

Source: Survey data (2022)

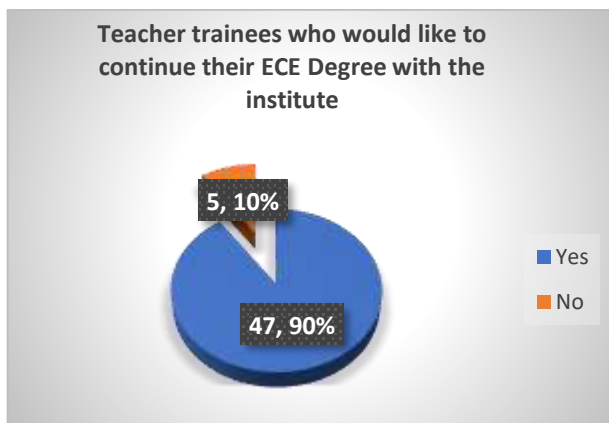


Fig. 4 Teacher trainees who would like to continue their ECE Degree with the institute in Graph 4

Source: Survey data (2022)

When interviewing the head of the department of Early Childhood Education in Faculty of Education in Open University of Sri Lanka, mentioned that it is very important to offer the ECE Degree since it the foundation or the basis of the education. Further, the head of the department mentioned that specifically no institute offer the government approved ECE Degree besides OUSL. Therefore, it is important that Higher Education Institutes focus on this area particularly ABC as a Non state higher education institute it is crucial to commence the ECE degree programme and contribute and add value to the education system in the country. As previous planned the researcher could not conduct the interview with one of the Deans in Education Faculties. The researcher contacted the Dean of the Faculty of Education in Certain state university, however due to busy schedule of the Dean, no interview was conducted and that could be identified as a limitation of the study. Further, when conducted the interviews with the three preschool owners, it is pointed out that importance of the ECE as base of the education as even play helps to develop the child's physically, mentally, and emotionally and teacher trainees are very keen to commence the degree programme as it helps to develop their careers. Furthermore, they mentioned that since the state university entry criteria can be rigid at times, they would like to have more flexible opportunities and entry criteria expect from NSHEIs.

CONCLUSION

ABC as a leading Non state higher education institute has identified the lacuna in offering the Degree programmes in the field of Early Childhood Education. In that context ABC has investigated the need for the Early Childhood Education degree. Seventy-five teacher trainees from the Diploma in Early Childhood education and Diploma in Primary Teaching participated in the study. Mainly it is quantitative study and to bring rich data and information study complemented with the qualitative data. This need survey has discussed the benefits of the ECE Degree to students and for the country. Further the researcher has interviewed the Head of the Department of Early Childhood Education in one

of the prominent state universities and emphasized that it is very crucial to commence the ECE programme since it provides opportunity to students due to capacity restraint and few programmes in state universities and moreover no private institute offer the programme. Furthermore, study highlighted that ninety six percent student like to start ECE Degree and if the institute commence the programme ninety percent student would like to join the programme. Therefore, study can be concluded that according to the results of the need survey it indicated ABC as a NSHEI there is a good potential and opportunity to proceed with the ECE Degree and contribute to the foundation of the education in the country which add value to the system on top.

DECLARATION

A. Study Limitation

Sine this need survey is a case study it limits the gaining information from other NSHEIs. Hence the study cannot be generalized among other NSHEIs in the country.

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Intelligent Driver Sleep Detection and Alerting System

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ABSTRACT

Transportation has already become a vital part of the daily routine of people all around the world. With the increasing demand for transportation, road traffic accidents have also been increasing exponentially. Further, road traffic accidents are found to be one of the critical causes of annual deaths, injuries, and damages worldwide. Among the minor and fatal crashes, distracted driving has been identified as one of the leading causes. Sleepiness/drowsiness or fatigue in drivers can be stated as the most common reasons, and as an unavoidable and unintentional cause for distraction, because most of the time the driver would not be aware of the condition until facing a critical incident. Therefore, identifying sleepiness/drowsiness at the initial stages, and alerting the driver, would contribute to minimizing the risk of such road traffic accidents. The paper presents an automated system that is capable of identifying sleepiness/drowsiness in drivers in the initial stages and immediately alerting the driver. Furthermore, given the criticality of the situation, the system also operates a new feature of simultaneously sharing the current location of the vehicle to a pre-defined close contact of the driver to further minimize the risks and as a prevention mechanism.

Index Terms: Eye aspect ratio, Location sharing, Open-source computer vision, Percentage eye closure, Raspberry Pi, Road traffic accidents, SIM808, Sleep detection.

INTRODUCTION

Transportation plays a vital role in society, therefore the usage of vehicles has rapidly increased over time, and so have road traffic accidents. According to the statistics on ‘The Global status report on road safety 2018’, launched by the WHO (World Health Organization) in December 2018, the number of annual road traffic deaths has reached 1.35 million. Also, road traffic injuries have been identified as the leading cause of death for children and young adults aged 5-29 years. These road accidents have also caused 20-50 million more people to suffer non-fatal injuries, with some causing a disability as a result of their injury [11]

Sri Lankan statistics on the Global status report on road safety 2018 published by the WHO have estimated 3096 road traffic fatalities, at an estimated rate of 14.6 per 100,000 population in Sri Lanka in the year 2016 [7]. Also, as stated by the National Council for Road Safety Statistics, Ministry of Transport and Civil Aviation, at the Symposium on ‘Achieving Sustainable Road Safety in Sri Lanka’, over 3,000 road traffic deaths and over 35,000 road traffic accidents have been reported in the year 2018 only [8]. Out of the many causes of road traffic accidents globally, distracted driving has been identified as one of the leading causes of road accidents [11]. Generally known, sleepiness/drowsiness and fatigue can be considered as one of the common and unintentional reasons for the distraction of a driver.

The project is proposed to evaluate these factors and focus on addressing a method to detect a driver’s sleepiness or drowsiness at the initial stages. The main objective is to monitor the eye movements to trace the driver’s sleepiness at this stage and to warn the driver when not in a state to

drive. Also, the next objective is to inform a close contact of a driver about the driver's exact location. Hence the overall objective is to minimize the road accidents caused by sleepiness in drivers, and in critical conditions, minimize the damage likely to be caused in such situations.

RELATED WORK

Research had been conducted to find a relationship between drowsiness measures and impairing driving performance. During the study, physiological factors such as eye state, and eye closure have been found to be of high accuracy when predicting sleepiness [10].

Eskandarian & Mortazavi have researched to evaluate an algorithm to detect drowsiness and have used an experiment conducted in a simulator laboratory, involving truck drivers [5] Driver state had been analyzed using 2 methods: Subjective Drowsiness Rating (SDR) and Eye Closure Measure (PERCLOS).

A driver drowsiness detection system, to detect drowsiness by tracking the driver's face and eyes to measure the Percentage of eye closure was proposed [2]. The system had further been developed to trigger an alarm when drowsiness was detected.

A monitoring and Warning System had been developed also by detecting the face and eye detection [9]. The system was designed to trigger an alarm as well as to vibrate the driver's seat belt as an additional alert.

Another system was developed to conclude drowsiness and alert driver, to follow eye blink pattern analysis. The project was developed to use the Viola-Jones face detector on OpenCV, designed to locate the pupil hence blinking patterns, and then alert the driver using a voice message [3].

A research paper in 2016 explained real-time Monitoring and eye blinking detection. This system was designed to trigger a buzzer and a Vibration motor to alert the driver [1]

A program has been developed using MATLAB software to detect driver fatigue using a method of first detecting the eye state as whether open or close and then counting the frames of closed eyes to conclude whether the driver is fatigued and hence warn the driver [4].

Real-time drowsiness detection with the use of an analysis by an android application and alerting system was developed. The project introduced a solution to extract facial images using a mobile camera and passing datasets through an algorithm to detect drowsiness and send a visual and audio signal to alert the driver [6].

RESEARCH METHODOLOGY

For primary data gathering, the questionnaire method was used in the form of an online survey. A Google form was prepared with questions to cover all the required areas for the research. Nearly 200 responses were recorded, and all the respondents were valid driving license holders aged between 18-55.

The results of the survey indicated that almost 75% and almost 62% of the respondents had a connection to someone causing an accident due to sleepiness and a connection to someone being a victim of such an accident, respectively. The results are shown in Figure 1.

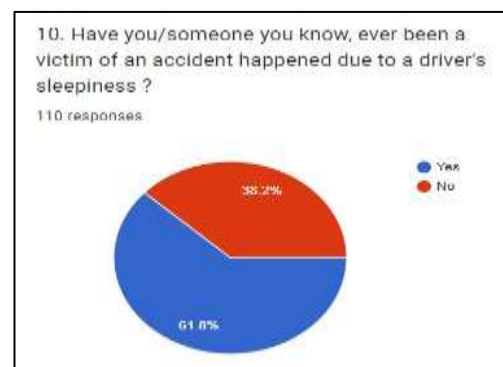


Figure 1 Survey response summary to accident connections

The survey also indicated how the general public would respond to an instance where they are required to drive after a tiring day or a sleepless night. More than 71% of the respondents (Almost 3/4 of the total respondents) have chosen the option to drive if the matter is urgent. As per these survey results, accidents caused due to sleepiness in drivers could clearly be stated as a critical problem. This is depicted in the pie chart in Figure 2.

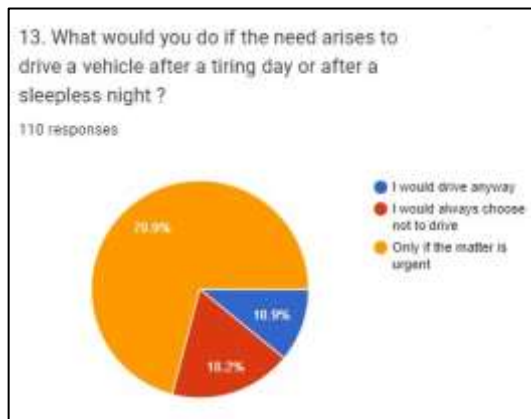


Figure 2 Survey response summary to driving after a tiring day

The flow diagram of the introduced system is shown in Figure 3. The Pi camera is used to trace the eye region of the driver continuously and depending on the parameter ‘Eye Aspect Ratio’, the system decides whether the driver is sleepy or not, and if the driver is detected as sleepy, the system triggers an alarm and simultaneously shares the current location of the driver to a closed contact (a pre-defined contact number).

