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**Institute of Human Resource Advancement  
University of Colombo**

# **Journal of IHRA**

*University of Colombo*

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## **Institute of Human Resource Advancement**

*University of Colombo*

275, Bauddhaloka Mawatha, Colombo 07

journal@ihra.cmb.ac.lk

www.ihra.cmb.ac.lk

## **Journal of Institute of Human Resource Advancement**

**Volume 8 Issue 1 June 2021**



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## Editorial

Dear Readers,

On behalf of the Institute of Human Resource Advancement, University of Colombo, I am glad to present Volume 8, Issue 1 (June\_2021) of the Journal of Institute of Human Resource Advancement (JIHRA). Journal of Institute of Human Resource Advancement (JIHRA) of the University of Colombo is a multidisciplinary, bi-annual, peer-reviewed, hard-bind journal aiming to promote and enhance research in all fields of Social Sciences and Humanities. Further, it draws attention to the relevant and contemporary areas of scientific research on the subject of the journal ensuring high-quality publications to the interested practitioners and academics in the field of Social Sciences and Humanities. The journal has established in 1999 as a peer-reviewed journal published once a year. However, in 2020 it was started publishing as a bi-annual, peer-reviewed, and hard-bind journal. Further, it has been taken necessary steps to publish this journal as an online journal as well.

As the Editor in Chief of this journal wishes to thank readers, authors, reviewers, and all the members of the editorial committee for their kind contributions and immense support which have made the journal mature and active. Thank you.

Editor in Chief  
Dr. WS Chandrasekara  
Senior Lecturer/IHRA  
University of Colombo

# Exploring the Impact of Green Manufacturing Practices on Organizational Performance in the Manufacturing Sector Organizations in Anuradhapura District

Aravinda MAKN<sup>1</sup> and Rajapakshe PSK<sup>2</sup>

## Abstract

If the organization needs to get strong performance continuously, it should plan its processes and product in an environmentally friendly manner. Also, the green manufacturing sector organizations are the most crucial sector in the environmental development in the Sri Lankan context. Therefore, this study is interesting to investigate how green manufacturing practices impact the organizational performance of the manufacturing sector organizations in the Anuradhapura District. When reviewing literature regarding green manufacturing practices, developed countries are prominent than developing countries. Hence in the Sri Lankan context, this concept has to be identified and practiced organizing the manufacturing sector. The researchers identified Green Production, Green Marketing, and Green Policies as independent variables and Organizational Sustainability Performance as the dependent variable. The researcher developed a conceptual framework for the current study base on this survey. An in-depth literature study and an empirical research were undertaken to achieve the aim of this study. A self-administered questionnaire was completed by 30 operational managers from 30 manufacturing firms in Anuradhapura District using the convenience sampling technique method. To investigate the relationship between the Green Manufacturing Practices and Organizational Performance, 03 hypotheses were tested. A conceptual framework was developed by researchers for the current study based on the survey. According to the correlation analysis, results revealed significant positive relationships between these variables. The multiple linear regression analysis was used to examine the impacts of these variables, and the regression model was formulated. Green Production significant positive impact on Organizational Performance (Beta=0.481), and there is a considerable influence because of significant value is 0.007

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<sup>1</sup>Department of Environmental Management, Rajarata University of Sri Lanka.

Email: [kaushiaravinda251@gmail.com](mailto:kaushiaravinda251@gmail.com).

<sup>2</sup>Department of Environmental Management, Rajarata University of Sri Lanka. Email: [pskr75@yahoo.com](mailto:pskr75@yahoo.com)

(0.007 > 0.000). Green policies and organizational performance have positive and significant influences. Because of the positive Beta, the value (0.282) and significant value is (0.012). Green marketing has a positive impact on organizational performance. Because of the Beta value is 0.056, there is insignificant influence because the significant value (0.708) is greater than 0.05. This study will contribute to society, decision-makers and policymakers. The results also provide various implications for managers and present some suggestions for future research.

**Keywords:** *Green Marketing, Green Manufacturing Practices, Green Policies, Green Production, Organizational Performance*

## Introduction

Green manufacturing involves the transformation of organizational operations in many greenways, using green products then selling and products, green policies, green energy, and green process in corporate business operations. These practices are necessary for the resources and energy efficiency and minimize generation of waste. India, China, Japan, Australia, Malesia, and Singapore manufacturing sector organizations, including Philips, Toyota, Mercedes Benz, Apple, Samsung, Ford Motor Bicycle Company, and Motorola, implementing eco manufacturing practices for their organizational operations. In the Sri Lankan context, Abans Mas Holdings, Brandix, Singer, Nestle, Logiwiz, Fonterra, Lanka Milik Foods, CBL natural foods, Softlogic and Hemas Pharmaceutical are implemented green skills from inside and outside.

The concept of GMP is gaining prominence in the empirical literature, with scholars pointing at a possible relationship between GMP and organizational performance. It is increasingly being used as an effective tool to reduce the impacts on the environment and to promote the development of clean production technology. GMP in developed nations such as China has become a key approach for enterprises seeking to become environmentally sustainable and increase performance in instances where there is increased competition, a lot of regulations, and market pressure and drivers. According to (Otokiti, S.O. and M.O.,2003), organizations are paying more attention to their environment due to the complexity, turbulence, and rapid changes and hence formulating and implementing policies and strategies that will enhance their survival and growth. However, in developing countries like Kenya, the green procurement

concept is yet to be adopted by many organizations. The East African Breweries Limited faces challenges in maintaining competitiveness through quality, increased operating costs, especially energy-related costs, and sustainable end-to-end supply of raw materials to ensure continued regional leadership in the growth and most profitable share (Kiereini, 2011). According to the Kiereini detailed financial statements of the East African Breweries Limited there has been an increase in growth after strategic acquisitions, implementation of the Enterprise Resource Planner (ERP) in 2001 and launching of the green goal 2010 initiative and change of raw materials from barley to sorghum, in which the net profits have increased at a rate of 16% to Kes. 44.4 Billion in 2013. (Nderitu & Ngugi, 2014)

Green manufacturing approach that is aware of its production impact on the environment and resources include such impact in its overall efficiency planning, minimizing and control (Deif,2011). Green manufacturing practices have become one of the essential strategic tools to obtain sustainable developments in manufacturing industries because of the increasing environmental pressure. Green manufacturing is also known by different names, cleaner manufacturing, environmentally conscious manufacturing, environmentally responsible manufacturing, and sustainable manufacturing. In the past, investing in environmental activities was considered unnecessary; however, strict environmental policies and popular environmentalists have changed the competition rules and patterns for companies. Moreover, (Rehman et al.,2016) stated that green manufacturing concepts originated in Germany, but its scope, nature of activities, and focus changed over time.

Firms that practice eco-design and packaging intend to manufacture products and packaging so that minimal consumption of materials and energy is utilized. In addition, firms are encouraged to facilitate the reuse, recycle and recovery of component materials and parts (Diab et al., 2015). Moreover, research suggests that early eco-design work primarily focused on technical improvements to products and processes to mitigate environmental costs (Kumar & Chandrakar,2012). However, firms nowadays realize the fact that the designing stage of the manufacturer alone cannot result in an environmentally friendly product. Hence it is important that Finns focus on relationships with both direct and indirect parties, including suppliers, consumers, recyclers, and government

authorities.

There are many opportunities to improve organizational efficiency through GM practices, influencing financial gains and environment protection. Balancing Social, environmental, and economic performance has become significant for organizations facing regulatory, competitive, and community pressures. Green production practices (GPPs): the primary focus of this study. This set of practices entails changes in the production system and operations, which plays a crucial role in environmental issues. The production practices of product, process, and practices, regarding “what” and “how.” Then, according to the study, the operational practices focus on product design and the development of more environmentally suitable products. Therein, the Process practices seek to develop and implement operational and manufacturing processes to reduce environmental impact. Therefore, Green production practices are positive impacts on organizational performance in manufacturing sector organizations in Anuradhapura District.

Limited numbers of research are conducted under the impacts of GMP on organizational performance. Some surveys on the effects of GMP on organizational performance indicated that using secondary data for this issue. However, it not surely indicates this relationship. Each year, we are generating millions of tons of trash in the form of wrappings, bottles, cans, boxes, grass clippings, furniture, clothing, phone books, and much more. Material includes glass, aluminum, plastics, steel, and other metals, and paper and paperboard. Yard trimmings such as grass clippings and tree limbs are also a substantial part of what we throw away. Durable goods and non-durable goods account for several million tons of solid waste stream. The most significant waste material type is packaging materials, more than 30%. Where does it all go? Some 85% of our garbage is sent to landfills (Abella, 2013). Because of the above, recently, Sri Lankans have faced significant issues, such as the Meethotamulla disaster and the Rathupaswala incident. It has damaged several numbers of people: properties. Environmental studies are very important to minimize the impact of such disasters happening again in the future.

Anuradhapura is an ancient city in Sri Lanka that should face globalization changes, like other cities, while protecting ancient values. In this study, we examined the impacts of green manufacturing practices on organizational

performance. Organizations selected from the Anuradhapura district manufacturing sector firms provide the data to test. Consequently, the main objective of this study is to explore the impacts of GMP on organizational performance. And also explore three other auxiliary objectives to examine the effect of green production, green marketing, and green policies on organizational performance. We proposed three hypotheses that aim to present the relationships between the variables: green production, green marketing, green policies, and organizational performance.

## Literature Review

### Green Manufacturing

Green Manufacturing (GM) is a fast strategic, and sustainable tool to solve most issues that the world faces today. GM is also known as cleaner production, environmentally conscious manufacturing, environmentally responsible manufacturing, and sustainable manufacturing. And it covers the entire product life cycle from conceptual design to disposal in a benign, harmless manner causing no or minimal adverse impact on the environment by optimum use of resources and reduction of waste and pollution. The GM approach that is aware of its production impact on the environment and resources includes such impact in its overall efficiency planning, minimizing, and controlling (Deif, 2011). It can lead to lower raw material costs, production efficiency gains, reduced environmental and occupational safety expenses, and improved corporate image. Such practices ensure that raw materials (inputs) of minimal harm to the environment are used in production. In addition, green manufacturing is also concerned with efficient and energy-saving production systems (Muma et al., 2014), which ultimately results in low production costs, wastage reduction, and environmental pollution. On the other hand, the green distribution dimension ensures that the products reach the market at the right time at the right place with no delays caused. Firms need to offer environmentally friendly products through environmentally friendly distribution and marketing systems (Muma, 2014).

### Green Manufacturing Practices

Green manufacturing practices are defined most generically as “manufacturing practices that do not harm the environment during any of its journey phases” (Srivastava, 2007). It involves the green design of products, use of eco-friendly raw materials, packing, distribution, packaging, and reuse after the end of product life. It slows the depletion of natural resources and lowers

the trash (Foster, 2001). Renewable technologies and green innovations that have developed a new product or service have positively contributed to the environment. Today, green manufacturing involves continuous improvement of environmental attributes of products, processes, and operations, with growing awareness and workshops of environmental pollutions such as global warming, harmful emissions, and waste disposal. In addition, businesses and governments increased full pressure to reduce the environmental impacts involved in producing and consuming goods and services (Sangwan, 2011).

Eco-friendly green manufacturing Practices such as green design, design for environment, life cycle assessment, green process planning, green supply chain, reverse logistic, green purchasing/ marketing, green organization culture, green reputations, green productivity, green economics, green disposal practices improved the organizations' value to achieve profit, market share, and commit to protecting the environment on the other hand. Manufacture of products that use materials and processes that reduce or minimize negative environmental impact, conserve energy and natural resources, and improve safety for consumers, communities, and employees." However, Environmental concerns have led organizations to widespread interest in sustainable development practices and their relationship to firm performance (Lun, 2011).

### **Organizational performance**

Green Manufacturing practices, especially in relation to organizational performance, which not only results in environmental benefits but also business benefits (Laosirihongthong et al., 2013). It created value and built competitive advantages for company reputation, operational cost saving, corporate social responsibility, legal compliance and involves staff doing something good for the environment because global warming & waste pollutions these two major issues are going to be climbing up the governments, consumers and media agenda (Sezen & Çankaya, 2013) firms have had to review their production processes as a result of pressures from the community and governments. This pilot study investigated the influence of green manufacturing and eco-innovation on corporate sustainability performance (economic, environmental, and social).

### **Environmental performance**

Environmental performance is a concern of managers due to reasons ranging from regulatory and contractual compliance to public perception

and competitive advantage (Theyel, 2001). It is defined as "the result of an organization's management of its environmental aspects" (Iso, n.d.). It addresses a company's influences on "living, and non-living natural systems, including ecosystems, Ranganathan, (1998) identified four key elements for environmental performance: (1) material use; (2) energy consumption; (3) non product output; (4) pollutant release. According to (Faunce et al., n.d.), environment performance is defined as the environmental impact that the enterprise's activity has on the natural milieu. Further, environmental performance is expressed using operational performance indicators referring to resource use, waste generation, emissions, or water consumption.

- ❖ Reduced impact on the natural environment – reductions in environment effects of construction such as land use, air, ground and water pollution, noise and vibration and contamination to plants and wildlife.
- ❖ Reduced impact on natural resources – reductions in the use of non-renewable and non-sustainable natural resources such as oil and fuels in the construction processes and reduced usage of natural minerals in construction materials and components.
- ❖ Reduced impact on communities – reductions in the disruption and disturbance to the local environs and neighborhoods' from construction project sites.

### **Economic performance**

At the company level, it refers to a company's influences on its stakeholders' economic circumstances and economic systems at local, national, or international levels (Guthrie et al., n.d.). Adaptation of GM practices in the manufacturing industry generally leads to better financial benefits (Chien & Shih, 2007). Thus, many of the previous studies have proven that there is a positive relationship between GM practices and performance. In addition, (Zhu et al., 2012) has pointed out that GM practices enhance income, profit, tax, and employee welfare, thereby ultimately resulting in higher financial performance.

- ❖ Reduced risk of environmental penalties – reductions in fines and the costs associated with environment related litigation resulting from construction-site activities.
- ❖ Reduced costs of remediation activities – reductions in costs associated with clean-up and remedial works following



environmental incidents on project sites.

- ❖ Reduced costs of resources and waste materials – reductions in the cost of purchasing materials which are wasted during construction and reductions in costs of waste removal from site and disposal.

### Social performance

It relates corporate performance to the social systems within which a company operates (Ranganathan - Sustainability Rulers Measuring Corporate Environmental and Social Performance (1998).Pdf, n.d.) identifies four key elements for social performance: (1) employment; (2) community relations; (3) ethical sourcing; and (4) social impact of the product. Social performance is another classification of organizational performance. It basically states that with the increase in consumer awareness about the need for firms to become socially responsible, firms are working towards implementing GM practices for the betterment of individuals, firms, and the economy as a whole (Chien & Shih, 2007). Sustainability is defined in the business field as “adopting business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining and improving the natural resources and reducing energy consumption that will be needed in the future” (Business Council for Sustainable Development. et al.,1992).

- ❖ Improved opportunities – improvement in tendering opportunities with clients who environmentally pre-qualify product and service companies.
- ❖ Improved marketplace – improvement in market sector business due to perceptions of customers who expect good environmental performance from suppliers and retailers.
- ❖ Improved relationships – improvement to interactions with business regulators, environmental authorities, stakeholders and the public.
- ❖ Improved internal operations – improvements to company organisation and management leading to better environment related operational efficiency and effectiveness and enhanced morale of personnel.

Our contention was exploring the impact of GM practices on organizational performance. We examine the linkage between GMP and organizational performance using green production, green marketing, and green policies.

### Background on Green Manufacturing Practices

**Green Production:** Green Production (GP) is fast emerging as the sustainable manufacturing solution that has the potential to solve most problems that the world faces today. In this study basically, green production practices are divided into corrective actions and preventive actions. Corrective actions are waste management, recycling, and treatments. This action could apply to all the firms after some pollution happened to the environment. Preventive actions are waste reduction, reuse end of life cycle management process. But this action could apply as a solution before some environmental problems happen.

Company production processes influence their activities. Therefore, companies must plan their operational and manufacturing processes, including green design, green zero potential safety issues, zero health issues on the operators and product users, zero environmental problems, waste recycling, and wastewater treatment and waste disposal. The green manufacturing process has been identified as an economically driven, integrated system approach to reducing and eliminating all waste streams associated with the design, manufacture, use, and disposal of products and materials. The world over the organization needs to get strong performance continuously; the organization should plan their processes, products as a greener way by using reduce, reuse, recycle, remanufacture is slowly being accepted and adopted as the model of growth and sustainability (Handfield et al., 1997).

**Green Marketing:** Every production has a competitive advantage; labeling does not always indicate that a product is truly green. Green marketing has been embraced; it can turn into a marketing advantage. Green marketing encourages green management, eco-packaging, eco-design, eco advertisement, and eco-production process development through the market. Therefore public opinion polls consistently show that consumers would prefer to choose a Green product. (Prakash, 2002)price, place and promotion claims, manipulating the product, price, place, and promotion of the traditional marketing mix requires a careful understanding of public policy processes. Improving environmental quality and customer satisfaction are the objectives of green marketing (Handfield et al., 1997). Minimizing the environmental burden of packaging requires countries to refrain from using packaging materials, recycling packaging, and using punitive taxes and other measures to control excessive packaging.

**Green Policies:** Green policies play an important role in green manufacturing practice. A green policy is your firm's statement about the commitment to sustainability and environmental management that your business is prepared to make without any social, environmental, and economic barriers. (Ngniatedema et al., 2014) Having a formal green policy shows in your company for labours and customers that managing negative environmental issues and environmental impacts is a high priority for your company. (Böhringer et al., 2008) conclude that environmental regulations, directives, and standards should stimulate investment to be compatible with economic goals such as productivity. Because of customers' and stakeholders' demands, companies started to develop an environmental strategy in their facilities to maintain uniformity in their services and supply partners advocates (Sroufe, 2003).

## Research Materials and Method

### Research Framework

The research framework guiding our investigation is illustrated in Figure 1. This research model assesses the direct effect of green manufacturing practices on the organizational performance in the manufacturing sector in Anuradhapura District.

- Green manufacturing practices are independent variables, and organizational performance is the dependent variable.
- EnP is used to measure the environmental performance of a company.
- EcP represents to measure the economic performance of a company.
- SP measures the social performance of a company.

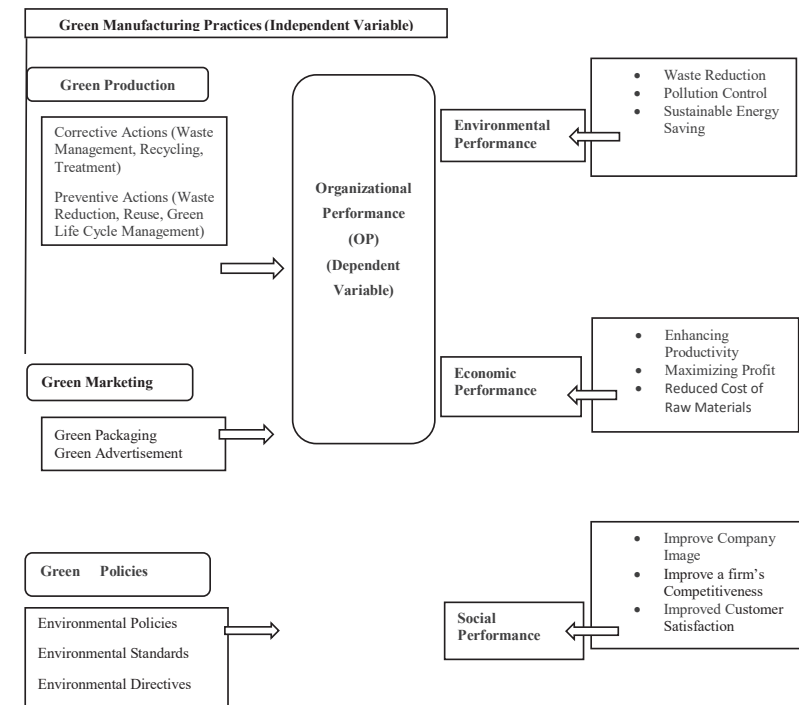


Figure 1: The variables and extracting value

### Data and sample characteristics

The data used in this study consist of survey questionnaire responses from operational managers in manufacturing sector organizations in Anuradhapura District. The survey instrument was administered using convenience and selected 30 firms. Only 200 manufacturing sector firms are registered in the Anuradhapura District Chamber of Commerce, Industry & Agriculture. But most of the manufacturing firms are not registered there.

Based on the sector classification scheme, the manufacturing industry includes 04 sectors:

- Apparel - 07
- Food Production & Beverage - 14
- Organic Fertilizer Production - 03
- Other - 06

## Survey questionnaire development

**Table 1 Decision Rule of the Five Point Likert Scale**

Response Categories	Scores
Strongly Agree	5
Agree	4
Moderate	3
Disagree	2
Strongly Disagree	1

The survey questionnaire was initially in English. The questionnaire consisted of two parts designed to collect data regarding demographic factors of the respondents, three green manufacturing factors. Under that, the researchers have developed a questionnaire consisting of 41 questions. The questionnaire utilizes a Likert-type scale with five response alternatives ranging from “Strongly disagree” (weighted 1) to “Strongly agree” (weighted 5) for each of the statements.

## Data Analysis and Discussion

### Test Result of Reliability Analysis

**Table 2 Reliability Test of the Pilot Survey**

Variable	Number of Item	Cronbach's alpha
Green Production	09	0.70
Green Marketing	07	0.72
Green Policies	08	0.87
Organizational performance	11	0.70

The goodness of measurement has been measured by using the reliability and validity of qualitative data. The reliability of a measure indicates the extent to which it is without bias (error-free) and hence ensures consistent measurement across time and the various items in the instrument. In other words, the reliability of a measure indicates the stability and consistency with which the instrument measures the concept and helps assess the goodness of a measure (Sekaran & Bougie, 2003) If some variable alpha value is greater than 0.7, it represents that variable is reliable. This research conducts a Pilot Survey Questionnaire before using it to collect data. This helps to researcher identify questions that don't make sense to participants or problems with the questionnaire that might lead to

biased answers. This research obtained 20 respondents to the pilot test, and the following results are generated through analyzing data. In this study, the researchers checked reliable of each variable. All variables showed an alpha value greater than 0.7. Therefore, the questionnaire supported measuring the impacts of green manufacturing practices on organizational performance in manufacturing sector organizations in the Anuradhapura district.

**Table 3 Distribution of survey respondents Gender, Civil Status, Age Group, Work Experience and Educational Attainment**

		Frequency	Percent
Gender	Male	28	93.3
	Female	2	6.7
Civil Status	Married	27	90.0
	Unmarried	3	10.0
<b>Total</b>		<b>30</b>	<b>100%</b>
Age Group	Between 21-30 years	2	6.7
	Between 31-40 years	12	40.0
	Between 41-50 years	9	30.0
	Up to 50 years	7	23.3
<b>Total</b>		<b>30</b>	<b>100%</b>
Work Experience	Between 3 - 6 years	9	30.0
	Between 6-9 years	7	23.3
	Between 9-12 years	5	16.7
	Up to 12 years	9	30.0
<b>Total</b>		<b>30</b>	<b>100%</b>
Educational Attainment	To O/L	6	20.0
	To A/L	15	50.0
	To Degree	3	10.0
	To Professional / Other	6	20.0
<b>Total</b>		<b>30</b>	<b>100%</b>

There were different numbers of male and female respondents in the selected sample, consisting of 28 respondents. 93.3% of males are the majority of this sample. The females of the respondents are 6.7%. The minimum represented is females. The researchers identified problems faced by women entrepreneurs in Anuradhapura District. There are some umpteen problems faced by women at various stages, beginning from their initial commencement of enterprise in running their enterprise. The researchers identified multiple issues like lack of focus on career obligations, women's economic instability, lack of risk-taking ability,

arranging finance & raw material, and marketing problems. When considering about the high majority age group was between 31-40 age groups (40%. The minimum represented age group is between 21-30 years which represents 6.7% of the total sample. According to the sample, 50% of respondents are A/L qualified. That is the higher amount compared to other educational qualifications levels in the manufacturing sector organization in Anuradhapura District. 20% were O/L, and to Professional or Other, 10% were to Degree. Educational attainment substantially impacts organizational performance: various positions and firm positions based on educational qualifications. The A/L educational attainment respondent rate is a significant influence of manufacturing sector organizations in the Anuradhapura District. This respondent people's ability to understand and use well advanced technologies after the A/L from following new technological causes, diploma, NVQ, and industrial training programs and increased their ability to innovate and improve their job performance. Best educational qualifications can contribute to improving organizational performance. It is evident from the above calculations and percentages based on the answers of respondents. When considering the respondents' work experience, 30% are between 3-6 years respondents and in up to 12 years respondents. These two groups are taken higher and have the same work experience range compared to other work experience levels within the sample of analyzed data. The minimum represented age group is between 9-12 years which represents 16.7% of the total sample.

### Univariate Analysis

To identify the basic nature of the research variables, mean, standard deviation and were calculated as follow.

### Descriptive Statistic Analysis

The descriptive statistics were calculated on organizational performance to identify the basic nature of green manufacturing practices. The results of the Descriptive statistics are shown in table 4.

**Table 4 Results of Descriptive Statistics**

	N	Mini- mum	Maximum	Mean	Std. Deviation
Green Production	30	3.63	4.38	4.0333	.21002
Green Marketing	30	3.57	4.29	3.9476	.23273
Green Policies	30	3.25	4.13	3.5917	.21002
Organizational Performance	30	3.55	4.27	3.9394	.17598
Valid N (list wise)	30				

As indicated by table 4, green production has the highest mean (4.0333) while organizational performance has the lowest mean (3.5917). The mean value of all independent variables is higher than the moderate level. It means the response of the respondents is highly closed to the level of agreement. The standard deviation for all factors ranges from 0.23273 to 0.17598. Green marketing has the highest standard deviation (0.23273), while organizational performance has the lowest standard deviation (0.17598). The maximum and minimum value of green production is 4.38 and 3.63 respectively. Green marketing has 4.29 maximum value and 3.57 Minimum values. As well as the maximum and minimum value of green policies is 4.13 and 3.25 respectively. Organizational performance has 4.27 maximum values and 3.55 minimum values.

**Table 5 Results of Descriptive Statistics for Indicators of Green Production**

Green Production	Minimum	Maximum	Mean	Std Deviation
Corrective Actions	3	5	4.166	0.675
Preventive Actions	3	4.8	3.835	0.617

Table 5 corrective actions such as waste management, recycling, treatment, and preventive actions, including waste reduction, reuse, and green life cycle management, highly affected green manufacturing practices. Because it has high means of 4.166, 3.835, and standard deviations 0.675 and 0.617, it revealed that all green production indicators have highly affected organizational performance in manufacturing sector organizations in AD.

**Table 6 Results of Descriptive Statistics for Indicators of Green Marketing**

Green Marketing	Minimum	Maximum	Mean	Std Deviation
Green Packaging	3	5	4.192	0.672
Green Advertisement	3	4.7	2.791	0.569

Green packaging has means of 4.192 and standard deviations 0.672. It revealed that green packaging indicators have highly affected green manufacturing practices in the manufacturing sector organization in Anuradhapura District. The analyzed data of other mean value is a green advertisement (2.791). It revealed that the other indicator of green marketing has moderately affected organizational performance in manufacturing sector organizations in AD.

**Table 7 Results of Descriptive Statistics for Indicators of Green Policies**

Green Policies	Minimum	Maximum	Mean	Std Deviation
Environmental Policies	3	5	3.682	0.593
Environmental Standards	3	4.5	3.535	0.543
Environmental Directives	3	4	3.47	0.507

Environmental policies and environmental standards have means of 3.682, 3.535, and standard deviations 0.593, 0.543. It revealed that environmental policies and environmental standards indicators have highly affected organizational performance in manufacturing sector organizations in Anuradhapura District. The analyzed data of other mean values are green directives (3.47). It revealed that other indicators moderately affected organizational performance.