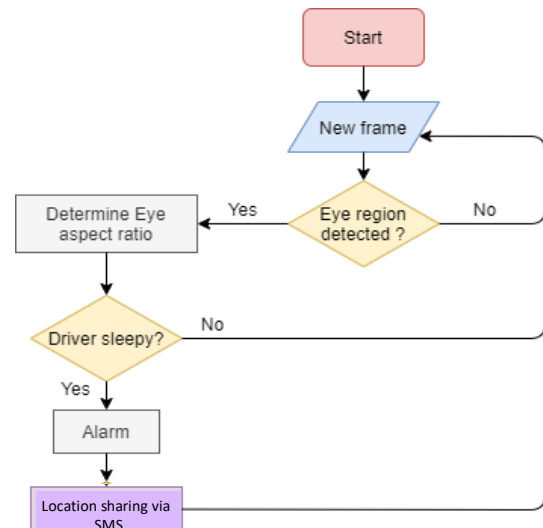


Figure 3 System Flow Diagram

The components used on the system are the Raspberry Pi 3B+ board, Pi camera, SIM808 module, and speaker. Figure 4 shows the block diagram of the system with the interconnected components. The raspberry pi acts as the motherboard and the controller of the system. The Pi camera is used to trace the driver’s eyes while the SIM808 module is used for location tracking and SMS generating. A speaker is used for triggering the alarm. The unit is powered using an external power supply, for which the vehicle’s auxiliary power outlet is used.

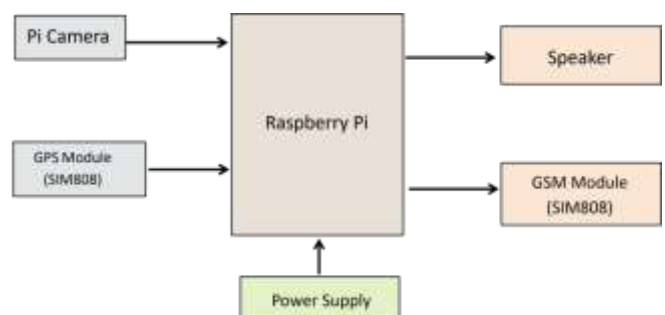


Figure 4 System Block Diagram

The system uses the concept of Eye Aspect Ratio (EAR) in determining the closure of the eye. The EAR-obtaining procedure is shown in Figure 5 and Equation (1).

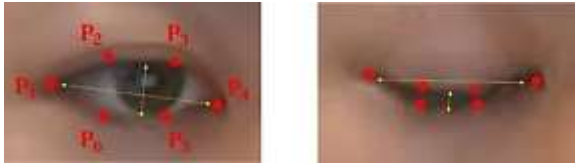


Figure 5 Eye Aspect Ratio Comparison

$$EAR = \frac{\|p_2 - p_6\| + \|p_3 - p_5\|}{2\|p_1 - p_4\|}$$

(1)

The system is programmed to analyze each of the frames on the input video stream captured by the Pi camera. In each frame, the Eye aspect ratio is calculated. The Eye aspect ratio (calculated using specific points on the eye edge) received in each frame is compared with a predefined threshold EAR value, and if the obtained value is below the threshold, the frame is counted as 1. The loop continues running the process for each frame and adding to the counter. And once the counter reaches a pre-defined count, the alarm is programmed to be triggered. This indicates that the eyes have been partially closed for a continuous number of frames. This number of frames is adjusted, based on the fps (frames per second) of the used camera. And as the alarm starts triggering, the SIM808 module activates, the current location is tracked, and then sends the location as a text message to the saved number.

The system consists of interconnected hardware components that are completely automated. The process is completely programmed using Python and the program is set to run automatically once power is supplied to the system, and Raspberry Pi is switched on. The input to the system is the video stream captured by the camera and the GPS location coordinates traced by the GPS antenna.

The Interconnected system prototype is shown in Figure 6.

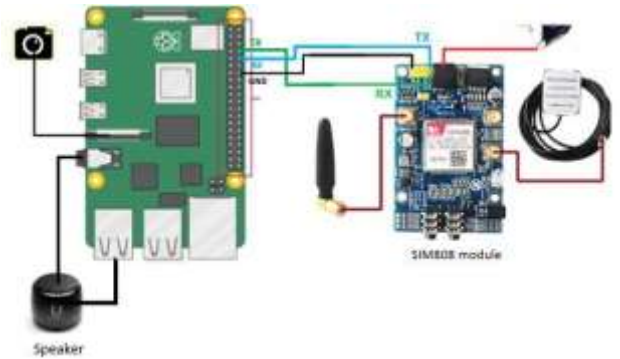


Figure 6 Interconnected system prototype

But in case the user requires to change the phone number of the location-sharing emergency contact, the board can be connected to a screen via HDMI, and the phone number can be changed on the already created text file, as shown in Figure 7.



Figure 7 Text file with emergency contact number

RESULTS AND DISCUSSION

The system was tested inside a vehicle, and power was supplied through a phone charger USB (Universal Serial Bus) cable connected to the auxiliary power outlet inside the vehicle. The connected prototype of the system is shown in Figure 8.



Figure 8 System prototype when fixed inside a vehicle

After a few seconds and milliseconds of eye closure, the SMS was received at the provided phone number. The received SMS format is shown in Figure 9.



Figure 9 SMS with location coordinates of the vehicle

Further, for best observation, a screen was also connected for experimental purposes, and to observe the working procedure, the test was again conducted inside a closed area. Figure 10 shows the process of Eye Aspect Ratio analysis and determining sleepiness.

The system was thereby confirmed to obtain the required results accurately and efficiently.



Figure 10 Determining sleepiness using Eye Aspect Ratio

The eye aspect ratio was calculated up to the 3rd decimal place therefore the data analysis of the system can be stated as accurate.

CONCLUSION

The overall goal of the project was to address the problem of rapidly increasing statistics of road accidents caused due to sleepiness/drowsiness or fatigue in drivers. The outcome presents a system to be fixed inside a vehicle consisting of the features to monitor the eye level of the driver continuously and as soon as a sleepiness/drowsiness is detected, an alarm is programmed to trigger. And further, the system continuously tracks the current location of the vehicle, and the tracked location is immediately shared as a Google map link via a text message to a pre-saved number, to notify a close contact about the driver's state and the location. Hence the project addresses the initial problem and contributes to minimizing the risk of accidents likely to be caused due to sleepiness in drivers.

DECLARATIONS

Study Limitations

As a major limitation, the system is only capable of alerting and notifying, but no prevention mechanism is included in the system. Therefore, the project can be referred to as a method that contributes to minimizing the accidents caused due to sleepiness, and not to avoid all such accidents completely.

Another limitation is that the system is not intelligent enough to decide which contact to inform at the time of the alert. Therefore, the contact number should be initiated before the system starts working. If the provided phone number happens to be unreachable, the text message would not be delivered at that time. Therefore, when initiating the phone number, it should be properly ensured that the specific number is reachable at any given instance.

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Original article

Knowledge, Attitudes and Practices on Dietary Supplements among Allied Health Sciences Undergraduates of Sri Lanka

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ABSTRACT

According to research conducted in foreign countries among undergraduates, there is a huge consumption of dietary supplements without proper consultation, and many have encountered adverse effects. However, there have been no satisfactory research studies done on dietary supplement usage among Allied Health Sciences undergraduates in Sri Lanka. The objective of the study was to describe knowledge, attitudes, and practices of dietary supplement usage among Allied Health Sciences undergraduates in Sri Lanka. In this descriptive cross-sectional study, a sample taken from a population of 2000 undergraduates of five Allied Health Sciences faculties in Sri Lanka were assessed using a structured, self-administered questionnaire during the period from March 2021 to June 2022. Stratified random sampling was used to select participants from each department using population proportion and finalized by using simple random sampling with 354 respondents as the sample size. According to the results obtained, the overall prevalence of dietary supplement usage was 63.8%. Of the individuals who used dietary supplements, 97.3% were female and 2.7% were male. The most common reason for using dietary supplements (91.2%) was to compensate for the lack of nutrients in the diet. Multivitamins and minerals were the most frequently reported supplements (86.7%), followed by fish oil (84.5%), beauty ingredients added supplements (77.4%), weight loss supplements (75.2%), and protein/amino acids (70.4%). Among undergraduates, there was widespread use of internet-driven, self-

prescribed dietary supplements intake (95.1%). A significant number of undergraduates took dietary advice from their family members (79.2%). Only 67.3% asked for medical advice from physicians, pharmacists, and dietitians. In conclusion, prevalence of dietary supplement consumption among participants is high (63.8%) but most of were not confident enough to recommend supplements to others (75.7%). Furthermore, side effects among consumers were minimum (4.9%) and most of them obtained the desired benefit. This study can be used to provide background knowledge for future researchers.

Index Terms: Allied Health Sciences, Undergraduates, Dietary supplements, Knowledge, Attitude & Practices

INTRODUCTION

Nutrients play a vital role in metabolism. A balanced diet is defined as selecting food that provides the nutrients needed to maintain the body functions (Krans, 2020). Nutrients are categorized into two groups, macronutrients, and micronutrients, according to the quantity of consumption (Nall, 2009). Macronutrients such as carbohydrates and proteins are obtained in the body in large quantities, whereas micronutrients such as vitamins and minerals are obtained in small quantities (Krans, 2020).

It has been observed that people are not getting enough nutrients from their regular diet due to unhealthy food habits like consuming junk food, processed food, and sugary carbonated beverages. This can lead to nutrient and vitamin deficiencies (Fuhrman, 2018). A dietary supplement is defined as a tablet, aqueous solution, extraction, or powdered version of a substitute for essential nutrients that incorporate one or more varieties of vitamins, plant-based constituents, proteins, amino acids, minerals, and food substances (U.S Food and Drug Administration, 2017). The most common reason for using a dietary supplement is to maintain the health and wellness of the body through which people are expected to boost immunity and energy (Barnes, et al, 2016), (Dickinson, et al, 2014). In addition, people thought that supplements might help to fill the nutrient gaps in the diet, maintain the health of the heart, bones, eyes, and digestive tract and reduce the risk of adverse reactions (Dickinson, et al, 2014). Further, some people use dietary supplements to enhance the beauty of skin, hair, and nails and to aid in antiaging (Dickinson, et al, 2014). Apart from these, dietary supplements can be used to maintain weight and build muscle mass as well as for stress management (Barnes, et al, 2016), (Dickinson, et al, 2014). Considering these facts, the motivation of using dietary supplements is to reduce the vulnerability to face diseases, maintain body functions without difficulties and avert the deficiency problems of nutrients (Attlee, et al, 2017). Data from several research studies concluded that usage of dietary supplements could influence marital status, insecurities of the body, media, and colleagues (Attlee, et al, 2017), (Ardalani, et al, 2016). Further, previous research studies emphasized that usage of dietary supplements is directly influenced by education level, age, gender, financial status, physical activity level, health situation and body mass index (Barnes, et al, 2016). In addition, these research studies have determined that the tendency to use dietary supplements is higher in females than males. Moreover, people with average salaries and educated people are highly consumed dietary supplements (Ardalani, et al, 2016), (Barnes, et al, 2016). Rarely, race and ethnicity have also influenced the consumption of dietary supplements (Satia – Abouta, et al, 2003). Even though, there were many research studies conducted in other countries in the world,

there has been no satisfactory amount of research studies conducted on dietary supplements among Allied Health Sciences (AHS) undergraduates in Sri Lanka. There has only been one significant study about dietary supplements conducted about the consumption of dietary supplements among national-level athletes in Sri Lanka (De Silva, et al, 2010). In addition, there is a lack of knowledge about how nutritional supplement usage could be an effect of social trends. Furthermore, there is an absence of knowledge about what exactly a dietary supplement is, why it is needed, and the likelihood of side effects. Previous research studies indicated that many had encountered adverse effects after the usage of dietary supplements (De Silva, et al, 2010). Therefore, the aim of this research was to identify if AHS undergraduates have encountered adverse effects or whether they have benefitted from the consumption of dietary supplements.

The objective of this research was to determine the knowledge, attitude, and practices of dietary supplement usage among AHS undergraduates in Sri Lanka. Moreover this study will be beneficial to fill the gap between dietary supplement usages among Sri Lankan population and look forward to increasing the awareness of dietary supplements among the young generation in Sri Lanka.

RESEARCH METHODOLOGY

A descriptive cross-sectional study was conducted among AHS undergraduates in University of Peradeniya, University of Sri Jayewardenepura, University of Ruhuna, University of Jaffna and Kotelawala Defense University. The participants below the age of 18 were excluded from this study. Only the participants who gave the informed consent were included in this study. The total population of AHS undergraduates in Sri Lanka in the year 2021 was 2000. Based on this value, the sample size was determined using the “single population proportion formula” (Krejcie and Morgan, 1970) and the sample size was calculated using the “Krejcie and Morgan” formula published by the National Education Association Research Bulletin University of Minnesota (Small sample techniques & The NEA Research Bulletin, 1960).

$$S = \frac{X^2 NP (1-P)}{d^2 (N-1) + X^2 P (1-P)}$$

S= required sample size

X² = the table value of chi square for one degree of freedom at the desired confident level of 95% (95% = 1.96 * 1.96 = 3.841)

N = the population size

P = the population proportion (assumed to be 0.50 Since this would provide the maximum sample Size) 50%

d =the degree of accuracy expressed as a Proportion (0.05)

According to the single population proportion formula, the calculated sample size was 354.

The questionnaire was prepared referring to previous research. A pilot study was carried out to evaluate the validity and reliability of the questionnaire. In the pilot study the questionnaire sent to 20 colleagues of CINEC Campus, Malabe to pre-test and validate the questionnaire. The pre-tested validated questionnaire was sent to all the AHS faculties in selected universities as a google form in three languages: Sinhala, Tamil, and English (Loya, *et al*, 2009), (Snyder, *et al*, 2009), (Owens, *et al*, 2014), (Alhomoud, *et al*, 2016). The results of pilot study were not taken into an account when analyzing the data. Data were analyzed using IBM SPSS (Statistical Package for the Social Sciences), statistical version 21.

RESULTS

The prevalence of dietary supplement consumption is 63.80%.

Female	Male
97.3%	2.7%

Table 1: Gender composition

Most of the participants were female.

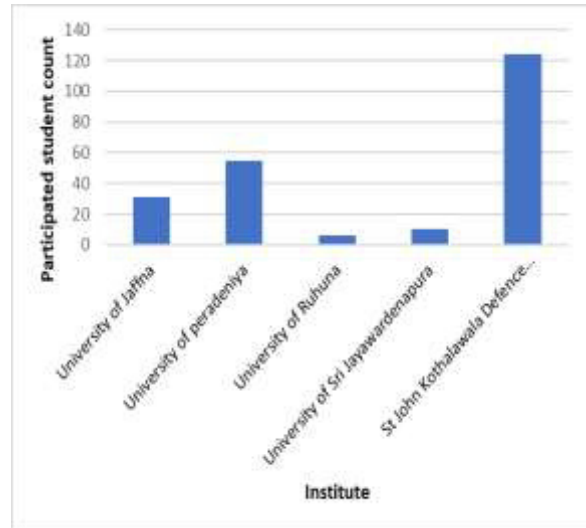


Figure 1: Participated undergraduates count from the institutes.

Questions	Responses	
	Yes	No
Define dietary supplement	98.7%	1.3%
Do you think the use of dietary supplement is always safe?	5.3%	94.7%
Do you think that taking medicines, food or drinks with dietary supplements might interact with each other?	95.6%	4.4%

Table 2: Knowledge regarding dietary supplements.

Questions	Responses	
	Yes	No
Have you attended any Health campaign/workshop on dietary supplement?	7.1%	92.9%
Do you always look for a professional medical help, when taking dietary supplement?	10.2%	89.8%

Table 3: Attitudes regarding dietary supplements.

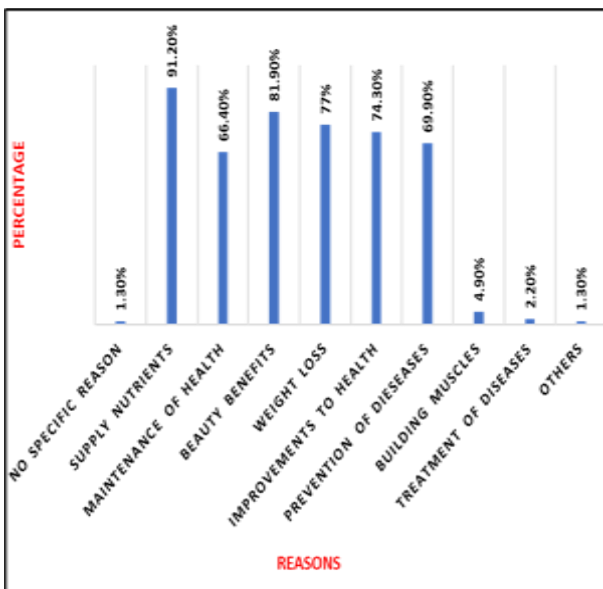


Figure 2: Reasons for consumption of dietary supplements.

The most frequent reason of using dietary supplements was to supply nutrients (91.20%).

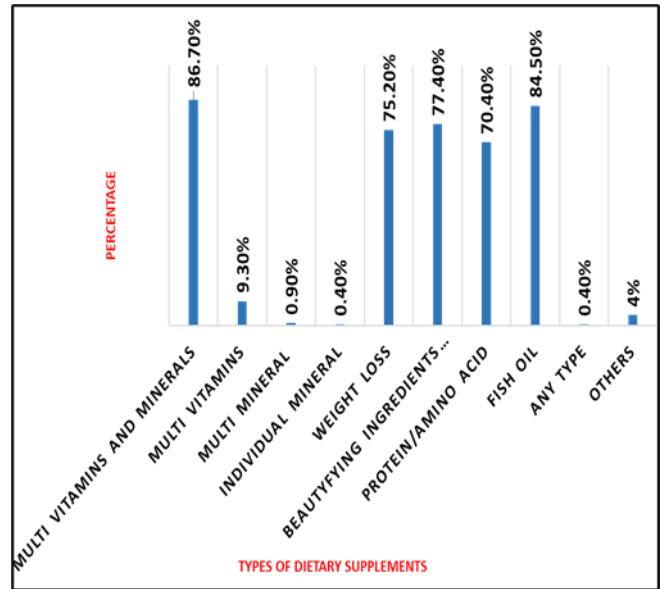


Figure 3: Types of consumed dietary supplements.

Figure 3 demonstrated that multi-vitamins and minerals (86.70%) as the most consumed.

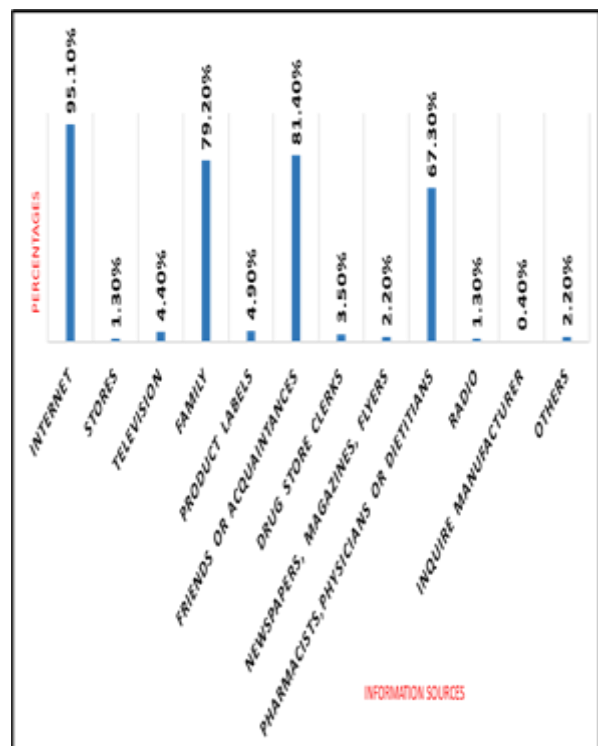


Figure 4: Information sources.

The Internet was the most used source to gather information about dietary supplements (95.10%).

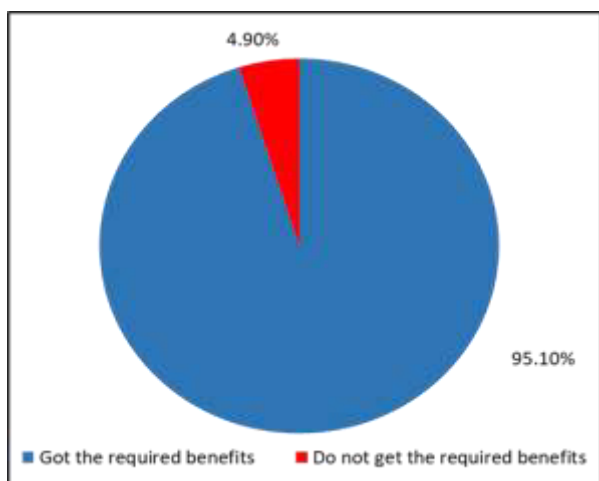


Figure 5: Percentage of obtaining benefits after consumption of dietary supplements.