**Table 8 Results of Descriptive Statistics for Indicators of Organizational Performance**

Organizational performance	Minimum	Maximum	Mean	Std Deviation
Environmental Performance	3	5	3.966	0.678
Economic Performance	3	4.6	3.535	0.541
Social Performance	3	5	3.47	0.705

Table 8 shows environmental performance, which has a higher mean value 3.966 and standard deviations 0.678. It revealed waste reduction,

pollution control, sustainable energy saving that practices complete environmental performance indicators have highly affected organizational performance in manufacturing sector organization in Anuradhapura District. The analyzed data of the other mean value is 3.535. It revealed enhancing productivity, maximizing profit, raw materials that indicator of economic performance has moderately affected organizational performance in Anuradhapura District. The analysed data of the other mean value is 3.47. It revealed that improving a firm's competitiveness and improved customer satisfaction impact social performance indicators have moderately affected organizational performance in a manufacturing sector organization in Anuradhapura District.

### Bivariate Analysis

#### Relationship between green manufacturing Practices and Organizational Performance

In this section, the correlation analysis was conducted to investigate the relationship between GMP and organizational performance in each industry sector discussed first, followed by regression analyses to test how GMP impacts organizational performance measures. To measure organizational performance by environmental, economic, and social performance were examined in each industry sector.

**Table 9 Relationship between GMP and Organizational Performance in Manufacturing Sector Organizations Anuradhapura District**

Correlations		Green Production	Green Marketing	Green Policies	Organizational Performance
Green Production	Pearson Correlation	1			
	Sig. (2-tailed)				
Green Marketing	Pearson Correlation	.780**	1		
	Sig. (2-tailed)	.000			

Green Policies	Pearson Correlation	.246	.228	1	.
	Sig. (2-tailed)	.190	.226		
Organizational Performance	Pearson Correlation	.714**	.598**	.495**	1
	Sig. (2-tailed)	.000	.000	.005	
**. Correlation is significant at the 0.01 level (2-tailed).					

The Pearson correlation value of green production and organizational performance was 0.714 and Sig. value is .000 (which is less than 0.01) therefore it was a strong positive and significant relationship between green production and organizational performance in manufacturing sector organizations in Anuradhapura district. A strong and significant correlation (0.598 - Sig.value 0.000) is obtained between green marketing and organizational performance in manufacturing sector organizations in Anuradhapura district. Green policies are strong significantly correlated to Organizational Performance because the Pearson correlation value is 0.495 - Sig. value is 0.005.

### Impacts of Green Manufacturing Practices on Organizational Performance

Regression analyses help one determine the probable form of the relationship between variables. This research can formulate the regression relationship between the dependent and independent variables. Multiple regression analysis was used to examine the impact of independent variables on dependent variables. The model is represented by.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

Where Y = Organizational Performance, X are the independent variables, are the slope coefficients.

This means that 62% of the variation of the Y variable (Organizational Performance) explain by the selected three X variables (green manufacturing practices including green production, green marketing, and green policies). It indicates a perfect level of prediction. Meanwhile, (e) 38% of the variance in job performance is explained by other factors, such as customer attitude, employee effectiveness and efficiency, customer ethics, Modern technological improvement, and market share. Adjusted R<sup>2</sup> was 0.576. It

indicates that the model is fitted to the data.

**Table 10 Impact of GMP on Organizational Performance in Manufacturing Sector Organizations in Anuradhapura District (Coefficient)**

Coefficients						
Model	B	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		Std. Error	Beta			
1	(Constant)	.767	.494		1.554	.132
	Green Production	.481	.163	.574	2.950	.007
	Green Marketing	.056	.146	.073	.379	.708
	Green Policies	.282	.105	.337	2.698	.012
a. Dependent Variable: Organizational Performance						

In this study, Table 10 shows the result of the regression analysis for testing the impacts of green manufacturing on organizational performance. Green Production shows significant positive impacts on organizational performance in manufacturing sector organizations in Anuradhapura district (B=0.481, sig=.007), and Green Policies shows significant positive impacts on Organizational performance (B=0.282, sig=.012). However, Green Marketing shows positive impacts but not significant effects on organizational performance (B=0.056, sig=.708). In the manufacturing sector in Anuradhapura District, some organizations haven't suitable technologies for their productions, distributions and advertisements. Good packaging and website do not include green reference information.

**Table 11 Model Summary**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.788 <sup>a</sup>	.620	.576	.11454
a. Predictors: (Constant), GPR,GMR,GPO				

**Table 12 ANOVA Table**

ANOVA						
Model		Sum of Squares	DF	Mean Square	F	Sig.
1	Regression	.557	3	.186	14.152	.000 <sup>b</sup>
	Residual	.341	26	.013		
	Total	.898	29			
a. Dependent Variable: Organizational Performance						
b. Predictors: (Constant), GPR ,GMR, GPO						

Using the value of the coefficients from the regression coefficient table 10 above, the established

Regression equation takes the form of: Organizational Performance = 0.767 + 0.481X<sub>1</sub> + 0.056X<sub>2</sub> + 0.282X<sub>3</sub>

### Development of Hypotheses

According to the correlation analysis and multiple regression analysis results, the following discussion is made related to hypotheses, which have been established in the study.

**Table 13 Hypothesis Testing**

No	Hypothesis	Correlation Analysis	Regression Analysis	Hypothesis Testing Decision
H <sub>1</sub>	Green Production has significant impacts on Organizational Performance.	Accepted	Significant	Supported
H <sub>2</sub>	Green Marketing has significant impacts on Organizational Performance.	Accepted	Insignificant	Partially supported
H <sub>3</sub>	Green Policies has significant impacts on Organizational Performance.	Accepted	Significant	Supported

Environmental concern is most important when looking at the organizational sustainability performance of the present context. The impact of GMP on organizational performance has been one of the primary objectives of the research. Therefore, it is essential to understand the impact of GMP on organizational performance. Three hypotheses were used in the study to

check the impacts of Green Production, Green Marketing and Green Policies on organizational performance in the manufacturing sector organizational performance. Using the appropriate statistical package, it is found that green production and green policies toward the organizational performance are the factors that mostly influence the organizational performance in manufacturing sector organizations in Anuradhapura, while factors like green marketing insignificantly impact organizational performance in the manufacturing sector in Anuradhapura district. Hence, two hypotheses were supported while one of hypothesis was partially supported.

### Conclusion

Green manufacturing is useful for not only the organization but also all the society. If firms do not pay much more attention to environmental effects to generate more profit, they cannot earn profit continuously, and all the society must face a big problem. Today attention to the environment is greater than past. Previous research has been identified as lack of green manufacturing is one reason for big disasters and break down of continued improvement of organizational performance. Long standing firms were not moving to green manufacturing processes; therefore, firms must face some problems nowadays. Therefore, previous researchers have mentioned that green manufacturing practices are necessary to go forward.

The researcher was unable to find out empirical evidence in the Sri Lankan context to justify this situation. But in the current study, results show a significant positive relationship and significant positive impacts between green production and green policies on organizational performance in manufacturing sector organizations in Anuradhapura district as well as a result show that there was a significant positive relationship and insignificant positive impacts of green marketing on organizational performance in manufacturing sector organizations in Anuradhapura district. It will help to fill the gap of literature on the impact of green manufacturing practices on organizational performance.

Green production practices (GPPs): the primary focus of this study. This set of practices entails changes in the production system and operations, which plays a key role in environmental issues. The production practices of product, process, and practices, regarding “what” and “how.” Then, according to the study, the operational practices focus on product design and the development of more environmentally suitable products. Therein,

the Process practices seek to develop and implement operational and manufacturing processes to reduce environmental impact. Therefore, Green production practices are positively impacting organizational performance in manufacturing sector organizations in Anuradhapura District.

Anuradhapura district some majority of firms, despite being production or service-oriented are increasingly recognizing the importance of adopting green manufacturing practices in order to be financially, environmentally and socially benefited. One main reason firm implement GM practices is the pressure they get from customers both 132 and 132 requesting eco-friendly products. A dramatic increase in green purchasing can be witnessed in the Sri Lankan context, where customers try to purchase and acquire products and services with a minimal negative impact on the environment. The researcher identified some firms in Anuradhapura District, including MAS Holdings, Hela Bojuns, Gaston Lanka Garments, D2 Clothing Pvt Ltd, National Institute organization Post Harvest Management (NIPHM), Jack Food Synergy (Pvt) Ltd, Anuradhapura Holdings Pvt Ltd, Future Farmers Company (Pvt) Ltd, Sanmik Natural Food Pvt Ltd, Nelum Kole, Traditional Rice Research Institute (TRRI) and Saruketha Organic Fertilizer organizations implemented so many corrective and preventive actions (Green production practices) for reduction of gas emissions, reduction of water consumption, reduction of solid waste, reduction of electricity/power consumption, reduction of consumption of hazardous/toxic materials, reduction of environmental accidents and overall environmental situation.

Green packaging and green advertisements such as green marketing or communicational practices: seeking to communicate the organization's actions regarding social and institutional environments. Once again, the researcher data analyzed point out that this set of practices does not bring improvements to the organization. Instead, such approaches seek business objectives and relationship-improving goals towards the firm's various stakeholders. Because Anuradhapura District manufacturing sector some organizations haven't suitable technologies for their productions, haven't good advertisements for productions, haven't good packaging, haven't good marketing strategies and website not including green reference information.

The researcher identified some good green policies, standards and directives in manufacturing sector organizations in AD, it is possible to highlight such

as Replacement of either polluting or hazardous materials or components, Product development focused on reducing both material consumption and waste generation during the production and distribution/consumption, Product development focused on reducing material consumption, and waste generation during consumption, Production process designed to focus on reducing the consumption of energy and resources, Production Planning and Control focused on reducing waste and optimizing material consumption, Acquisition of cleaner technologies and equipment, Preferential purchasing of green products, Environmental criteria in supplier selection, Selection of less polluting means of transport, Reusable or recyclable packaging in logistics activities, Emission filters and pollution controls at the end of the production process.

MAS Holdings, Future Farmers Company (Pvt) Ltd, Sanmik Natural Food Pvt Ltd firms are ISO 14001 certified and Traditional Rice Research Institute (TRRI), Anuradhapura Holdings companies are ISO 9001: 2015 certified, have met with all requirements of Green Labelling System's Environmental Performance criteria to endorse our products as "Green Labelled products" by The Green Building Council Sri Lanka and Central Environmental Authority.

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## Philosophical assumptions on causes behind the spread of COVID 19 Virus

Siriwardhana HA<sup>1</sup>, Kurukulaarachchi VK<sup>2</sup> and Wesley JP<sup>3</sup>

### Abstract

Philosophical assumptions are crucial for determining reality in both natural and social sciences. Therefore, understanding the philosophical analysis of the causes behind the spread of the COVID-19 Virus is important since the pandemic has a dire global effect. However, philosophical assumptions are oversight as they seem limited to academic purposes. Further, analysis of the issue can be varied due to different ideological perspectives. The study's objective is to identify philosophical assumptions of causes behind the spread of the COVID 19 Virus. This is an archival study that uses a systematic review of the literature. The study revealed a series of ontologies and epistemologies of natural and social science studies. Sociological, educational, and psychological research balanced with interpretive and realist paradigms, whereas natural and physical science areas such as medical studies were based on positivist assumptions. However, balanced use of perspective contributions from philosophies in natural sciences was also visible. It was revealed that citizens feel apathetic about positivistic findings because medical researchers were not interpreted in plain language. This could have been answered from a bridged philosophical standpoint. Furthermore, the findings of the study highlight the importance of the ontologies and epistemologies strengthened through the philosophical paradigm. The study concludes by emphasizing the importance of understanding the philosophical assumptions of the causes behind the spread of the COVID-19 virus provided the situation of the new normal.

**Keywords:** *Philosophical assumption, Philosophical paradigm, Ontology, Epistemology, Axiology*

<sup>1,2,3</sup>PhD Candidates, Faculty of Management and Finance, University of Colombo

<sup>2</sup> verokuru@gmail.com

## **Introduction**

Philosophy can be the way of truth or search for knowledge (Stanford, 2021). It is derived from the two Greek words referred to as *Philos* and *sophia*, respectively, meaning love and wisdom (Wani, 2021). This indicates the meaning of the “love of wisdom” in simple terms. In a contemporary sense, Philosophy hence can be termed as the “search of truth” (Wani, 2021), which guides the beliefs and values of the thinking of the researchers (Abeysinghe, 2020).

There are two main research paradigms, namely Positivism and Interpretivism. However, later some scholars have argued on the third research paradigm of pragmatism. Positivism is mainly related to experiments and quantitative research. Positivism is considered a form of or a development of empiricism (Ryan, 2018). Phillips and Burbles (2000 cited in Ryan 2018) mentioned that “empiricism is one of two forms of foundationalist philosophy – rationalist or empiricist.” Empiricist believes knowledge should be objective and free from any bias from the values and belief of the researcher. On the other hand, Interpretivism incorporates human concern into the study. According to Burrell and Morgan (1979), Interpretivism sees the social world as an emergent social process created by the individuals concerned. Further, interpretivism that access to reality is only through social constructions namely language, consciousness, shared meanings, and instruments (Myers, 2008).

The research paradigm consists of ontology, epistemology, and methodology. Therefore, ontology can be identified as what is in existence? Research paradigms are established beliefs and assumptions about ontological, epistemological, and methodological concerns within a research community. Philosophy in social research ontology, epistemology, and methodology plays a vital role. Further research paradigm consists of approach, model strategy, or pattern to conduct research. In a way, paradigm indicates how researchers thought processes develop knowledge, or it is a framework of thoughts, beliefs, understandings within which theories and concepts operate. “Ontology concerns the nature of ‘reality’ where epistemology “is concerned with knowledge - what forms it takes and how it can be obtained and transmitted (Hopper & Powell, 1985). Hence in simple terms, epistemology can be identified as how to know what exists. Further Ontology describes the values a researcher embraces and “what can be known as real and what someone believes to be factual” (Bryman 2008 cited in Ryan 2018).

Furthermore, Ryan (2018) explained Epistemology is our belief about how we may come to know the world. The methodology is different methods or techniques that researchers use to discover different circumstances.

Further axiology is what values that researcher believes in research. A researcher with realist ontology believes that the researcher is value-free and independent, and therefore researcher is objectively seeing the world, and they observe through empirical evidence (Abeysinghe, 2020). Further, there are mainly two forms of reasoning or research approaches, namely inductive and deductive approaches or inductive and deductive reasoning. “Inductive reasoning starts with observation, experiment and measurement, and generalization and finding patterns in data; theory is then developed to describe the situation” whereas “deductive reasoning find a theory, make predictions based on the theory, and then use observation or experiment to test it” (Bryman 2008 cited in Ryan 2018). In contrast, while inductive approach aims to develop a theory or introduce new knowledge in terms of in-depth studying of a phenomenon. In comparison, the deductive approach concentrates on testing existing theory or proving existing theory to generate generalizability through hypothesis testing. On the other hand, the COVID-19 pandemic has reached over 5 million infected cases worldwide and the death rate worldwide has increased to 331,347 by May 2020 (WHO, 2020). COVID-19 pandemic emerged as a public health crisis and morphed into a global economic crisis, with severe impacts on commercial activity, employment, and trade (Jayawardena, 2020). Coronavirus, which is outbreaken as a serious epidemic globally, is best tested and studied only through the supervision of expert consultations trying to understand the pandemic and the causes behind its spread. The key focuses on research will always run towards philosophies. One seems to think about the pandemic due to the ability to search the reality; by being alive, one suffers the pandemic that threatens existence and the very possibility of thinking about it. It is factual to state that all do not suffer the pandemic in the same way. The possibility of finding an analogy between the spread of the virus and the parallel spread of the philosophical ideas in this sensemaking is important (Velázquez, 2020). Researchers now tend to comprehend philosophy through the similarity with the Coronavirus linking the way it pushes us to set priorities and make one aware of the strong points yet forcing us to pose on a new dimension of problems. The social, mental setting

makes it difficult to continue living without ideas because the ideas tend to fold and create a way of life (Benarde, 1973). Two main justifications surface in this analogy where the first reason is that both philosophy and the Coronavirus are invisible and are transmitted from one individual to the other (Platon, 2003). Philosophy transmits through ideas mainly orally, and so do the viruses such as COVID-19. Both do become viral where the Coronavirus enters the body and acts as a fatal agent putting health at risk.

In contrast, the philosophies enter into the mind, which can, in extremism, cause threats to mankind-exemplified, through execution of Socrates due to the threat consideration of his ideas to the power structures and time which lead to ex-communication from his demise (Platon, 2003). The factual reasoning is that reality imposes ideas on individuals irrespective of the choice where even the simplest or the epidemical virus could mobilize and generate many ideas through philosophy (Velázquez, 2020). Seamlessly, this rationalizes why the Coronavirus and philosophy, if taken in isolation, will provoke societies and exert fundamental changes in mentalities to mark its effects in history for better or for worse (Velázquez, 2020). During the novel Coronavirus situation, philosophy can be better utilized through researching accurate philosophical assumptions to arrive at the most effective results expected. Philosophy aims to give a sense of reality (Velázquez, 2020), with which one can then derive certain duties, directions, and guidelines for practice in the situations available through the rational reflection of catering to available problems. The causes behind the spread of the Coronavirus, which is a crucial issue in the world, can be identified through philosophies and certain themes that could provide philosophical reflections to reach accuracy in expected results.

### **Problem statement**

Philosophical assumptions are the crucial bases to determine reality in both natural and social sciences. Therefore, understanding the philosophical analysis of the causes behind the spread of the COVID 19 Virus is important since the pandemic has a dire global effect. However, philosophical assumptions are overcited as it seems to be limited to academic purposes. Therefore, it is important to understand how philosophy can provide conceptual tools useful to those who make difficult decisions, in communicating and explaining the causes behind the spread of the COVID-19 virus.

### **Research question**

How to identify the philosophical assumptions of causes behind the spread of the COVID-19 virus?

### **Research objectives**

To identify philosophical assumptions of causes behind the spread of the COVID 19 Virus.

### **Research Methodology**

The methodology of this study is a systematic review of the literature using an archival method reviewing 23 articles. Reviewing the sources which exist, helped to identify Philosophical assumptions on causes behind the spread of the COVID-19 Virus. Hence, this study can be identified as desk research. The review of the study was based on four disciplines namely, Sociology, Psychology, Education, and Medical Sciences.

Initially, the articles used in the study were chosen to cull from a large record series which were conducted on COVID-19 where the most significant articles and reports were used based on subjectivity. Secondly, the articles were reviewed using theoretical and empirical information through analyzing the content. The third step was to interpret the gathered information meaningfully. In selecting the articles, there was a special consideration in selecting peer-reviewed research articles from Emerald Insight, SAGE, Elsevier, Science Direct, and Springer Link Journals based on their online databases and in the subject of Covid 19 pandemic and its philosophical assumptions. The search engines were penetrated with the key searches such as “Philosophical assumptions ‘AND’ COVID-19”, “Axiology”, “Epistemology”, “Ontology ‘OR’ Causes behind COVID-19”, “Positivism ‘AND’ Causes behind COVID-19”, “Interpretivism ‘AND’ Causes behind COVID-19”. The study was conducted using Boolean operators such as “AND”, “OR” in par with the four disciplines namely, Sociology, Psychology, Education, and Medical Sciences. The key searches were then streamlined upon the most relevant content to the subjective research area and tabulated in Table 1 given below as the document analysis which was conducted for the study based on each theme.

Table 1 List of reviewed articles

Theme	Article Code	Citation	Article Name
Sociology	A1	(Mehra, 2021)	The Asian region and COVID-19: approaches and gaps in controlling the virus
	A4	(Sharma, 2020)	Exploration of COVID-19 impact on the dimensions of food safety and security: a perspective of societal issues with relief measures
	A14	(Noor et al., 2020)	Analysis of public reactions to the novel Coronavirus (COVID-19) outbreak on Twitter
	A16	(El Miarouti et al., 2020)	COVID – 19: A Critical Ontology of the present
	A18	(Lourdes Velazquez, 2020)	The role of philosophy in the pandemic era
	A2	(Raza, 2020)	COVID-19: A Psychosocial Perspective
	A7	(Aschwarden, et al., 2020)	Psychological and behavioral responses to Coronavirus disease 2019: The role of personality
	A8	(Perera, Wickramanatchi, Samanmalie, & Hetiaratchi, Psychological experiences of healthcare professionals in Sri Lanka during COVID-19, 2021)	Psychological experiences of healthcare professionals in Sri Lanka during COVID-19
Psychology	A9	(Webber-Richey et al., 2021)–	COVID-19: Qualitative Research with Vulnerable Populations
	A10	(Sun et al., 2020)	A qualitative study on the psychological experience of caregivers of COVID-19 patients
	A11	(Sum et al., 2021)	A qualitative study of the psychological experience of COVID-19 patients during hospitalization
	A12	(Radic et al., 2020)	Fear and Trembling of Cruise Ship Employees: Psychological Effects of the COVID-19 Pandemic
	A13	(Wang et al., 2020)	Review Article: Psychological Influence of Coronavirus Disease 2019 (COVID-19) Pandemic on the General Public, Medical Workers, and Patients with Mental Disorders and its Countermeasures
	A15	(Saladino et al., 2020)	The Psychological and Social Impact of Covid-19: New Perspectives of Well-Being
	A3	(Imai, 2020)	Imperial College London COVID-19 Response Team: Report 3 transmissibility of 2019-nCoV Natsuko Imai.
	A5	A (Wen, 2021)	The missing link between medical science knowledge and public awareness: implications for tourism and hospitality recovery after COVID-19
	A6	(Flaxman, et al., 2020)	Imperial College COVID-19 Response Team: Report 13: Estimating the number of infections and the impact of non-pharmaceutical interventions on COVID-19 in 11 European countries
	A17	(Levy & Savulescu, 2020)	Epistemic responsibility in the face of a pandemic
	A19	(A. Almazan, 2021)	Philosophical Perspectives on COVID-19 Abstracts- The Case for Ecological Medicine in a Post-COVID-19 World.
	Education	A21	(Prati & Mancini, 2021)
A20		(Department of Education Office for Civil Rights, 2021)	Education in a Pandemic: The Disparate Impacts of COVID-19 on America's Students
A22		(Concepcion-Zawleta et al., 2020)	Does level of education influence mortality of SARS-CoV-2 in a developing country?
	A23	(Ratnay et al., 2021)	Differences in risk perception, knowledge and protective behaviour regarding COVID-19 by education level among women and men in Germany. Results from the COVID-19 Snapshot Monitoring (COSMO) study

Source: Authors developed

## Results and discussion

The study discusses several thematic areas identified through an analysis of available contemporary resources on the philosophical assumptions of causes behind the spread of the COVID-19 virus. The analysis evolved based on the themes of Sociology, Psychology, Education, and Medical sciences.

### Sociological perspective

In the review, there were five direct articles referred to which were mainly taking a relativist and interpretivism ontological assumption confirming the natural stance to which social sciences are philosophically assessed with a direction of interpretivism which confirms that there can be multiple causes and realities behind the spread of coronavirus. The articles mainly have followed the methodology of archival research reviewing shortlisted articles based on keywords such as COVID-19, coronavirus, severe acute respiratory syndrome-like coronavirus (SARS-CoV-2), pandemic, virus, quarantine, etc. (Mehta, 2021). Studying the various roles of government, technology, business–government collaborations business-government, and geographical and demographical structures in the society. The studies underpin the sociological assumptions behind the spread of the COVID-19 virus justifying a social constructivist epistemology.

However, the majority of these inductive studies present work which is persuaded on the causes behind the spread of the COVID-19 virus hence outlays the theoretical perspectives of only the causes behind the spread. But these perspectives portray the ongoing scenario's impacts, extending its implication to the people coming from the industry and academia background. There was further research, which attempted to study these sociological contexts on an objective-based philosophical assumption with a realistic ontology. A highlight was an analysis of COVID-19 tweets conducted through VOS viewer examining the reactions of the people related to the COVID outbreak in the world discussing the subjective sentiments of the general public through a deterministic epistemology (Noor et al., 2020). Financial insecurities due to job losses and poor financial assistance from the government are the negative impacts due to covid -19. The focus should be given to migrated labor, unprivileged people who are living under unhygienic conditions, displaced residencies, and people who live in slums when implementing health control measures (Meheta, 2021).

### ***Psychological perspective***

Psychology usually studies the root cause of human behavior (Wang et al., 2020). Thus, the researchers tend to generalize the findings through positivist researchers, however, in response to Covid and in terms of determining the causes behind the spread of COVID-19 viruses, the available resources were visible from both inductive and deductive methodologies. This provides evidence for more balanced and stable philosophical assumptions spread across the research world within the psychological perspectives. The psychological researcher thus seems to be clearly identifying the causes behind the spread of the COVID-19 virus within the perspective. Conceptual tools in determining the relationship of religious beliefs, family and parental education (Raza, 2020), social insurance, mental health, life satisfaction, personality traits, psychological and behavioral responses (Aschwanden, et al., 2020), Epidemiologic, psychosocial and occupational factors predictive of depression and anxiety (Perera, Wickramarachchi, Samanmalie, & Hettiarachchi, Psychological experiences of healthcare professionals in Sri Lanka during COVID-19, 2021) were studied using a realistic ontology with an empirical epistemology while psychological well-being of the most exposed groups, including children, college students, and health workers, who are more likely to develop post-traumatic stress disorder, anxiety, depression, and other symptoms of distress (Saladino et al., 2020) due to the COVID-19 pandemic were also studied using positivist epistemological assumptions.

On the other hand, phenomenological studies studying psychological causes behind the spread of the COVID-19 virus such as negative emotions, fatigue, discomfort, helplessness was caused by high-intensity work, fear and anxiety (Sun et al., 2020), affection and gratefulness, development of professional responsibility, and self-reflection also indicating positive emotions occurred simultaneously with negative emotions were also tested. Further, the importance of Qualitative research methodology in bringing attention to the lived experience of others as they unfold (Webber-Ritchey et al., 2021) are tested comprehensively providing a wider scope of in-depth understanding of the perspective in various study groups and respondents such as psychological behavior of COVID-19 caregivers (Sun et al., 2020) and COVID patients (Sun et al., 2020). Sequential studies on in-depth analysis Firstly, testing attitudes such as fear, denial, and stigma, Secondly, the major source of stress on viral nature of the disease, quarantine measures, and concerns

regarding the health of family members, Thirdly, reactions of body and mind namely emotional responses, excessive attention to symptoms, rumination, and changes in diet, sleep, and behavior, Fourthly, supportive factors included psychological adjustments, medical care, and family and social support and Finally, the disease resulted in psychological growth and patients viewed problems with gratitude through the cherishing of life, family, bravery, and tenacity (Radic et al., 2020) were visibly studied with relativist ontologies and interpretivist epistemological assumptions. The studies also highlighted the ignored psychological factors during the implementation of covid-19 control measures such as the negative impact on the relationship among people due to social distance and their perception of empathy towards others (Saladino et al., 2020). This shows even though the control measures lead to health advantages but the actions have some disadvantages in social perspectives. Many cross-sectional studies show that the control measures created serious depression among the people and affect their psychological wellbeing. However longitudinal studies are recommended to study the real physiological complications.