According to this, 95.10% users got the required benefits from the consumption of dietary supplements.

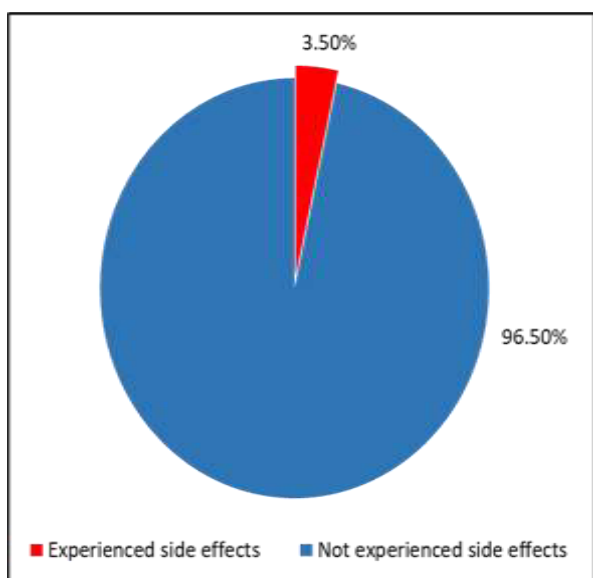


Figure 6: Occurrence of side effects after consumption of dietary supplements.

The percentage of 96.50% of participants were not experienced side effects.

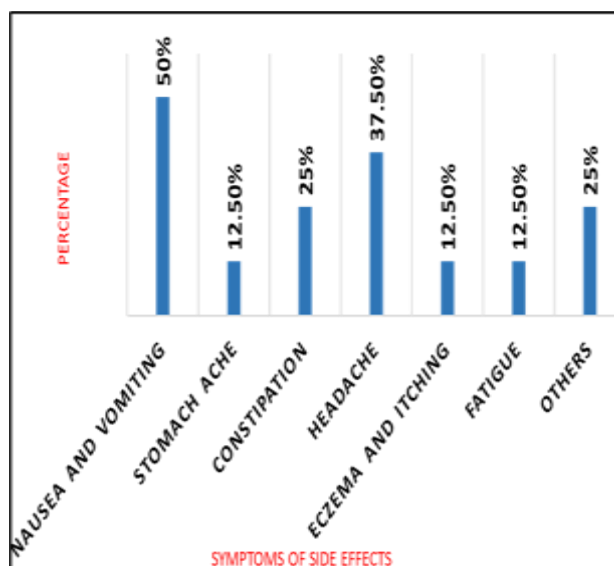


Figure 7: Symptoms of side effects.

According to the graph, nausea and vomiting were the frequent symptom among participants who had experienced side effects (50%) followed by, headache (37.50%), constipation (25%). Furthermore, stomachache, eczema, itching, and fatigue got similar percentages of responses (12.50%).

DISCUSSION AND CONCLUSION

According to the results obtained, the overall prevalence of dietary supplement usage was 63.8%. Of the individuals who used dietary supplements, 97.3% were female and 2.7% were male. The most common reason for using dietary supplements (91.2%) was to compensate for the lack of nutrients in the diet. Multivitamins and minerals were the most frequently reported supplements (86.7%), followed by fish oil (84.5%), beauty ingredients added supplements (77.4%), weight loss supplements (75.2%), and protein/amino acids (70.4%). Among undergraduates, there was widespread use of internet-driven, self-prescribed dietary supplements intake (95.1%). A significant number of undergraduates took dietary advice from their family members (79.2%). Only 67.3% asked for medical advice from physicians, pharmacists, and dietitians.

Consonance with the research studies done overseas within past ten years, it has been found out that the prevalence of dietary supplements among university students is high. For an example, the general prevalence of dietary supplements among university students at Princess Nourah Bint Abdulrahman University in Riyadh was 89.8% (Al-Tamimi, 2019). The prevalence of dietary supplements obtained in this research study was 63.80%. A similar prevalence has been reported in the study conducted among university students at Ardabil University of medical Sciences, Iran which was 66.8% (Ardalani, *et al*, 2016). In addition, the prevalence of dietary supplements usage among gender was evaluated in a study conducted at Pharmacy Colleges in the City of Karachi, Pakistan. According to that research findings, the prevalence of 51% was reported in male students and 47.3% was reported in females. Further, it has been reported that usage of dietary supplements was more prevalent in postgraduate students (65.33%) and students of private-sector universities (51.26%) (Naqvi *et al* 2011). However, due to a lack of research on this topic in Sri Lanka, difficulties were encountered when comparing the prevalence of dietary supplements among undergraduate in a national perspective.

Considering the knowledge about dietary supplements most of the participants were aware about dietary supplements and 94.7% agree with the statement the dietary supplements are always safe to use. Comparing with the (Hoover, *et al* 2017) it also mentioned that more than 40% of dental students in University of Saskatchewan strongly agree with the statement, dietary supplements are generally harmless.

It could be seen that the participants who seek professional advice before using a dietary supplement is less. Only 10.2% of participants are looking forward to the guidance of health care professionals when consuming dietary supplements. When considering with the Canadian study done in 2017 (Hoover, *et al*, 2017) it stated that approximately 39% of participants seek professional advice when consuming dietary supplements.

According to a study conducted in Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia, most common reason mentioned for using

dietary supplement was maintenance of general health and well-being (Naqvi *et al*, 2018). Based on study conducted in prince Naurah Bint Abdulrahman University in Riyadh, Saudi Arabia, participants reported that taking supplements for mainly aesthetic reasons (45.6%), such as improving their skin and hair second common reason was health improvement and increased immunity (42.4%) (AlTamimi, 2019). considering research conducted among dental students in Canada, it also proved that most participants took supplements to maintain good health (65%) and to ensure proper nutrition (58 %) (Hoover, *et al*, 2017). In our study denoted that common reason for using dietary supplement was supply nutrients to the body 91.20% followed by, beauty benefits (81.90%), weight loss (77%), improvements to health (74.30%), prevention of diseases (69.90%) and maintenance of health (66.40%). Since this question had the option to choose multiple choices to select reason for using dietary supplements, the total percentage count was not equal to 100%. Therefore, it can be considered that the participants use dietary supplements for multiple reasons.

The results of this research study were like the research conducted in Czech Republic. That showed male respondents of that study preferred mainly vitamins (80.6%), minerals (73.9%) (Chaloupkava, *et al*, 2020). According to this study it has showed that multi vitamins and minerals (86.70%) as the most consumed type of dietary supplements. In addition, research studies conducted in Saudi Arabia denoted the same results as multi vitamins were the most consumed type of dietary supplements (Naqvi *et al*, 2018) Considering the research conducted in Czech Republic to the preferences for sources of information gathered on Dietary supplements were the internet (73%), followed by friends/colleagues (38%), family (33%) and the pharmacy (33%) (Chaloupkava, *et al*, 2020). This study also showed that common source of information on dietary supplement was the internet (95.1%) According to research conducted in Poland Participants were had more confidence toward these over the counter (OTC) medicines or dietary supplements, which were advertised in media. From the participants who responded, 33% studied relating to human health, metabolism, structure, and functioning of living

organisms and 66% showed by students who study other subjects (Bochenek, *et al*, 2020).

Considering research conducted in Saudi Arabia it was determined that the greatest amount of information was provided by friends and relatives (45.3%), and the lowest amount by personal information (15.1%) (AlTamimi, 2019).

According to the research conducted in Italy, 84.6% participants benefited with dietary supplements (Del Balzo, *et al*, 2014). Also, a study conducted in Pakistan denoted that 24.6% participants affected adverse effects and 75.4% participants did not affect with any adverse effects (Naqvi, *et al*, 2018). In this study stated that 96.5 % of participants did not experience any side effects due to dietary supplements usage and only encountered 3.5% of participants with side effects. It is like the results obtain from the research study conducted in Japan. It mentioned that 92.5% participants never experienced side effects and 7.5% participants encountered the side effects (Kobayashi, *et al*, 2017). Considering the symptoms of side effects, Pakistan study showed that mostly encountered side effect was nausea, vomiting and diarrhea (19%) (Naqvi, *et al*, 2018). A Japanese study mentioned that mostly occurred side effect was diarrhea (33.8%), followed by nausea and vomiting (25.3%) with minor percentages of headache (12.3%) and eczema (10.4%) (Kobayashi, *et al*, 2017). These results are quite like the current study, where the most occurring side effects obtained as nausea and vomiting (50%), followed by, headache (37.50%), constipation (25%). Furthermore, stomachache, eczema, itching, and fatigue got similar percentages of responses (12.50%). According to the study conducted in Saudi Arabia most students mentioned that they would recommend dietary supplements only upon a physician's recommendation (65%), 14% of participants always recommended the dietary supplement usage and 20.9% do not recommend dietary supplement usage (Naqvi, *et al*, 2018). In addition, the study conducted in Pakistan showed that 61.3% recommends dietary supplements when physician recommended, 28.9% always recommend the dietary supplements and 9.8% do not recommend dietary supplements (Naqvi, *et al*, 2018). But in this study, obtained results were contradicted with the results of previous studies due to obtained with that most

of the participants did not have definite idea about recommendation of dietary supplements (75.70%).

In conclusion although, most of the participants used dietary supplements, they were not confident enough to recommend supplements for others. Furthermore, side effects among undergraduates were minimum. Since this research study was done on analysing dietary supplements usage among undergraduates in Sri Lanka, there is still some age groups which we did not considered in this study. Therefore, it is recommended to carry out research to analyse the consumption of dietary supplements in other age groups and among postgraduate students. In addition, there is not any regulation on dietary supplements by the Food and drug administration (FDA) for safety or efficacy before releasing to the public. Same can be said about the National Medicine Regulatory Authority of (NMRA) Sri Lanka. Since some dietary supplements may have active ingredients which can interfere with medical conditions, it is recommended to implement a proper regulation on dietary supplements.

DECLARATIONS

A. Study limitations

The study surveyed undergraduates in the Allied Health Sciences faculties in Sri Lanka. Therefore, could not be assumed to represent other undergraduates in Sri Lanka. Furthermore, self-reported responses were subjected to reporting bias and error, which may result in over or underreporting due to question misinterpretation.

B. Acknowledgements

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C. Funding sources if any

None.

D. Conflict of interest

The authors declare that there is not any conflict of interests.

E. Human and Animal related study

None

F. Ethical approval

This study was conducted after obtaining the ethical approval from the Ethical Review Committee of CINEC Campus, Malabe.

G. Informed consent

The purpose of the study and their participation in it were clearly stated prior to obtaining each volunteer's consent.

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Preliminary Study on Knowledge, Attitudes and Practices on Selling Over-the-Counter Oral Medicines by Pharmacy Workers in Colombo District

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ABSTRACT

Over-the-counter is also known as non-prescription medicine. Although, OTC can be bought without a prescription, self-medication and overusing the medications can cause many side effects. Hence, responsible selling of drugs with recommendations on proper and safe use is a key role of pharmacists and other pharmacy workers. The aim of this study was to investigate knowledge, attitudes and practices of selling orally administered OTC medicines by pharmacy workers in the Colombo district. A descriptive cross-sectional study was performed among pharmacy workers in the Colombo district, including pharmacists and non-pharmacists using a structured questionnaire. The ethical clearance was obtained from Ethics Review Committee, CINEC Campus. Out of 100 participants, 45 were males and 55 were females. As a percentage, 15% were pharmacists, 37% were assistant pharmacists and 48% were supporting workers in the pharmacy. Although Paracetamol is an OTC drug that is commonly sold in pharmacies, only 42% of the participants know the maximum adult daily dose as four g/day. The remaining 58% were not aware of the correct daily adult dose for Paracetamol and among those 13.79% were pharmacists. Further, 86% of the participants were aware that generally antacids should be taken 30 minutes before the meal to get effective action and 14% were unaware. Out of this, 14.28%, 35.71% and 50% are pharmacists, pharmacy assistants and other support staff respectively. Although antibiotics are not OTC medicine, 17% disagreed with the statement that "Antibiotics should not dispense for the common cold on patient demands". Among the participants, 47% believe pharmacists are only responsible for dispensing and counselling patients on the drug prescribed by physicians. Although 44 % of participants never

issued non-OTC medicine without a prescription, 48% have issued prescription-only drugs without a prescription occasionally, while 8% have issued non-OTC medicine without a prescription. According to the results, some workers were still unaware of the correct information regarding the OTC. It is concluded that some of the healthcare workers at pharmacies require further knowledge of OTC oral medicines.

Index Terms: *Over-the-counter, OTC, Paracetamol*

INTRODUCTION

The preliminary study on knowledge, attitudes, and practices on selling OTC oral medicines by pharmacy workers in the Colombo district brings out the main concept of ensuring the safety of drug dispense and concern about the patient safety by community pharmacy workers.

A drug product may be marketed as nonprescription or OTC if the Food and Drug Administration (FDA) determines it is safe and effective for use by a consumer without the guidance of a trained healthcare professional and have a very low probability of being abused or mistreated [1]. For frequently occurring illnesses, OTC medicines provide consumers with secure and efficient treatments, saving them time and money that might otherwise be spent on other, more expensive healthcare services.

It has been found that around the world self-administration and overusing of drugs has led to many unavoidable and challenging situations due to drug misuse and carelessness when administering a drug. Improper use of OTC medicines can lead to drug interactions, overdose, and adverse effects.

This study assessed the knowledge, attitudes and practices of pharmacy workers including pharmacists, assistant pharmacists and other pharmacy workers.

There are so much related literature which emphasises the importance of considering this.

Considering the use of antibiotics, it is found that antibiotics should not be dispensed in patient demand. According to the facts found, it can be resistant to the drug within our body and the effect of the drug will not be gained due to in taking antibiotics with patient demand [2].

The awareness of the maximum daily adult dose for Paracetamol is another important concern as studies have found that giving Paracetamol in overdoses has led to many drug interactions within adult patients in hospitals due to the careless and irresponsible actions of the medical workers including pharmacies in the hospitals [3].

Generally, antacids were taken 30 minutes before a meal, preventing heartburn, and acid reflux and indigestion. Depending on the age and intended use antacid dosages and doses can vary.

Assessing the responsibility of the pharmacy workers to ensure patient safety is not just identified as dispensing, it includes interpreting drug interactions, counseling and updating the awareness of society regarding new medicines as well [0]. Also, in a pharmacy, providing prescription needed medicines without a prescription is a violation of the rule and goes against the ethics of a pharmacist [5][6]. A community pharmacy worker is always responsible for dispensing the correct drug, dosage and dose even though a physician or consultant has prescribed the drugs. It's the responsibility of a pharmacy worker to concern on drug interactions and indications and contra-indications before dispensing a drug. Therefore, pharmacy workers have a significant role in providing the required knowledge to the general public in order to enhance their awareness of potential risks and encourage responsible self-care. Also, the patient should be advised to make them acknowledged about the correct way of administering a drug to get its' proper therapeutic effect.

RESEARCH METHODOLOGY

The study population was the pharmacy workers working in the Colombo district, 20-60 years of age and given their consent to participate in the study and those free of any physical or mental disabilities that may hinder them from responding to the questionnaire. Participants who did not wish to provide data for the research and those who did not comply with the relevant admission recommendation were excluded. The sample size was calculated using a standard formula and $n=100$ used for the preliminary study.

Ethical clearance for this study was taken from the Ethics Review Committee of the CINEC Campus, Malabe, Sri Lanka.

The study was a cross-sectional study and the study instrument was a structured questionnaire made by authors and approved by Ethics review committee of CINEC Campus. A Google form was shared on social media platforms openly inviting pharmacists, assistants and other pharmacy workers who work at pharmacies in the Colombo district. Those who had consent to participate in the study filled out the consent form and the questionnaire.

The questionnaire consisted of four categories.

1. Socio- demographic characteristics
2. Knowledge of participants toward selling OTC oral medicines
3. Attitudes of participants toward selling OTC oral medicines
4. Practices of participants toward selling OTC oral medicines

The data was analyzed using SPSS version 26. Descriptive statistics, mean \pm SD, frequencies and percentages were computed. The normality is assessed using graphical representations and Kolmogorov statistics. The continuous variables were compared using ANOVA and categorical variables by Chi-square statistics. $p < 0.05$ was significant.

RESULTS

The knowledge, attitudes and practices of pharmacy workers on selling over the counter oral medicine were evaluated by analyzing the data collected through the questionnaire.

A. Socio demographic characteristics

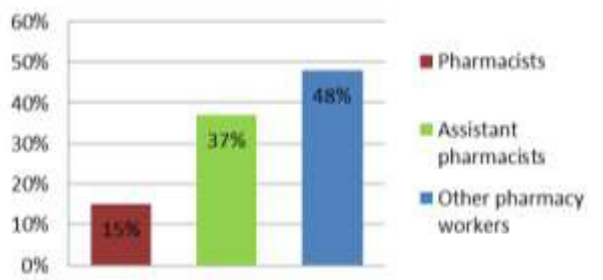


Figure 1: Employment positions of pharmacy workers

Under the socio demographic characters, gender, age, educational level, employment position and working experience were considered. According to the responses, 45 were males and 55 were females. The employment positions of pharmacy workers are shown in Figure 1.

B. Antacids

The question of whether antacids should be taken 30 minutes before the meal to get effective action, was asked by the participants of the study.

Antacids reduce heartburn by neutralizing the acid in the stomach as well as inhibiting pepsin enzyme which is proteolytic enzyme. Antacids dosage forms include suspensions, chewable tablets, powders, capsules and tablets. Taking antacids before meals can reduce stomach acidity. Most people are accustomed to taking antacids 30 minutes before. It is also confirmed by the data we have received so far.

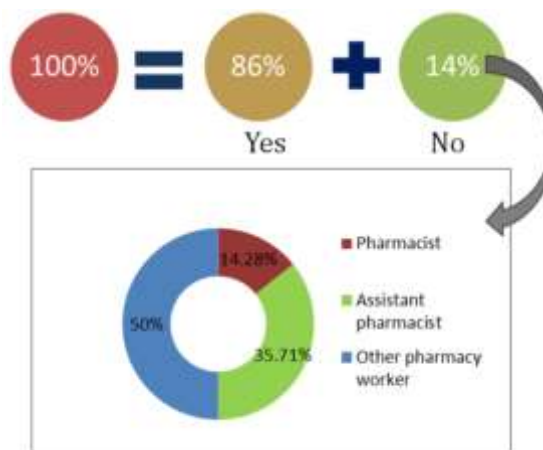


Figure 2

Accordingly, 86% agreed to take antacids 30 minutes before. But 14% did not agree with this. 14.28% of them are pharmacists (Figure 2). This may be due to the fact that taking antacids 2 hours after eating can provide long-term relief. But the best results are obtained by taking antacids before meals.

C. Paracetamol

Paracetamol is a commonly used medicine. It is available in the market in various dosage forms such as syrups, tablets, caplets, capsules, suppositories, oral suspensions, oral-disintegrating tablets, extended-release caplets, Gel caps/ gel tabs etc. which are having different strength levels. So this should be used in different doses for infants, children and adults. The dosage of one tablet of Paracetamol is 500mg and the maximum daily dose of oral Paracetamol for an adult is generally prescribed 4g/day in divided doses [7].

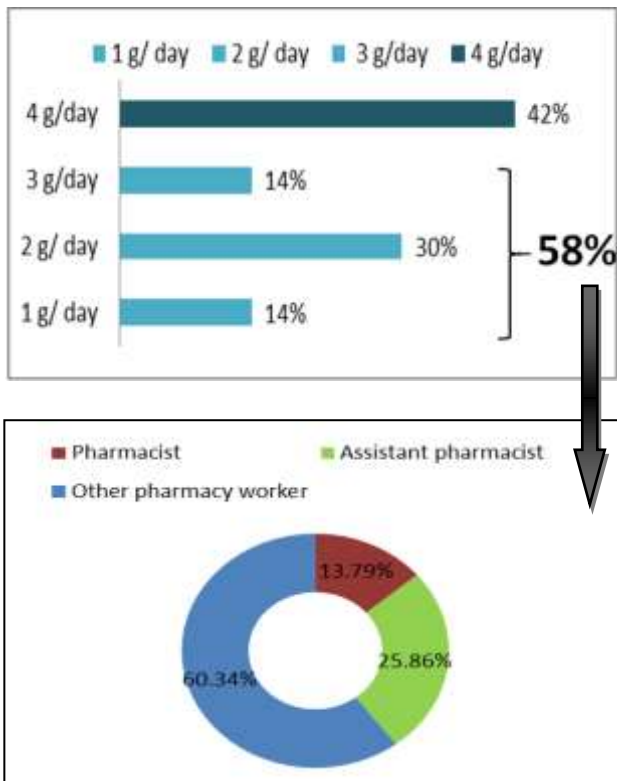


Figure 3

The question of “*What is the maximum adult daily dose of Paracetamol*” was asked from the participants.