### ***Educational Perspective***

Highlighted within the sociological perspective, several educational studies were significantly visible on their philosophical assumptions. Thus, considered to be depicted within the study as a separate perspective. Amongst the inductive methodological directions, educational and literacy levels as a major cause behind the spread of the COVID-19 pandemic have been researched. The stress caused by the pandemic on lesbian, gay, bisexual, transgender, and queer (LGBTQ+) students in elementary and secondary schools of USA have faced particularly heightened risks for anxiety and stress and have lost regular access to affirming student organizations and supportive peers, teachers, and school staff were also studied (Department of Education Office for Civil Rights, 2021). Positivistic investigations have confirmed that the ethnic and socioeconomic positions impacting the level of education increased the spread of the COVID-19 pandemic. The empirical epistemologies generalize that deprivation and low educational attainment were consistently associated with a high risk of confirmed infections (Department of Education Office for Civil Rights, 2021) Further, studies revealed that stronger associations were evident with the level of education and the spread of the COVID-19 virus. These empirical, survey-based studies constantly justify the philosophical base and accuracy in generalizing the findings such as more educated males were

highly fearful of the pandemic whilst lesser-educated male respondents were more prone to cause the spread of the virus (Department of Education Office for Civil Rights, 2021). Gender disparities in terms of the impact of educational levels as causes to the spread of COVID-19 virus were also visible were, women respondent was less responsive to spread the virus based on the fear response in relation to the educational levels whereas were more confused irrespective of the level of education in contrast to educated males (Department of Education Office for Civil Rights, 2021). Pre-existing health conditions, poverty, and lack of access to health care of the people with lower levels of education were less able to quarantine and continued to work, due to greater economic constraints (Concepción-Zavaleta et al., 2020).

### ***Medical Science Perspective***

There is a balanced philosophical assumption-based series of researchers visible in academics within the medical science perspective. Realist ontological and positivist epistemological assumptions-based studies provide an array of medical science-based causes behind the spread of the COVID-19 virus. Some studies depicted that control measures need to be blocked well over 60% for the transmission of the virus to be in control of the outbreak (Imai et al., 2020). Further empirical surveys depict that in the absence of antiviral drugs or vaccines, control relies upon the prompt detection and isolation of symptomatic cases (Imai et al., 2020). Interpretivist studies which provide a significant contribution to the comprehension of medical science researchers have indicated that medical research not being communicated in plain language, has led to some citizens being left to feel apathetic about findings (Wen et al., 2021). The contemporary reporting on the prevalence and anticipated consequences of COVID-19 outbreaks can hence be difficult (Wen et al., 2021). In terms of answering the radical question of ethical-political clearance of how one should relate to the other beings can thus be answered in any suitable philosophical assumption and rather reach a more accurate basis of results when unbiased towards rather just an extreme philosophical base.

In proceeding with a more stable and focused philosophical base the ethical and medical contexts can be sequentially rationalized through anthropocentrism (A. Almazan, 2021) which can realize and end to the Promethean nature of control which decides to assume the existence of

interdependencies and eco-dependencies that define us as limited, fragile and finite beings within complex systems. In the era of the Sixth Great Extinction and of global ecologic crisis there is no better vaccine than the defense of healthy ecosystems both in inductive and deductive research studies.

### **Conclusion**

Understanding the conducted review of the available studies, the perspective areas which had a balanced utilization of ontological and epistemological assumptions were stable in terms of reaching a stronger contribution to the expected areas of research. Presented work was exercised through retrieving archives of journal articles that were published through research conducted in the ongoing phase of worldwide lockdown and curfew restriction due to COVID-19 outbreaks. Authors have tried to capture the ground reports by critically analyzing and reviewing the chosen articles to identify philosophical assumptions of causes behind the spread of the COVID-19 virus. To carry out this work-intensive research literature especially focusing on the past pandemic outbreaks in the various countries and their implications in the philosophical field of Sociology, Psychology, Educational and Medical Sciences were structured. Further authors have suggested a few remedial actions to be perceptually addressed to help and streamline the functioning of the controls to the causes behind the spread of the COVID-19 virus for the future avenues, focusing on the loss recoveries, regaining the consumer's interest, the revival of the industries and its allied operations. Various feasible and results-oriented short-term measures of relief and long-term measures of relief were attempted to be discussed in this work. The study can thus be concluded through the emphasis of the importance of understanding the philosophical assumptions of the causes behind the spread of the COVID-19 virus provided the situation of the new normal.

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## Determinants of Compulsive Lottery Consumption among Sri Lankans

Kurundukumbura KTA<sup>1</sup> and Udunuwara M<sup>2</sup>

### Abstract

The revenue generated through gambling plays an important role in any country's economy. While a large number of people involved in lottery playing both globally and locally, fulfilling the income-generating option of the government, the chance of winning a lottery for the buyer remains significantly low; despite this fact, many people compulsively purchase lotteries. While there are several studies on factors affecting lottery consumption in other countries, surprisingly, there is less empirical evidence in the Sri Lankan domain. Thus, this study investigated the factors affecting the consumption of draw lotteries and instant/scratch lotteries. This study was guided by the positivist approach and identified the influence of social, cultural, personal, and marketing mix-related factors-product, price, place, and promotion- on lottery consumption. Further, the study looked at the moderating effect of demographic factors such as gender, age, social status, educational level, occupation, and religion. A sample of 400 respondents was selected from 23 districts (combining north and eastern provinces) in Sri Lanka on a convenient basis. Stepwise multiple regression and moderated multiple regression analysis were used for hypothesis testing. The results indicate that the most influential factors are cultural and personal factors, whereas product, price, and promotion are also significant to influence lottery purchasing. Age and educational level, and compulsiveness have a moderating effect on the relationships. This study provides significant clues for the authorities to enhance the lottery sales further and work towards meeting their buyers' aspirations.

**Keywords:** Lottery consumption, gambling, purchase behaviour

<sup>1</sup> Department of Economics, Faculty of Arts, University of Colombo, Sri Lanka

<sup>2</sup> Department of Marketing, Faculty of Management and Finance, University of Colombo, Sri Lanka, maduku@mkt.cmb.ac.lk

## Introduction

Gambling has been part of human history as a passion (Faustino, Kaiseler & Marques, 2009). It has been the most popular form of entertainment in the past three decades. Even though gambling is restricted in some areas of the world due to negative religious, social, and economic concerns, there appear to be two forms of gambling, namely ethical gambling and unethical gambling. With the intention of eliminating unethical gambling, several restrictions are imposed and have now converted into more legalised form with high rules, regulations and people's attitude toward gambling has been positive. As a result, governments desire to generate employment opportunities, public funds, foster tourism, and economic development is fostered through lottery sales (Bjelde, Chromy & Pankow, 2008).

Lotteries are the oldest and most common form of gambling that has a long history. Lotteries appeared in the Han Dynasty of China in the 02<sup>nd</sup> century mainly as a means to raise public finance for the state. Major state projects like the Great Wall of China have developed with the help of lottery finance (Perez, & Humphreys, 2012). State-sponsored and legalised gambling was introduced by Caesar Augustus to provide financial support for regaining Rome (Mote, 1984: but see Martin & Yandle, 1990). The first European lottery was recorded in 1446, and in the year 1549, Queen Elizabeth developed a legal lottery to produce a financial gain for the Virginia Company's founding of Jamestown (Johnson, 1960: but see Martin & Yandle, 1990). The 'Gymkhana Lottery', which was based in the Galle area is considered to be the origin of lotteries in Sri Lanka. However, it was not an initiative under the government. Therefore the first lottery in Sri Lanka is considered the 'Hospital Lottery' which was launched under the Hospital Lottery Act No 04 of 1955.

According to Perez & Humphreys (2017), lotteries are like homogenous consumer goods purchased by many consumers and are investments with extreme uncertainty but huge payback. They further emphasise that Lottery gambling is a simple activity that does not require any specific capability, unlike other gambling games such as horse races and casinos, and are comparatively less expensive and widely available. Therefore, lottery participation rates are high than other types of gambling worldwide (Perez & Humphreys, 2012). As an example, a much more legalised form of gambling has become one of the main fast-growing industries in the

USA in the last thirty years (Martin, Lichtenberg & Templin, 2010). Further, most countries desire to create jobs, public financing perspective and desire to help tourism and economic development through lotteries (Bjelde, Chromy & Pankow, 2008), including Sri Lanka.

Despite its popularity, the chance of winning a lottery is comparatively less. For instance, a specific lottery with four numbers selected from 1 to 64 carries an extremely low probability of 0.00007 percent to win a super prize. Interestingly, despite the actual financial gains, people are continuing to buy lotteries. This has led to many researchers investigating reasons for gambling or playing lotteries. Ariyabuddhiphongs & Chanchalernporn, (2007) have found that the costs of playing lotteries exceed the rewards derived from the prizes on the offer of each and every lottery played in the world and further added people are trapped in gambling imaginations such as overestimating the probability of winning. According to Blalock (2007), enjoyment of lottery gambling has led to buying lottery products because of the fun and entertainment involved. However, Ariyabuddhiphongs & Chanchalernporn, (2007) also point the influence of fun and entertainment provided by lotteries as an addiction.

Evidence suggests that there is an expansion and popularity of government lotteries due to several government objectives such as lottery gambling as entertainment, creating jobs, generating revenues, and economic development (Bjelde, Chromy & Pankow, 2008). The increase in lottery consumption in Sri Lanka is evident from statistics. In the year 2018, cross twenty-four government-operated lotteries consumers spending amounted to a total of thirty-six billion rupees for lotteries (2018 Annual report, Ministry of Finance). Further, by 2017 there were twenty-three government lotteries in operation, and lottery consumers spending was recorded as thirty-one billion rupees, increasing 16.12 percent compared to 2018 (Annual report, Ministry of Finance, 2018). This total represents an annual average of 1756.63, Rs.1553.21, and Rs.1796.73 rupees spent for lotteries in the year 2016, 2017, and 2018 per person, respectively. Interestingly, irrespective of the Covid -19 pandemic situation, lottery consumption has increased exponentially after each pandemic wave. As an example, lottery sales have increased by nearly 18 percent after the first and second wave of pandemic (National Lotteries Board, 2021).

In the year 2016, the household's average monthly income in Sri Lanka was 16,377 rupees per month and per person spent 146.38 rupees for lotteries. That means monthly average lottery expenditure is 0.89% (almost 1%) from monthly household income per person (Household income and Expenditure Survey, 2016). According to the Sri Lankan context, two specific and important features of lotteries can be identified. First, low probability of winning a super prize (Jackpot). This means a specific lottery with four numbers from 1 to 64 (64 drawing balls) carries a one in 14 million probability of winning a super prize. That is an extremely low probability of (0.000007%) winning a super prize. Second, the average payout ratio is 45 percent, which is less than half of the income received (Jayathilaka & Mallika, 2012). Recently average payout ratio is 49 percent for passive lotteries and 53 percent for scratch lotteries, which is nearly half of the income generated. Further, different lotteries have a different number of drawing balls, and an average lottery with four numbers from 1 to 80 (80 drawing balls) carries one in 16 million chance to win a super prize. That is a 0.0000062 percent low probability of winning a super prize.

According to Williams (2016), the human brain has limited capacity to understand that the probability of winning a super prize is very low, which has made them continue to buy lotteries. While many factors could influence lottery purchasing, including aggressive marketing campaigns, what motivates Sri Lankans to buy a lottery has not been investigated thus far. Existing studies in Sri Lanka are limited only to looking at how demographic factors influence lottery purchasing (Jayathilake & Mallika, 2012). Even though it may sound obvious that lottery purchasing is influenced due to the expectations of financial gains, there may be other reasons which may influence people to buy lotteries. While studies indicate that people continue to buy lotteries and many are compulsive, the reasons behind lottery gambling were comprehensively investigated in this study.

Through this study, we conducted a comprehensive list of factors influencing lottery purchasing among Sri Lankan consumers, which covered: social, cultural, personal, and marketing mix-related factors such as product, price, place, and promotion. It addressed the questions; what are the factors influencing lottery purchasing among Sri Lankan consumers? While this study limits the scope to passive and instant lotteries, which are draw lotteries and instant/scratch lotteries, it excluded SMS lottery buyers. Further, this study is limited to only government-sponsored lotteries,

not private sector governing lotteries such as Mahapola Lotto, and only focuses on lottery gambling rather than other gambling methods. As the lottery market in North and Eastern provinces is still at an introductory level, this study considered North and Eastern provinces together, based on 23 districts. This study is significant as the government increasingly relies on gambling revenues to understand who gambles lottery and why?

### **Literature Review**

A lottery game is a form of gambling, often organized by the state or charity to make money, in which tickets with random numbers determine the winner of a prize (Perez, & Humphreys, 2013). Lotteries have some unique features and are different from other gambling products in which lottery players spend a small amount of money to win a large super prize (Jones, 1998). A country's lotteries are operated by governments with strict rules and regulations with the main goal of maximizing net revenue through lottery sales. Lottery gambling is the only risk and uncertain product that the government is sponsored, encourages, and market to participate people more than half of the world (Clotfelter & wok, 1991). There are many types of lotteries. Passive lotteries (where the players can match the number in their ticket and the drawing number), instant lotteries (scratch lotteries), and SMS lotteries are in Sri Lanka which traditional passive lotteries are most popular and, instant lotteries and SMS lotteries are still in the growth and introductory stage respectively.

Numerous reasons have been identified to influence lottery purchasing. It is emphasised that lottery purchasing is a fascinating psychological phenomenon that explains irrational behavior (Williams, 2016). It is a psychological behavior called 'near-miss' effect that describes what happens when a person feels almost won and wants to try again. Further, the human brain has not evolved to understand such low probabilities, and imagination call 'availability bias,' describes the overestimation of an event's likelihood based on how strong the person's memories of that event are. This means lottery players imagine that all tickets are interrelated. Further, if a person buys four scratch-off tickets and loses all four, this does not mean that due to winning the fifth. Another reason for people engaging in lottery gambling is superstitious thinking and gambler's fallacy (Pusaksrikit, Pongsakornrungsilp, Chinchanchokchai, and Crosby, 2018). According to Lutter et al. (2018), belief in good luck and imaginative qualities for lottery play are among the factors

influencing lottery consumptions.