According to the results, 42% of them were chosen exact answer as 4g per day. However it can be seen that 58% were not aware of this (Figure 3). Tragically, even 13.79% of pharmacists were under the category that does not have this basic knowledge.

D. Antibiotics

Although antibiotics are not OTC, people are used to asking antibiotics for the common cold, from pharmacies, without a prescription.

The common cold is mostly caused by a viral infection with symptoms include cough, runny nose and mild fever. In spite of the fact that antibiotics work against bacteria, they do not respond effectively against viruses. Since a virus causes common cold, it is not very effective to give antibiotics as medicine [8]. Nevertheless, antibiotics may respond effectively to a cold caused by a bacterial infection. Due to the lack of

knowledge, people are also used to getting antibiotics for the common cold. Misuse of antibiotics can cause adverse results.

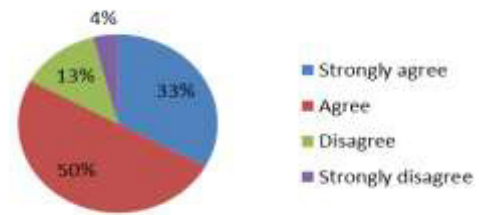


Figure 4

In the study, agreement with the statement “*Antibiotics should not dispense for the common cold on patient demands*” was evaluated.

The percentage of people who strongly agreed or agreed with the statement is 83 % (Figure 4). In actual fact, most of the pharmacy workers were aware about this. Lamentably, people tend to ask for antibiotics without a prescription and even pharmacies are support this unethical approach.

E. Practices

Non- OTC medicine are medicines that cannot dispense without a prescription. Any medicine can be poisonous if misused or over dosed. It can be caused for necrosis, brain damage and even fatal conditions. Regardless of how, it is pharmacy workers’ responsibility to check the prescription before issuing non- OTC medicines.

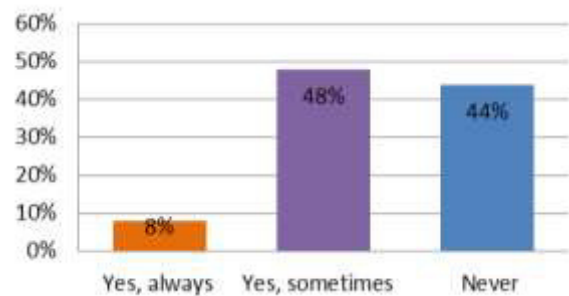


Figure 5

To assess the practices, the question of, “*Do you provide prescription needed medicine to patients when they ask for it without a prescription?*” Was asked.

It was found that 8% of the participants were always selling non- OTC medicines to the general public when they ask without a prescription while 48% sell sometimes on patients’ demand (Figure 5).

F. Attitudes

Attitudes of pharmacy workers regarding their responsibilities

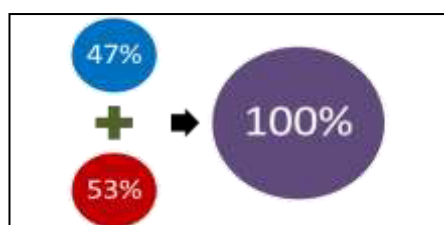


Figure 6

The study evaluated the attitudes of the pharmacy workers. The question of, “*Is the pharmacist only responsible for dispensing and counsel the patients on the drug prescribed by the physicians?*” was asked from the participants.

According to the results, it showed that 47% has said ‘Yes’ agreeing to the above statement and 53% said ‘No’ (Figure 6). It was observed that there was a considerable percentage of pharmacy workers who have the attitude as dispensing and counseling is the only responsibility of a pharmacy worker.

DISCUSSION

Working as a pharmacist or a pharmacy worker is challenging since they deal with patients’ lives. It is a profession in the health care sector that contributes to improving and maintaining the health of the citizens in a country. Especially pharmacists need to have a good knowledge regarding drugs, their mode of action, indications

and other interactions without exceptions. Pharmacists, assistant pharmacists and other pharmacy workers have a huge role in raising general public’s awareness about the medicines they are taking [9]. When dispensing medicine, it is required to administer how to use, when to use, dosages and the storing of the drugs to protect the medicinal value for a particular period. And it is necessary to dispense the required amount and the accurate drug to a patient to not receive any adverse effect from the drug used by the patient. In fact, verifying the accuracy of prescription that the physician has prescribed is the major duty of pharmacists not just dispensing what is prescribed? Going through the drugs, they should find out whether there are any drug interactions for the patient, and checking that the patient will not suffer from any adverse effects after taking these medications concerning his or her health history is a must. Advising about the potential side effects is also necessary as the patient may get confused when he pretends to experience the effects. And precautions that should be taken to overcome them are also should be advised by the pharmacists [10]. Additionally, overseeing the pharmacy management and pharmacy interns and technicians is essential to manage a favourable working environment. A pharmacy in-charge also should keep a record book as it will be required for anyone to observe the process which had been in the pharmacy during working time.

CONCLUSION

With the ultimate aim of contributing to patient safety in country, we have planned this research to investigate the current level of knowledge, attitudes and practices toward selling orally administered OTC medicines by pharmacy workers in the Colombo district.

The results concluded that awareness an average low level than expected. Even some pharmacists lacked knowledge and practices regarding OTC medicines. The analyzed results confirmed that pharmacy workers are still violating the law, leading to a profound malpractice in retail pharmacies. Raising knowledge, attitudes and practices is essential to protect the lives of the general public with maximum effort to avoid the misuse of medications. Therefore, it is important to provide sufficient knowledge and training to

pharmacy workers on selling and dispensing OTC oral medicines.

As post- research activities we can conduct new programs and plans to raise their awareness as it will lead to patient safety in future. Furthermore, these findings will be helpful for any authority to be concern on the supervision given to new pharmacy workers and implement new rules and regulations as a part of a plan to uplift their knowledge and awareness.

DECLARATIONS

A. Study Limitations

This study was limited to 100 pharmacy workers in Colombo district, Sri Lanka.

B. Acknowledgements

Authors would like to thankful to all participants who had volunteered to the study.

C. Funding source if any

None.

D. Conflict of Interests

No conflict of interests exists in this publication.

E. Ethical Approval

This study was reviewed and approved by the Ethics Review Committee of CINEC Campus, Malabe, Sri Lanka.

F. Informed Consent

Informed consent which was approved by the Ethics Review Committee of CINEC Campus, Malabe, Sri Lanka was shared to the participants prior to the questionnaire.

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Tourism Impacts on Socio-Economic Development of Residential Community in Ella Destination, Sri Lanka

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ABSTRACT

One tool for economic development is the tourist sector. Tourism destination management is required at local, regional, and national levels to profit. The local population plays a significant role in the tourism industry since they serve as the tourists' hosts. Tourism must be promoted to maximize industrial benefits. Positive outcomes must be enhanced, while negative consequences must be controlled. Therefore, this study aims to identify the economic and socio-cultural impacts of tourism on the Ella destination. This research is focused on the homestay community, because it is the main income-generating source for the resident community in Ella, Sri Lanka. The researcher selected 175 registered homestay business owners in Ella destination, Sri Lanka through a simple random sampling strategy. This study applied a Likert scale questionnaire to collect primary quantitative data for this study. Secondary data was gathered from past theses, journal articles, newspaper articles, the SLTDA website, and central bank annual reports. The SPSS software was utilized to analyze the gathered data through questionnaires. The researcher identified that there are eight main indicators that affect the socio-economic development of the homestay business community in Ella, Sri Lanka. These are local culture, local services, the community's lifestyle, alcoholism, drugs, and prostitution, employment and income opportunities, investment & spending, infrastructure, and tourist arrivals to Ella. As per the findings, the researcher recommends that homestay tourism business owners need to invest in eco-friendly business operations, because eco-friendly hospitality services are the main trends in the current global tourism and hospitality business Sector. Also, homestay business owners should know that practical knowledge is highly significant in the tourism and hospitality sector business environment. In the future, community

capacity development, Identification of a unique promotional mechanism, and eco-friendly business operations will be needed to manage negative impacts.

Index Terms: *Tourism Development, Socio-Cultural Impact, Economic Impacts, Local Community*

INTRODUCTION

Tourism recorded at the highest growth rate among all other industries, and as a result, tourism has now become one of the major economic influxes to the world's Gross Domestic Product (GDP). Tourism has been recognized as an efficient channel for the economic development of several countries in the world (Nayomi & Gnanapala, 2015). Tourism development is a common acceptance that the tourism industry is a source of increased economic activity in the world, the tourism industry has become a source of income for community living in the tourism destinations. Further, provides diverse impacts for the resident community along with economic opportunities such as employment and high demand, it is essential that socio-economic criteria be taken into account for the medium and long-term sustainability of tourism development and facilities (Rakadzhyska, 2018). Weaver & Lawton (2014) mentioned that the basic aim of tourism management at a destination is to maximize the sector's economic, socio-culture and environmental benefits while reducing the interrelated cost. Within the tourism destinations, essential to enhance positive impacts managing negative impacts. In order to meet this objective, destination managers must come across the implicit positive and negative impacts of tourism as perceived by the residential communities of different countries in the world (Swarbrooke, 2010; Heath & Wall, 1992; Weaver & Lawton, 2014; Alshboul, 2016).

The main aim of tourism development in a specific geographical location and growth is to improve the economic, social and environmental benefits in a country, the practice has often produced a consummate of both negative and positive socio-economic impacts that tend to have serious adverse impacts on local and indigenous cultural values (Swarbrooke, 2010). Therefore, tourism managers and planners bear in mind that, in the quest for development, tourism should not destroy the values people seek to protect in the community. An appropriate policy framework within a contemporary tourism industry can contribute to the socio-economic development and poverty reduction through economic growth, income development and job creation for the economically lower status communities (Wall & Mathieson, 2006).

Sri Lanka consisted of various destinations which provide diverse experience to the people. Ella is centrally placed for some great getaways such as the Horton Plains, the Udawalawe National Park, the Yala National Park, and the area between the southern and eastern coast (Srilanka.travel.com, 2019). The accommodation facilities at Ella consist of five-star hotels to homestays. Ella destination most popular among local and foreign tourists. Homestay is most popular within Ella destination and this is one of the direct incomes for the people live in the area. The research mainly focusses only homestay sector when considering residential community. Many previous scholars identified that impact of tourism on socio-economic development in the business environment in many ways. Jayasuriya & Guoping (2017) recommended conceptually that tourism development produced economic, physical, and social impacts in the Ella destination area. Lokuhetty, Jayawardena & Mudadeniya (2013) maintained the economic advantages and the costs of social, cultural, and environmental impacts of tourism. Identification of the impacts to the local community is really important. Davidson (2000) identified “attention for local tourism development” and “personnel and community benefits” as tourism influences while strengthening the tourism impacts attitude scale. However, Ella is a faintly growing tourism destination with high potentials. Therefore, essential to identify social economic impacts within Ella area. Ella located within the Uva

province and the region is lagging region. Therefore, this research gains direct benefits to the people as well as manage the negative impacts. Contemporary most of the tourism destinations local residence are migrating to outer city due to negative impacts. This will lead to direct unaccepted activities within the region. Therefore, in-depth study of the socio-economic impacts will involve identifying the area’s situation and formulating strategies to ensure sustainability directly. Therefore, this research focus in identify socio economic indicators to study economic development of Ella area and identify socioeconomic impacts. The extent to which the community in Ella destination derives benefits from tourism development.

LITERATURE REVIEW

The tourism industry is still emerging in the 21 century as it expresses to 9.2% of world GDP and 235 million individuals are utilized inside this industry (Worldbank.org, 2020). World Travel and Tourism Council (WTTC) measurements uncover that the tourism industry’s immediate commitment to Sri Lankan GDP in 2014 is 4.8%, and is expressed to rise by 6.1% per annum from 2015-2025 (Wdi.worldbank.org, 2020). At first, the Sri Lanka government endeavored to make a situation favorable for the tourism industry; For example, improvement of the infrastructure, authorizing methodology and speculation endorsement forms, making chances to advance shopping of globally rumored brands and amusement, pulling in universally presumed traveler accommodations and critically presenting an earth inviting idea of urban turn of events (SItta.gov.lk, 2020).

Economic development expands national efficiency and per capita salary and therefore, the population’s way of life. It stresses on the creation and level of production and whenever accomplished then; its advantages will stream down to the population all in all. As indicated by Todaro & Smith (2015), development isn’t just a financial procedure yet rather a multidimensional procedure including the redesign and reorientation of whole monetary and social frameworks enhancements in earnings and produce, yet additionally extreme changes in institutional, social and authoritative structures, perspectives

and customs and convictions in country's community.

Christian (2016) recognizes some various classifications of socio-cultural effects: sway on populace structure; change of structures and kinds of occupations; change of qualities; impact on the conventional way of life; and alteration of utilization examples and advantages of tourists to the picked area. Some researchers address the socio-cultural of the tourism industry on have communities remembering for entertainment openings (Bajwa & Kaur, 2007); The greater part of the tourism industry-related socio-social effect research features the negative effects and dominates the positive effects, which may have set up the discernment communicated by Scheyvens & Biddulph (2017). Weaver & Lawton (2014) say that negative effects are more predominant in creating nations than in enormous created locales with a developer and stable economy.

Todaro & Smith (2015) recognize a few socio-cultural effects of the tourism industry: increment of bothersome exercises, social dualism, show impacts, the commercialization of culture, and development of a negative disposition towards tourists. Mbaiwa (2005) notes changes in group and individual worth frameworks, standards of conduct, community structures, ways of life, and the personal satisfaction. The socio-cultural impacts of the tourism industry on the home stay business community can be partitioned in two classifications: financial and socio-cultural.

A. Homestay in Sri Lanka

Home stay provides a different experience to the tourists. The mostly local community provides accommodation and teach local culture, lifestyle, or language. The host community provides room and other facilities within the house and they live in with the local community and experiencing their living pattern. It exposes local traditions and culture for tourists. It is sometimes used by people who wish to improve their language skills and become familiar with the local lifestyle (Bavani et al., 2015).

B. Socio-economic impact on tourism

Host and tourists" similar advantages monetarily because of the tourism industry exercises, in this way creating nations, are focused on financial improvement through the tourism industry (Bajwa & Kaur, 2007). Therefore, the social effects stay as a progressively challenging issue because of numerous immaterial expenses and advantages that the tourism industry development may initiate (Sharma, 2008). They characterized sway as the type of adjusted human behavior that comes from associations between problem solvers and sub-frameworks on which they encroach. As per Weaver & Lawton (2014), the tourism industry impacts are not just regarding monetary effects, occupations, and duties; however, those are expansive and frequently impact regions past those ordinarily connected with the tourism industry. The tourism industry is as a motor of development reaching upward to accomplish most extreme maintainable the tourism industry development in the nation (Rathnayake, 2015).

Based on the literature review developed conceptual framework identifying indicators to identify tourism impact on socio-economic development. The indicators categorized as Socio-culture development and economic development. Those indicators are explained as below:

TABLE 1

Socio-culture development and Economic development indicators.

<p>Local Culture As per Gijbbers & Leon (2018), tourism is making helpful mindsets towards each other culture and getting some answers concerning each other"s lifestyle and customs. The tourism improvement preparing for home stay business owned residents ought to incorporate the teaching of cultural resilience and get to know about cultural differences (Brida & Zapata, 2010). The term local culture represents the local community's feelings beliefs norms which are followed by them in their everyday life. Some areas the culture considers as their social asset of the community (Sharmini & Bandusena, 2020).</p>

Local Services

The local residents should choose its own pioneers who will have the option to speak to the network interests in the tourism advancement structures in the nation (Dewar, 1998). Also, heaps of new small tourism related organizations have been made, because of the expanding sorts of the tourism industry. Such local services incorporate crafted works, souvenir shops, language translation, and transportation administrations (Silvana, 2013).

characteristic cost suggestion on the investor (Todaro & Smith, 2015). Kim, Uysal & Sirgy (2013) said that the tourism industry is comprised of a portion of the retail, transportation, restaurant, home-stays, and entertainment activities straightforwardly add to the movement area. This is on the grounds that foreign tourists typically have a better standard of convenience standards and a higher burning through potential which prompts administrators raising costs (Andereck & Nyaupane, 2011).

Life Style of Community Members

The social and social effects of the tourism can bring about changes to examples of conduct, a way of life and the personal satisfaction of the occupants or neighbourhood individuals. Turker, Selcuk & Ozyildirim (2016) told that tourism industry is the quickest developing market and can produce public salary in creating economies.

Volume of Tourists Arrivals to Ella Destination

Arrival of international tourists would need to gracefully their cash to have the option to buy **items** inside the host nation and to buy the money of the host nation that they are travelling to (Todaro & Smith, 2015).

Alcoholism, Drugs and Prostitution

Drugs and alcoholism use by tourists considerably affect numerous components in the host society, expanding utilization levels, especially among youngsters working in the tourism industry (Uriely and Belhassen, 2006). Prostitution as a social phenomenon merits extraordinary consideration not just on the grounds that it has been viewed as a „social evil or sickness“ (Monterrubio and Hernandez, 2010).

RESEARCH METHODOLOGY

A background study conducted based on a literate rereview, grounded information and practical experiences. Based on that identified a knowledge gap as well as industry gap to promote sustainable tourism within the Ella tourist Destination. Socio-economic indicators are identified based on a comprehensive literature review. Reviewed similar case studies and research papers published in refereed journals. After identifying all indicators finalized based on formal discussion with experts and local community live in Ella Destination. The finalized indicators are namely local culture, local services, lifestyle of community, alcoholism, drugs and prostitution, employment & income opportunities, investment & spending, infrastructure, and volume of tourist arrivals to Ella destination. Base on that developed a conceptual framework as below:

Employment and Income Opportunities

Ramnani (2012) said that tourism is a significant financial action giving jobs to needy individuals. Additionally, Kim, Uysal & Sirgy (2013) said that home stay businesses directed tourists visiting the rural areas. They can get additional pay and exploited by offering convenience to visitors

- As per Teo (1994), it is obvious that the impact of public and private investment on the tourism development is positive. Also, Foreign Direct Investment (FDI) may happen when a business puts straightforwardly in new facilities to create an item or administration in a foreign nation.

Infrastructure

Infrastructure assumes a significant role with regards to putting resources into the tourism industry in the host nation in view of its

FINDINGS

A. Local Culture

According to the analysis 37.14% of respondents were agreed that tourism brings increased opportunities to meet and socialize with worldwide tourists who visiting to Ella destination.

Tourism improves understanding of the image of different communities, more than 50% agreed that the tourism helps to boost international cultural exchange to get advices and develop home stays in Ella destination in more tourist attractive way market for local crafts and produce. Calculating descriptive analysis, local culture factors are relatively high. As a result, it proves that local culture and community participation on tourism development in Ella destination is positively correlated. Therefore, the researcher identified that tourism brings increased opportunity to meet and socialize; tourism improves understanding of the image different communities; tourism helps to boost international cultural exchange

B. Local Services

Tourism leads to increase the prices of accommodation, goods & services. Tourism supports to local shops and creates a market for local crafts and produce. Enhances the quality of local businesses in Ella area. Local services and community participation on tourism development in Ella destination is positively correlated. Therefore, the researcher identified that tourism leads to increase the prices of accommodations, goods and services; tourism support to local shops and creates a market for local crafts and produce; tourism enhance the quality of local business in Ella area. Further, this will lead to upgrade the standards.

C. Lifestyle of Community

Tourism contributes to income and standard of living. Tourism has an undesirable effect on the way of life of the home stay owners. Tourism makes a positive contribution to the quality of life for the home stay owners in Ella area. Local services normal distribution curve. As a result, it proves that lifestyle of community and community

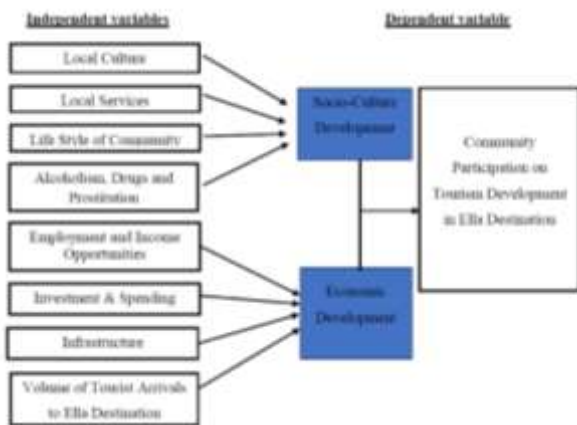


Fig.1 Conceptual Framework

Ella destination selected as a case study, and there are from 350 Sri Lanka. Tourist Board registered homestay business operations in Ella destination, Sri Lanka. Hence, the researcher applied a simple random sampling strategy to collect data in this research. The researcher used this technique, because it allows all the respondents in the population to have an equal probability of being selected (Majid, 2018). According to Grimbeek (1999), this study was applied a Likert scale questionnaire to collect primary quantitative data for this study. Secondary data were gathered from past theses, journal articles, newspaper articles, SLTDA website, central bank annual reports.