In provoking the Sri Lankans' lottery consumption through superstition, lotteries are marketed with lucky numbers, colours, and Zodiac. While these may also be factors influencing purchasing, it has not yet been subject to research. Moreover, it is even observed that people tend to purchase lotteries relate to religious rituals (Pusaksrikit et al.,2018). While Pusaksrikit et al. explain numerous such rituals in Thailand, in the Sri Lankan context, we could observe the lottery buyers inclination to purchase when people go on a pilgrimage or involve in religious rituals such as temples. In line with these observations, some consumers are interested in certain combinations of numbers called 'lucky numbers' such as birthdays and uncommon numbers (Grote & Matheson,2011). Guryan and Kearney (2008) identified behavioral economics like after winning a super prize from a specific lottery cafe, consumers willing to purchase lotteries from that lottery cafe from 12% to 38% relative to other lottery cafes.

Frey (1984) identified that anomic and alienation of people leads to a lottery gambling habit. Further, lottery gambling can be considered as a shock absorber because gambling creates thrill and fun that helps to release pressure and stress. Social support activities such as collecting funds on behalf of charitable institutions in generally catholic counties have been associated for many years with lotteries (Faustino, Kaizeler & Margues 2009). Jackpot price also creates a major interest in purchasing lotteries. The prizes offered to a specific lottery ticket and the total sales of that lottery used to create the prizes (payout ratio) could affect consumer demand. Multiple prizes, prize levels, and product differentiation of lottery tickets may impact consumer preference and consumer demand. Addiction is also found as one of the significant reasons for buying lotteries in some contexts (Ariyabuddhiphongs & Chanchalernporn, 2007). These factors accentuate that lottery consumption can be influenced by both factors internal and external to the customers.

### **Lottery gambling behavior and extrinsic factors**

Lottery expenditure has been found to be influenced by the close network (Lutte, Tisch & Beckert, 2018). Specifically, social encouragement can influence lottery gambling such as family and friends leading lottery purchasers to syndicate (Guillen, Gravia & Santana,2012). This means sharing lottery tickets and winning experiences among the reference

group based on social relationships (Collins, 2004). A study conducted by Beckert and Lutter (2013) identified a significant and positive association between the lottery play with a close network such as friends, partners, and parents, and expenditures. Social class and gambling behaviour have also been subject to research as it encourages lottery gamblers to afford money on lotteries. It appears that the lottery gamblers who represent lower social status spend more money than lottery buyers of higher social status (Beckert & Lutter, 2012). Further, Ghent & Grant (2010) identified a correlation between the ethnicity of lottery gambling and lottery purchasing behavior. As an example, African Americans spend more than white people on lottery gambling. But Nichols, Stitt, and Giacopassi (2006) argued that there is no relationship between race and lottery gambling in Tennessee, whereas black people play online lotteries rather than white people.

Every person represents a family or reference group with religious attendance or community believes. Taking this into account, there is a high negative correlation between religion and lottery gambling behavior (Lam, 2006). Further, Muslims has restrictions to lottery gambling through religious believes in Sri Lanka. Brown et al. (2003); Clotfelter & Cook (1990) state that studies emphasize that Catholics are more positive and interested in lottery gambling than Protestants. Further, Faustino, Kaizeler & Marques (2009) argue that Catholics are more tolerant of lottery gambling, and there is a positive correlation between lottery gambling and religious involvement. This could be due to their involvement in lottery gambling for raising funds through charitable organisations. However, several studies conducted by Rubenstein & Scafidi (2002); Scott and Garen (1994) found that religion has not correlated with lottery purchasing behavior. Further, Ghent & Grant (2007) confirmed that religion is unrelated to lottery purchasing behaviour through studies conducted in South Carolina as evident there exists contradictory evidence on the relationship between lottery consumption and the influence of social factors.

### **Lottery gambling behavior and demographic factors**

Many studies have been conducted to investigate the relationship between demographic factors and lottery purchasing. Jayathilaka & Mallika (2012), in their study on demand for lottery products in Sri Lanka, identified that there is a positive correlation between lottery

purchasing behavior and demographic factors such as age. Further, Aasved (2003), that there is a tendency among old people to purchase lotteries than the younger generation. But Clotfelter and Cook (1990) identified that the majority of the lottery purchasers are aged between 25 to 64 and are more interested in purchasing lotteries than those aged 65 and above. Confirming the findings of this study Jackson (1994), (but seen Price & Novak, 1999) confirmed that lottery gamblers age 65 or above was inversely correlated to lottery purchasing behavior. Further adding to the findings of Jackson, (1994), Price and Novak (1999), found that middle-age is negatively related to sales of Lotto and draw lotteries and positively related to the scratch lotteries. While Abbott and Cramer (1993) found inverted “U shape” which indicates a correlation between age and lottery buying behavior. A survey conducted by Welte et al. (2002) found that there is no significant inverted U shape relationship between age and lottery sales, pointing to another contradictor evidence on lottery consumption.

Many studies revealed that there is a correlation between gender and lottery gambling behavior and points that males participate in lottery gambling rather than females (Jayathilaka & Mallika, 2012; Welte et al., 2002). Similarly, scholars have also identified income and lottery gambling has a negative relationship (Perez & Humphreys, 2011; Abbott & Cramer, 1993; Jayathilaka & Mallika, 2012; Denaux et al., 2011). However, according to Price & Novak (1999, 2000), lottery participation in instant games has shown a negative relationship with income, whereas and passive lottery behavior has no significant relationship with income. Clotfelter and Cook (1989) identify that lower incomer has more tendency to play lottery games rather than high-income group of people. According to Ghent & Grant (2007), high-income group of people participates lottery for entertainment, and lower incomers play lotteries to enhance the economic situation. As same as previous idea Farrell and Walker (1999) further identified that nonlinear relationship between lottery purchasing and income with income elasticity of demand from 0.01 to 0.45. Despite these findings, it is important to note that lottery participation does not relatively depend on income (Lottery participation is flat across the income) (Clotfelter & Cook, 1987). Further elaborates to this point can be found in the study conducted by Scott and Garen (1994), that there is no correlation between the income and lottery purchasing behavior, and the probability of lottery purchasing increases with the increasing income up to a certain extent but

goes down with income exceeding a certain amount.

Lottery gambling behavior is negatively correlated with education (Herring & Bledsoe, 1994; Ghent & Grant, 2006; Zhou & Zhang, 2017). It is important to mention Clotfelter & Cook (1990); Albers and Hubl (1997), who discovered the same results that lottery participation fell with formal education. But few studies conducted by Kuizeler, Fanstino & Marques (2009), identified that lottery gambling activity moderately and positively correlated with education. Lower socio economic status, such as lower education, lower employment status (Brown et al., 1992; Lang and Omori, 2009), and unemployed people (Scott & Garen, 1994), positively influence the lottery gambling behavior. The result was consistent with the findings and identified that employees who engage in wealth maximizing jobs occasionally spend for lotteries. (Nwigue et al., 2012) rather than skilled and unskilled employees (Clotfelter & Cook, 1990).

#### **Lottery gambling behavior and marketing mix**

Payout ratio, or in other words, the total amount of money returned to gamblers as prizes also an influencing factor for lottery purchasing among lottery gamblers (Miller & Morey, 2003). Further, Jayathilaka & Mallika (2012) state that the average payout ratio is 45% in Sri Lanka, and there is a negative relationship between the payout ratio and lottery sales. While Grote & Matheson (2011) found that higher jackpots and effective price structures generate higher lottery purchases, it is also found that jackpot size and lottery gambling behavior have a non-linear and positive relationship (Cook & Clotfelter, 1993). Value of the jackpot, winning numbers of previous draws, and effective price structures are important factors that are highly considered by lottery purchases in Sri Lanka (Jayathilaka & Mallika, 2012). But Haruvy et al. (2001) argued through studies that consumer buying behavior on lottery gambling depends on high cash prizes and medium and lower level cash prizes. Similarly, Rogers & Webley (2001) which is in line with the findings of Sharpira & Venezie (1992). So, lottery buyers make rational and irrational decisions based on unknown price structures and probabilities to win a super prize (Matheson & Grote, 2004). Further, Thomas & Russell (2004) identified through studies on 135 online lotteries in the USA that the jackpot or size of the super price influenced lottery purchasing behavior. While many studies have extensively discussed the influence of price on lottery consumption, the effect of aggressive promotion by the

government, place of distribution, and the products along with the brand also may determine lottery consumptions.

Based on this evidence following hypotheses were derived:

- H<sub>1</sub> Cultural factors have an impact on lottery purchasing behaviour
- H<sub>2</sub> Social factors have an impact on lottery purchasing behaviour
- H<sub>3</sub> Personal factors have an impact on lottery purchasing behaviour
- H<sub>3</sub>: Product mix has an impact on lottery purchasing behaviour
- H<sub>5</sub> Price mix has an impact on lottery purchasing behaviour
- H<sub>3b</sub> Place mix has an impact on lottery purchasing behaviour
- H<sub>3c</sub> Promotion mix has an impact on lottery purchasing behaviour
- H<sub>4a</sub>-H<sub>4f</sub> Demographic factors (weekly expenditure, gender, marital status, age, education, job and religion) moderate the relationship between factors influencing lottery consumptions and lottery buying behaviour

### Conceptual Model

The literature revealed numerous factors leading to lottery gambling behaviour. However, much of the evidence are inconsistent and lack common conscientiousness. While this study identified a number of factors that influence lottery gambling behavior, accordingly, conceptualisation in Figure 1 is derived.

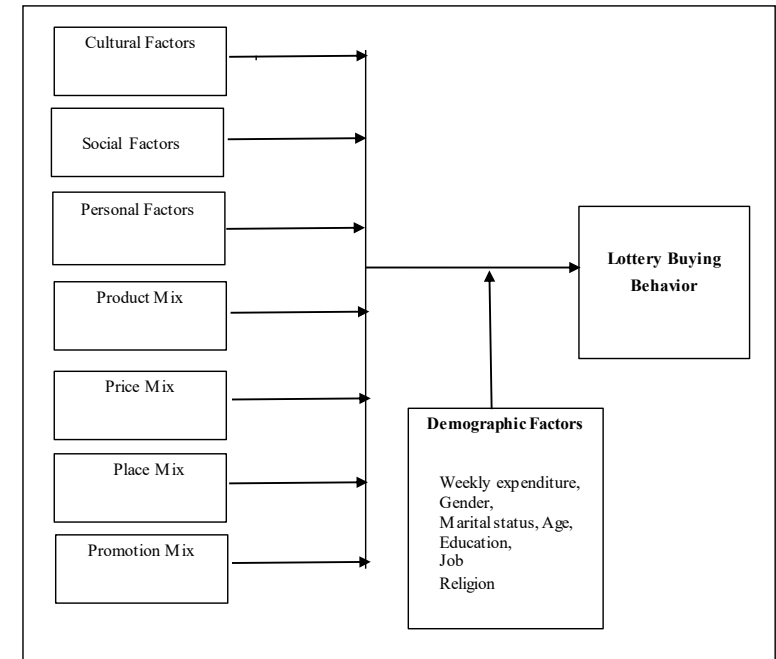


Figure 1- Conceptual Model

Source: Literature review

### Methods

The methodology of this study was guided by the positivistic approach. The intention of this study is to generalise the findings to a larger population by testing the causal relationships suggested in the conceptual model. Adapting a deductive approach, data for this study were collected from lottery buyers using a questionnaire distributed face to face. The survey was conducted in January 2019 in 23 districts in Sri Lanka. Due to the difficulty in estimating the number of lottery buyers in a district, a purposive sampling technique was used to select the sample, and a sample of 400 lottery buyers was selected for the study from all districts, and all responses were used for analysis. The Statistical Package for Social Science (SPSS) version 22 was used for data analysis. While descriptive statistics was used to obtain an overall understanding of the data, and regression analysis was used to test the hypotheses. Cronbach's alpha was used to assess the internal consistency of the second part of the questionnaire. As Cronbach's alpha test assumes the questions only

measure one latent variable or dimension, it was applied to all sub-sections measuring the different latent variables. The internal consistency of each sub-section was tested. The questionnaire was carefully designed to collect relevant demographic information and other factors such as cultural, social, and personal, and marketing mix-related factors- product, price, place, and promotion. The amount of expenditure for lotteries for a week was also collected to determine whether the buying behavior is compulsive. There were 42 items measuring the independent and the dependent variables.

## Results and Discussion

### Internal consistency of the questionnaire

As the first step of the analysis, Cronbach's alpha test was for all latent variables to determine the internal consistency of each variable. No items were deleted to improve internal consistency as all the latent variables reflected a good/ excellent internal consistency except social factors. However, since the internal consistency was close to the threshold and the scale was newly developed for the purpose of the research, the variable was retained for further analysis. The results of the above tests are summarized in Table 1.

**Table 1 Cronbach's alpha values for sub-sections**

Sub Section	Number of Items	Cronbach's alpha
Cultural factors	9	0.865
Social factors	3	0.656
Personal factors	12	0.917
Product	5	0.925
Price	5	0.838
Place	3	0.898
Promotion	3	0.902
Lottery purchase intention	2	0.760

## Descriptive statistics

### Overview of the sample

The majority of the respondents of this study were males (322, 80.5%). The majority were in the age of 45 to 55 years 45 to 55 (176, 44%), whereas the second largest belong to the age group 35 years to 45 years. Further, most of the respondents (51.3%, 205) of participants have not obtained any

formal education, and the second-largest respondents had O/L qualification (103, 25.8%). This revealed that a larger majority of the respondents did not have higher educational qualifications. When considering the occupation of the lottery buyers, the majority were retired from their jobs (110, 27.5), whereas the second largest was those attached to the private sector (98, 24.5). With reference to the participant's preference for lottery-type, most participants are interested in passive lotteries, including Mahajana Sampatha, Govisetha Shanida Wasanawa, and Mega power ect... rather than instant lotteries. Interestingly, Buddhists represented 80% (320) of the respondents who purchase lotteries. Other than demographic factors, lottery consumption was identified through the average spending on purchasing lotteries per month. The results revealed that the majority spend a substantial amount on lottery consumption. While the majority's monthly expenditure is 43.5percent (174) second-largest was those who spent between 500 rupees and thousand rupees which is 37% (148). This indicates that the majority of the respondents are high spenders on lottery purchasing.

### Overview of the questionnaire

As explained in the model, there were seven independent variables: culture, social, personal, product, price, place, and promotion. The dependent variable of the study is purchase behaviour. The descriptive statistics related to these variables are given in Table 2. The statistics reveal that average mean values are high as they are above 3.5.

**Table 2 Average descriptive statistics**

Variable	Mean/SD
Cultural	3.79 (.787)
Social	4.06 (.799)
Personal	3.93 (.763)
Product	4.23 (.979)
Price	4.19 (.754)
Place	4.18 (.784)
Promotion	4.11(.916)
Purchase behaviour	3.93 (.971)

### Multiple Regression Analysis

Step-wise multiple regression analysis was conducted to test hypotheses. First, the correlation matrix revealed that all the independent variables are highly correlated with the dependent variable, as shown in Table 3.

**Table 3 Correlation coefficients**

Variable	Number of items	Correlation coefficients
Lottery Purchase behaviour	2	1
Promotion	3	.786
Product	5	.832
Price	5	.872
Place	3	.815
Culture	9	.900
Social	3	.822
Personal	12	.930

The model summary indicated that an R of .933 and R<sup>2</sup> of .870. This reveals that 87% of the variation in the dependent variable, which is lottery consumption behaviour is explained by the independent variables. Regression ANOVA [F (5, 394)= 528.295,  $p < 0.05$ ] indicated a statistically significant model. Step-wise regression through SPSS indicated that the most significant contributors to predict the lottery consumption behaviour as personal, cultural, product, price, and promotion, whereas two variables, social and place, have been excluded from the analysis due to their low contribution to explaining the variation in lottery purchase behaviour. The validity of the regression model was identified by testing three assumptions. The first assumption is that residuals should be free from autocorrelation. Autocorrelation was tested using Durbin-Watson (DW) test statistics. If DW test statistics are between 1.5 to 2.5, it is considered a serial correlation problem. The normality of residuals was determined graphically through Q-Q plots by determining that the residuals are closer to the linear lines.

**Table 4 Regression results**

Hypothesis	Unstandardised B	Std. Error	Beta	Significance
Personal	.297	.070	.234	.000
Cultural	.392	.062	.318	.000
Product	.125	.039	.126	.002
Price	.282	.054	.219	.000
Promotion	.104	.037	.098	.005

To further determine the moderation effect of demographic factors, a hierarchical multiple regression analysis was conducted. This was conducted after generating a composite variable for all the independent variables. The model with indirect effect reported an R<sup>2</sup> of 0.898. The significance of the model with indirect effect was ensured by ANOVA [F (13, 386)= 262.366,  $p < 0.001$ ]. The results are shown in Table 4:

**Table 5 Moderation effects**

Moderation effect of:	Unstandardised B	Std. Error	Beta	Significance	Results
Compulsiveness	.495	.068	.474	.000*	Supported
Religion	-.006	.043	-.003	.889	Not Supported
Job Category	-.022	.017	-.028	.194	Not Supported
Education	.122	.027	.149	.000*	Supported
Age	-.59	.016	-.073	.000*	Supported
Civil Status	-.080	.129	-.034	.534	Not Supported
Gender	.073	.126	.030	.562	Not Supported

\* $p < 0.001$

The statistical results revealed that the relationship between personal, cultural, social, product, and price and the lottery consumption behaviour is moderated by average monthly expenditure, education level, and the respondents' age. However, there was no moderation effect of religion, job category, civil status, and gender, as seen in Table 5.

To obtain a closer understanding, we also conducted the Chi-square test. It determined the relationship between the level of expenditure which was captured through 4 expenditure brackets) and the demographic factors. Since all were categorical variables, the Pearson Chi-Square test was performed to see the extent to which monthly expenditure depends



on any demographic factor. Pearsons Chi-Square was significant  $p < .05$  for all demographic factors: civil status, age, job category, religion and the educational level indicating that the average expenditure is dependent on the demographic factors. A comprehensive analysis indicated that unmarried spend very less on lottery purchasing compared to married. Unmarried also spend a very minimum amount on lotteries. Among them, while 38.2% spend less than 100 per month and an equal percentage spend between 100-500 there were no unmarried belong to the highest spenders who are more than 1000 rupees. Interestingly, most of the married were in the high expenditure bracket, which was 55.9% and the next highest bracket 500-1000 whereas there was no respondent who belonged to the least expenditure bracket.

**Table 6 Cross Tabulation - Civil status and monthly expenditure**

Average expenditure	Married (N=311)	Unmarried (N=89)
< 100	-	38.2
100-500	3.2	38.2
500-1000	40.8	23.6
>1000	55.9	-
	100	100

Next, the dependency of the lottery expenditure on age was closely looked at. In this sample, even though the oldest aged were the least represented, they belonged to the least expenditure bracket, which is less than 100 rupees. Among them, the highest spenders were those between 45-55, which accounted for 60.2%. The remainder of them belongs to the second-highest bracket, which is between 500-1000. However, the majority who bought 500-1000 worth of lotteries were between 35-45. The majority of the youngest that are between 18-25 belong to the expenditure bracket of 100-500, which was 51.8%. However, there were also almost equal proportions who spent more than 1000 and less than 100. There were no respondents who represented the age group 25-35 in this sample.

**Table 7 Cross Tabulation - Age and monthly expenditure**

	18-25 (N=85)	35-45 (N=125)	45-55(N=176)	> 55(N=14)
< 100	23.5	-	-	100
100-500	51.8	-	-	-
500-1000	-	62.4	39.8	-
>1000	24.7	37.6	60.2	-
	100	100	100	100

The dependency of expenditure on educational qualifications also revealed some interesting findings. It was evident that the highest spenders belong to the least educated group who have not obtained a proper school education. They belong in the first and the second highest brackets, 64.9% and 35.6%, respectively. The highest educated, those with postgraduate qualifications, belong to the least expenditure bracket, which is <100 rupees. While all of them belong to this expenditure category, there was no one with the highest education background in the other three categories. The graduate category also reflected less expenditure on lotteries as they belong to only the first and second expenditure brackets. However, the majority spend between 100-500. The results show a clear difference between the spending of educated and the non-educated.

**Table 8 Cross Tabulation - Educational qualification and expenditure**

	No school(N=205)	Up to O/L (N=103)	Passed A/L (N=43)	Graduate (N=25)	Postgraduate qualification (N=24)
< 100	-	4.9	-	20.0	100
100-500	-	13.6	23.3	80.0	-
500-1000	35.6	40.8	76.7	-	-
>1000	64.9	40.8	-	-	-
	100	100	100	100	100

It was also further investigated whether the expenditure is dependent on the type of the job. While there were 5 job categories that were included in the study, it was evident that those who were not involved in a job were the highest spenders on lotteries were the ones retired from their jobs which were 79.1%. The second highest spenders represented both entrepreneurs and those who do not have a formal job. Government and

private sector employees also reflected high spending by belonging to expenditure bracket 500-1000 which as 74.3% and 65.3% respectively. Results in detail are shown in Table 9.

**Table 9 Cross Tabulation - Job type and expenditure**

	Government sector (N=35)	Private sector (N=98)	Own Business (N=78)	Retired (N=110)	No formal income (N=79)
< 100	25.7	15.3	-	-	12.7
100-500	-	19.4	17.9	-	13.9
500-1000	74.3	65.3	26.9	20.9	17.7
>1000	-	-	55.1	79.1	55.7
	100	100	100	100	100

Finally, the dependency of expenditure on religion was determined. While the larger majority of the sample comprised Buddhists, they were represented in all expenditure brackets. Even though only a few, the second largest was Catholics, and there were no Muslim participants but were a few in other religions. Buddhists were the highest spenders on lotteries as the majority belong to the first and the second highest segments, which are 46.9 and 39.7%. Details are in Table 10.

**Table 10 Cross tabulation - religion and expenditure**

	Buddhists (N=320)	Catholics (N=75)	Other (N=5)
< 100	2.8	26.7	8.5
100-500	10.6	13.3	11.5
500-1000	39.7	20.0	37.0
>1000	46.9	32.0	43.5
Total	100	100	100

## Discussion

This study was undertaken with the motivation to determine the factors influencing the lottery consumption behaviour of the Sri Lankans by covering 23 districts. This study was considered significant as lottery purchasing among Sri Lankans increased and contributed immensely to the government revenue generation. Even though there are studies

conducted on lottery consumption and its determinants, such findings are unique to the western context and are based on numerous other types of lotteries, rather exclusively on draw lotteries and instant/scratch lotteries. While instant and scratch lotteries 99.9 percent of the total revenue, influential factors for purchasing these lotteries have not been discovered in previous studies compared to other lottery types. This study investigated the effect of personal and external factors such as social and cultural and the marketing mix related factors such as product price, place, and promotion as key determinants of lottery consumption.

As per findings, the more significant majority in the sample spend a generous amount on lottery purchasing between 500-1000 rupees and even more than 1000 rupees, revealing the compulsive nature of lottery consumption. Interestingly this behaviour was found to be prevalent in Buddhists compared to Catholics and other religions. The majority of the lottery buyers were less educated, and the majority were also retired from their jobs. Our findings are also in line with the literature that extensively discusses the people's social class and has found that lottery playing is most popular among the less affluent and married men and women with children who are engaged in jobs but who are on a less income (Mintel,1998).

Personal factors were found to have a significant influence on lottery consumption behaviour. Among the personal factors, the most significant was determined by observing the mean values. Accordingly, the key reasons were 'feeling lucky' that they would have a win. Many also have indicated they play lotteries for fun and enjoyment. However, many have agreed that poor household income was the most significant contributor to lottery playing. Altruistic reasons such as buying lotteries as a help to the seller, sympathy for the agent who sells tickets, and contributing to the development of the country through purchasing were also among the other key factors for purchasing lotteries.

Cultural values were also significant in lottery consumption, which contradicts some existing evidence (such as Humphreys, Lee, & Soebbing, 2010). This may be due to the unique value system in Sri Lankans, which was captured through our study. For example, superstition plays a key role in purchasing lotteries. Many are influenced to purchase lotteries with their lucky number, lucky letter, lucky colour and zodiac. The respondents are

also influenced to make their children pick the lotteries. Many have also indicated that they depend on the horoscope readings, which says that they might win a lottery and influence their purchases. Many are inclined to buy from religious places. Some also have mentioned winning agent of the previous win brings luck for me. Due to the significance of superstition, Pusaksrikit et al (2018) have explored this factor in Thai lottery gamblers, which accentuates this study's unique findings.

Despite the role of personal and cultural factors in lottery consumption behaviour we found that social factors are not significant in influencing lottery purchasing. This contradicts the findings of existing research Guillen, Gravia & Santana, 2012; Collins, 2004; Beckert, and Lutter (2013) Lutte and Tisch and Beckert (2018). This may be due to these studies being in the context of more active lotteries such as Lotto, where the user has to engage more with the winning, whereas this study focused on more passive lotteries and instant/scratch lotteries.

The marketing mix is often considered as the key factor influencing consumer behavior. Except for place mix, which investigated how the availability influences people to buy, other factors, namely product, price, and promotion, are significant factors determining lottery consumption. As highlighted in marketing literature, the brand is also a key factor influencing selections. Similarly, the lottery issuing institute (NLB/DLB) was identified to influence lottery consumption in this study. Interestingly attractiveness of the artwork also has encouraged many to purchase lotteries and the colorfulness. The size of the ticket has an impact on me when selecting the lottery tickets. Thus the findings of this study indicate the influence of product mix related factors in marketing the products to the lottery players. To date, the studies have seemed to underestimate the influence of this factor. When lottaries are available on display, the look also may particularly influence selecting a lottery instead of another. This is particularly important in our context, where there are numerous competing brands-for example, Mahajana Sampatha, Shanida Wasana and Govisetha, etc.

Price is also among the significant influencer to purchase lotteries. While the price of a lottery remains quite affordable here, the price captured the lottery winning price. The main influencer related to price was the large price value. Thereafter, the key influencers were wanting to be a millionaire,

expecting financial rewards, and wanting more money. While Humphreys, Lee, and Soebbing (2010) have also found that self-deprivation is a key reason to purchase lotteries, in this study, it was found that financial difficulties and intention to earn more money also has an influence. Thus many tend to buy lotteries when the lottery price is significant. Intention to win a vehicle/ house was the main factor influencing related price.

Like any other product or service, lottery consumption is also largely influenced by promotions. As it is apparent, while the government of Sri Lanka aggressively promotes lotteries daily, particularly emphasizing the winning price, this was found to be the most influential promotional method to induce lottery purchasing. Many respondents also agreed that attractive advertisements influenced them. Specially the nature of advertising was captured through the item related to 'feel lottery advertisements represent us' in the questionnaire.

While many studies have looked at demographics as a factor influencing the lottery consumption behaviour in this study, demographics were introduced as a moderator. We were inclined to determine whether the results may change based on the demographic factors. According to moderated multiple regression, the key demographic factors which influence differences in the relationship between cultural, personal, product, price, and promotion were monthly expenditure, education, and age. While the studies to date have considered demographics as a direct influencer, our intention was to identify how results vary based on these factors.

## **Conclusion**

Research studies on lottery purchasing behavior can be considered important due to the governments' objectives, such as generating revenues, economic development, and creating employment opportunities. Passive lotteries are famous compared to instant lotteries among the lottery buyers in Sri Lanka. When considering it an economic view, lottery demand is irrational because of the low payout ratio and low probability of winning. However, statistics provide evidence that people tend to buy lotteries. Based on the sample of 400 lottery buyers, this research study identified that main factors influencing lottery purchasing relate to cultural and personal factors, and product, price, and promotion related factors play an important role in influencing lottery purchasing. However, it was found that these findings vary across several factors, such as compulsiveness,

age, and educational level. Interestingly this research revealed that occupation, marital status, and gender have no moderating influence on the relationship between lottery consumption and its aforementioned influencing factors. Nevertheless, the cross tabulation analysis revealed many important findings, such as the dependency of the lottery expenditure on gender, age, marital status, occupation, and religion.