SPSS software was utilized to analyse the gathered data through questionnaires. Quantitative data were summed up in a descriptive structure with minute clarifications. SPSS software was utilized to analyse the gathered data through questionnaires. A Likert scale questionnaire was attracted in order to give a conceivable arrangement on comprehending the impact of tourism on the socio-economic development of the resident community in Ella destination, Sri Lanka. Except for that, Cronbach’s alpha 55 reliability test, descriptive statistics, correlation analysis used to identify the connection assessment procedure to quantify the connection between chosen eight independent factors and community participation in tourism development in Ella destination to test the hypotheses and multiple regression analysis. The finding section explains only the outcome of the analysis.

participation in tourism development in Ella destination is positively correlated. Therefore, the researcher identified that tourism contributes to income and standard of living. Tourism makes a positive contribution to the quality of life for the homestay owners in Ella area.

D. Alcoholism, Drug and Prostitution

Tourism impacts of alcohol consumption of homestay owners in the Ella area. Respondents were agreed that tourism impacts of alcohol consumption of home stay owners in the Ella area. 49% agreed that the tourism impacts to increase drug addicts in the Ella area. Further, 21.4% accepted the tourism increased creating prostitution in the Ella area. As a result, it proves that alcoholism, drugs and prostitution, and community participation on tourism development in Ella destination is positively correlated. Therefore, the researcher identified that the tourism impacts of alcohol consumption of home stay owners in the Ella area; tourism impacts to increase drug addicts in the Ella area; tourism is increasing will create prostitution in the Ella area.

E. Employment and Income Opportunities

Tourism leads to the development of opportunities and jobs for local businesses. 28% of respondents were agreed that tourism leads to the development of opportunities and jobs for local businesses. Tourism increases several of recreation activities, which lead to job opportunities for residents in the homestay's in Ella area. 53.71% of respondents were agreed that tourism increases availability of recreation facilities, which lead to job opportunities for residents in home stays in Ella. Further, most of them are earning providing accommodation, foods and other services. Employment & income opportunities and community participation on tourism development in Ella destination is positively correlated. Therefore, the researcher identified that tourism leads to the development of opportunities and jobs for local business such as waiters, chef, bookkeeper, restaurant manager; Tourism increase availability of recreation facilities, which lead to job opportunity for residents in home stay in Ella area; most of the resident became self-employed by converting their houses as small & medium size homestay in Ella destination, Sri Lanka

F. Investment and Spending

Tourism improves investment, development and infrastructure spending in the economy in Ella destination, Sri Lanka. 37.15% of respondents were agreed that tourism improves investment, development and infrastructure spending in the economy in Ella destination, Sri Lanka. 47.43% of respondents were agreed that tourism increases opportunities for shopping in Ella area. 35.43% of respondents were agreed that tourism enhances the local economy in Ella destination, Sri Lanka.

The investment & spending, and community participation on tourism development in Ella destination is positively correlated. Therefore, the researcher identified that tourism improves investment, development and infrastructure spending in the economy in Ella destination, Sri Lanka.

G. Infrastructure

Tourism leads to the development of building and tourist activities in Ella destination, Sri Lanka. 40% of respondents were agreed that tourism leads to the development of building and tourist activities in Ella destination, Sri Lanka. Tourism improves transport infrastructure in Ella destination, Sri Lanka 49.71% of respondents were agreed that tourism improves transport infrastructure in Ella destination, Sri Lanka. Tourism leads to develop public utilities in Ella destination, Sri Lanka. 44.57% of respondents were agreed that tourism leads to develop public utilities in Ella destination, Sri Lanka.

As a result, it proves that infrastructure and community participation on tourism development in Ella destination is positively correlated. Therefore, the researcher identified that tourism leads to the development of building and tourist activities in Ella destination, Sri Lanka; tourism improves transport infrastructure in Ella destination, Sri Lanka; tourism leads to develop public utilities such as electricity, water, transport facilities in Ella destination, Sri Lanka.

H. Volume of tourist Arrivals to Ella Destination

Ella destination, Sri Lanka attracts more budget tourists who like to stay in home stays. 36.57% of respondents were agreed that Ella destination, Sri Lanka attracts more budget tourists who like to stay in home stays. Ella destination, Sri Lanka has to increase the number of tourists who stay overnight. 37.71% of respondents were agreed that Ella destination, Sri Lanka has to increase the number of tourists who stay overnight. Sri Lanka needs to be increased 49.15% of respondents were agreed that the average stay of tourists in Ella destination, Sri Lanka needs to be increased.

Volume of tourist arrivals to Ella destination and community participation on tourism development in Ella destination is positively correlated. Therefore, the researcher identified that Ella destination Sri Lanka attracts more tourists; Ella destination, Sri Lanka has to increase the number of tourists who stay overnight; the average stay of tourists in Ella destination, Sri Lanka needs to be increased.

DISCUSSION

The main cause of the growing concern has been the developing indication that tourism can both positive and negative consequences on homestay business community and economic systems that are involved. This study takes an effort to identify the main socio-economic impact on homestay business community through tourism development in Ella destination, the study was critically identified positive economic impacts are infrastructure resource development, benefits from community related social activities, income development, direct and indirect employment & income opportunities and increased the value of local assets. The positive level social impact is town area re-location by generating local employment & income opportunities, staff in Ella area tourism and hospitality business culture into their homestays and hospitality business organization contribution for social activities were critically identified. The greater level impact of tourism in Ella area includes socio-cultural and economic impacts. The concept of sustainability is factored into these tourism impacts, when the extent of impacts becomes extensive sufficient to

drastically develop economic, socio-cultural, and environmental sectors of Ella tourist destination in Sri Lanka. The significance of these impacts will be examined and assessed in this study, retaining in mind that this will be retained in the circumstances of sustainability in tourism.

The influx of guests to the Ella area tourism sector can be the foundation for growing a more extensive tourism industry, which can carry years to grow. Local officials in the Ella area can utilize this event as a base for whatever was performed well and what wants to be developed, to maximize economic impacts. While the economic impact is maximized, the income generated can be utilized to develop different facilities to the tourism sector; For example, improve the capacity of the home stay business, as well as developing accommodation facilities, eating and night life activity elements of the town area, to generate a more reliable image of the Ella destination and attract more foreign guests to the tourism industry in Ella. The socio-economic impact of tourism in an Ella destination, Sri Lanka can impact to social and economic fluctuations highly.

CONCLUSION & RECOMMENDATION

Tourism sector businesses in Ella area, Sri Lanka, homestay businesses need to provide a financial contribution to establish language training centers/ language centers in Ella area rural locations. Also, homestay tourism businesses in Ella should conduct different communication projects to improve resident community view about tourism activities in Ella area. Moreover, homestay tourism businesses in Ella area should provide proper training opportunities to local communities to deal with local and foreign tourists those who are coming to spend their vacations in Ella area.

Tourism sector businesses in Ella area should provide an opportunity to supply essential raw materials in Ella area residents. This supports to increase these homestay business owners' income statuses and life style quality in Ella area people. Moreover, when conducting day to day tourism business operations in the Ella area tourism sector, homestay tourism business owners, and other tourism businesses and related parties should provide financial support to community development programmes in Ella area.

When getting raw materials to the food preparations in medium scale hotels and Sri Lanka Tourism Board registered small scale tourism businesses should collect natural fruits and vegetables from this area farmer. Moreover, through this process Ella area tourism industry businesses need to motivate fruits and vegetable farmers to cultivate more and more fruits and vegetables using carbonic cultivation procedures.

Tourism sector businesses in Ella area should focus on candidates' practical and academic knowledge about different products and services. Therefore, home stay business owners should know that practical knowledge is a highly significant in tourism and hospitality sector business environment. Sri Lanka Tourism Board registered home-stay tourism business owners need to launch their day to day business operations without negative influences on Ella area people's life style status.

Moreover, homestay businesses in Ella area should protect the environment in the Ella area without any natural plantations and disturbances to cultural situations. In the context of Ella is a tourism business sector, homestay tourism business owners should offer some specific job positions in Ella area residents. This is also significant to improve these area residents' income level and financial status.

Moreover, homestay business owners in Ella area should establish proper communication system to solve current employees' job-related issues. In this context of this procedure, they can use new technological communication methods like; Viber, WhatsApp, Skype and etc. Also, different level homestay tourism business owners in Ella area should support infrastructure facility development situations.

In Ella area tourism industry, homestay tourism business owners need to invest eco-friendly business operations, because eco-friendly hospitality services are the main trends in current global tourism and hospitality business sector. Moreover, Sri Lanka tourism board also needs to motivate small scale tourism business owners to conduct eco-friendly transportation services in airport to accommodation service location in Ella area.

The taxi service business is significant unique infrastructure development idea for homestay business owners in Ella area that related to the travel and tourism sector thrives quite well in an Ella destination and suburb area. Many of the foreign tourists that come to Ella area constantly feel the need to move from one tourism location to another one; hence, there is a requirement for a tourist bus service, which is also important in tourism transportation activities from the hotel to different tourist locations.

Home-stay tourism business owners need to conduct unique promotional campaigns to attract more foreign tourists to Ella area tourism sector. Recognizing the mentalities of local people towards the effect of the tourism industry on prostitution; however, it might be valuable in the plan and execution of the tourism marketing, arranging, management and monitoring purposes. The national and global thought of strategies to diminish liquor and drug issues should contemplate the likely unfavourable impacts on public liquor/ drug approaches emerging from the tourism industry.

As per the findings, the researcher recommends that homestay tourism business owners need to invest eco-friendly business operations, because eco-friendly hospitality services are the main trends in current global tourism and hospitality business sector. Also, home stay business owners should know that practical knowledge is a highly significant in tourism and hospitality sector business environment.

Future research studies can test the relationship between residents' perception towards tourism and tourism planning on socio-economic development. The qualitative research method can be attempted in this study in the future. Face-to-face interviews with a chosen sample group is the best way to gain a broader understanding of residents' perception and attitudes. Considering that contemporary research uses social exchange theory, future research can use A'p's model for understanding residents' reactions as a key guide and connect to other theories to obtain and in- understanding of tourism development procedures in the study area. Further, future researchers can analyze the environmental impact on community participation in tourism development in Ella destination. Also,

the same methodology can use for other tourism areas too.

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