### Implications

The findings of this study are useful for numerous stakeholders, particularly the government and the body of knowledge where factors affecting consumption of lotteries are not covered in depth, particularly on draw lotteries and instant/scratch lotteries. The findings will assist the authorities to determine the factors leading to consumer behaviour in this lottery segment and determine how it could be marketed to the target audience for the continuity of the lottery income. Nevertheless, the study was limited to two types of lotteries which belong to the passive category. Thus, the study cannot be generalised to other lotteries. Moreover, future studies can engage a bigger sample covering other macro factors such as economic, political, and other environmental factors to provide more rich insights into lottery consumption behaviour. A study addressing lottery consumption in economic distress in Sri Lanka, such as the pandemic situation, will also enrich the understanding of the lottery consumption behaviour for the authorities.

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## A Need of Revival for Computer and Digital Literacy: Challenges of Cybercrime and Cyber Security Resilience in Sri Lanka

Kamalrathne T<sup>1</sup> and Chandrasena S<sup>2</sup>

### Abstract

Cybercrime has become a potential threat in the global context irrespective of regions and countries, sparking the need for a robust global and local policy response. The unprecedented increase of cyber-interactions due to technological advancements in cyberspace, social media, cyber-based marketing and financial instruments, and internet banking have doubled the risk of being targeted and victimized. Even though the legislation and policy framework for mitigating cybercrime in Sri Lanka has been extensively reformed, the country's index for cyber security risk is yet considerably high compared to the other nations in the region. Addressing this gap, this paper investigates the trends and the patterns of cybercrime in Sri Lanka based on the reported evidence. Further, the paper discusses the impacts of education reforms in the country to understand the loopholes of cyber education programs.

**Keywords:** *Cybercrime, cyberspace, impacts*

### Introduction

Cybercrime has become an unprecedented threat to the 'cyber-interactions' of individuals, groups, and institutions irrespective of the national boundaries in the present global context. Furthermore, it enables a sphere of illegal human activism while acquainting with important socio-cultural and economic challenges, particularly in developing countries. Cybercrime can be comprehended simply and generally as "unlawful acts wherein the computer is either a tool or a target or both" (Seth, 2015). (Gordon & Ford, 2006) presented a generic typology, which includes within cybercrime any crime that is facilitated or committed using a computer, network, or hardware. In a broader perspective, however, "cyber-crime refers to any illegal activity that occurs in the virtual world of cyberspace" (Henson, Reys, & Fisher, 2011).

Almost all the recent survey reports that have been published by the Criminal Investigation Department (CID) and Sri Lanka Computer Emergency Readiness Team (SLCERT) in Sri Lanka on cybercrime highlighted the alarming increase of cybercrime rate in Sri Lanka during the previous decade. For instance, cybercrime complaints have increased from 80 to 3685 from the period of 2010 to 2017, as revealed by the survey on the Information and Cyber Security Strategy of Sri Lanka (SLCERT, 2018).

The legislative and regulatory framework for mitigating cybercrime in Sri Lanka has been extensively reformed in line with international and national law enforcement due to an increase in cybercrime complaints during the previous decade (SLCERT, 2015). The Computer Crime Act No 24 of 2007 identified the possible regulations for combating pornography, phishing, sexual harassment, cyber vandalism, etc. that are commonly prevalent in Sri Lanka. Goonathilaka (2011) speculates that the parameters and legislation in the country are required extensive re-evaluation to address the new cybersecurity breaches in parallel to the changing scenarios of the cybercrime patterns and intensity in the global context (Goonathilaka, 2011). However, government has recently identified several thematic areas to comprehend a framework for IT infrastructure and regulations including connectivity, security, legislations and digital content under digitalization program and the Information and Communication Technology Agency (ICTA) by allocating 15 billion LKR from the national budget (Induruwa, Kirindigoda, & Ragel, 2020). This paper intends to explore the trends

<sup>1</sup>University of Peradeniya, Sri Lanka and Researcher at University of Huddersfield, UK

<sup>2</sup>Information Technology, University of Visual and performing arts, schandrasena@hotmail.com

and patterns of the prevailing cybercrime incidents reported in Sri Lanka and identify interconnectedness between alarming increase of cybercrime incidents and computer and digital literacy in the country.

### What are the underneath trends and patterns?

Many countries are currently experiencing different aspects of cybercrime, concerning their economic, social, and technological advancement. In a broader frame, cybertheft, cyber vandalism, and cyber terrorism are the most pressing forms of cybercrime at the global level (Siegel, 2009). Nature of the cyber-activism, however, varies from country to country and prevailing forms of cybercrimes of the country may have significant differences. When the computer and digital literacy is concerned, many countries anticipate increasing the level of education and develop more comprehensive advocacy for cyber breaches. In the Sri Lankan context, computer and digital literacy rates and average duration of people spending online have been increasing sharply during the previous two decades (DCS, 2019), whereas non-cybercrimes have been reported a sharp decline. Nevertheless, many individuals are grieved by the prevalent cybercrimes ranging from personal attacks such as abuse, bullying, hacking, identity theft, and revenge porn, to more general forms like child pornography, e-banking fraud, malware, and phishing.

The Cyber Crime Unit (CCU) of the Criminal Investigation Department (CID) of Sri Lanka police with technical support of the Sri Lanka Computer Emergency Readiness Team (SLCERT), is the government arm with responsibility for investigating cybercrime complaints. The Sri Lanka Computer Emergency Readiness Team | Coordination Centre (Sri Lanka CERT|CC) is the national centre for cyber security in Sri Lanka which is mandated with the task of protecting Sri Lanka's information, information systems infrastructure and national critical infrastructure.

CCU received 1300 social media related complaints and SLCERT also received 3685 complaints on social media in 2017 alone. According to the Sri Lanka Police, among the victims, the majority are between the ages of 18 to 22. Also, 432 cybercrime complaints were reported to the SLCERT from 2015 to 2017, other than social media complaints. Most of these reported complaints were about phishing, abuse/privacy, scams, and financial frauds. A lesser number of cases, however, was reported on Intellectual Property Violations, Ransomware, and DDoS attacks (DoP,

2017; SLCERT, 2018). Table 01 illustrates the number of reported crimes to the CID from 2010 to 2014, which can be used to understand the nature and the trend of cybercrime happening in Sri Lanka.

**Table 1 The Reported Cyber/Computer Crimes to CID Sri Lanka: 2010-2014**

Year	Computer crime	Obscene publication	Hacking and Cheating	Phonography	Cyber defamation	Payment device fraud
2010		04	22	1	50	21
2011	07	12	24		108	26
2012	12	12	20		55	27
2013	08	10	13		44	24
2014	12	02	22		48	26

Source: (DoP, 2017)

In addition to the CID data, requests have been made to the SLCERT for technical assistance and further investigations also could possibly be traced to confirm the prevailing patterns of the cybercrime. Table 02 shows the number and types of incidents reported in the year 2019.

**Table 2 Types of cybercrime incidents reported to SLCERT - 2019**

Type of the Incident	No of Incidents
File Recovery	01
DDOS	02
Ransomware	11
Abuse/Hate/Privacy violation	307
Malicious Software issues	03
Phone Hacking	01
Scams	05
Phishing	05
Website Compromise	175
Financial/Email frauds	28
Intellectual property violation	01
Server Compromised	02
Social media	2662
Other	363
<b>Total</b>	<b>3566</b>

Source: (SLCERT, 2019)



An alarming increase in cybercrime incidents is observable when the annual reports of SLCERT are compared from 2010 to 2019. According to the data, cyber-security related incidents reported to the SLCERT have increased in the year 2019 compared to the previous year. In 2019, a total of 3566 incidents were reported to Sri Lanka CERT while it was 2598 during the year 2018 (see Figure 01). The increasing nature is largely due to a significant number of cases reported on the website compromise and privacy-related issues.

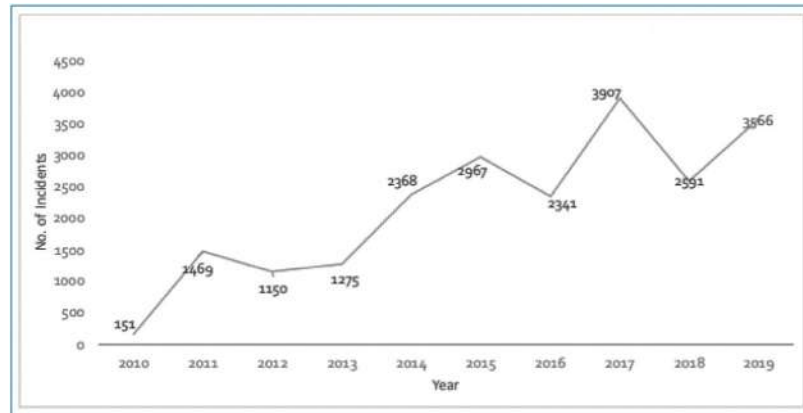


Figure 01: Growth of the number of incidents reported to the SLCERT: 2010-2019  
Source: (SLCERT, 2019)

Figure 01 indicates the intensity and the frequency of incidents reported to the SLCERT during the decade, which shows a gradual increase from 2010 to 2013 and a sharp increase from 2013 to 2019. If the data reported to the SLCERT reflect or at least convey the reality of the unreported incidents fairly, a dramatic increase in cybercrime has happened from the year 2013. This may be due to growing inductions of digital and computer education and the advancement of the technology in terms of communication and virtual interactions. For instance, in 2013, Sri Lanka was able to upgrade the telecom infrastructure by launching 4G/4G-LTE mobile network which is a shift from 3G network started in 2006 (Induruwa et al., 2020).

### Do computer and digital literacy in Sri Lanka reflect the adequacy of knowledge?

The controversial debate that we anticipate here is whether the computer and digital literacy in Sri Lanka reflect the adequacy of the updated knowledge in the digital and computer related literacy and the ground

reality of the cyber issues that are prevailing in the country. In another sense, whether the level of computer and digital literacy in Sri Lanka are strong and adequate to address the dimming cyber-related interactions and mitigating cybercrime incidents that are happening in a wider range.

Computer literacy rate in Sri Lanka is 30.1% overall and it seems that more than one out of four persons is computer literate. Simultaneously, digital literacy rate also stands at 44.3% overall which shows more than two out of five persons is digital literate. Literally, a person (aged 5-69) is considered as a computer literate person if he/she could use a computer on his/her own. For example, even if a 5-year-old child can play a computer game he/she shall be considered as a computer literate person. Similarly, a person (aged 5-69) is considered as a digital literate person if he/she could use computer, lap top, tablet or smartphone on his/her own (DCS, 2019). In addition, computer and internet penetration in Sri Lanka also have sharply increased during the previous decade according to Figure 02.

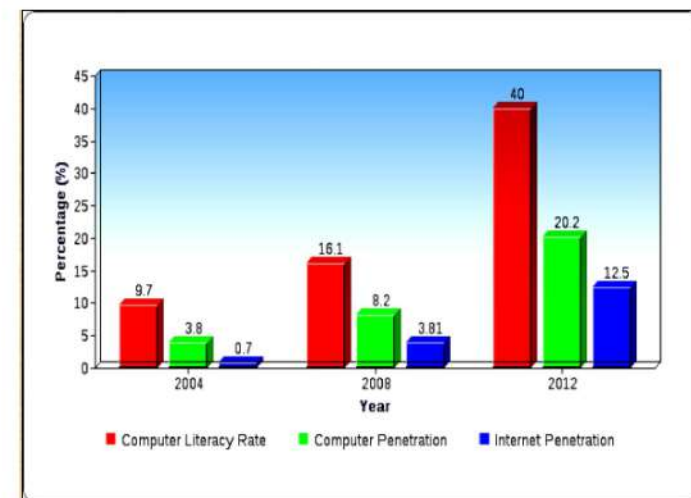


Figure 02- Statistical Analysis of Cyber Technologies Penetration in Sri Lanka in 2012  
Source: (DoP, 2017)

The mismatch between the use of electronic devices and the required technological knowledge on the applications and the internet security also could be a possible factor for rising of cybercrime in Sri Lanka. If the users are not satisfactorily educated about the internet security applications and the

breaches, many users tend to be victims of organized hacking, phishing and financial frauds. A lesser number of users in Sri Lanka only have a substantial knowledge on electronic payments via secured virtual financial platforms. According to the CBSL (2019) 26.9 million internet banking transactions have been reported in 2018 and the total value of the transactions is 2940 billion LKR. Further, in the same year, 8.16 million mobile phone banking transactions had been reported which value is estimated to be 142 billion LKR (Induruwa et al.,2020). Therefore, impotent users are highly vulnerable in terms of being a target of a fake or organized group of cyber hackers. This trend has been intensified with the increase of using smart phones especially amongst adolescents and youth age cohorts. The following table shows the patterns of electronic devices usage by age group and sector of residence.

**Table 03- Percentage distribution of device use to connect to internet/ email household population (aged 5 – 69 years) by Sex, Sector and Age group – 2019 (during 1st six months)**

Gender, Sector, Age group	Desktop/Laptop	Smartphone	Tablet Computer	Mobile Phone
<b>Sri Lanka By Sex</b>	25.0	70.9	2.2	1.9
Male	13.5	38.5	1.1	1.0
Female	11.5	32.4	1.0	0.9
<b>By Sector</b>				
Urban	8.2	19.5	0.5	0.3
Rural	16.7	50.2	1.6	1.6
Estate	0.1	1.2	0.0	0.0
<b>By Age group</b>				
5-9	0.4	1.5	0.1	0.0
10-14	1.4	3.8	0.2	0.0
15-19	3.5	10.2	0.2	0.3
20-24	3.9	12.0	0.3	0.3
25-29	3.6	10.4	0.4	0.3
30-34	2.8	8.7	0.4	0.2
35-39	2.6	7.8	0.2	0.2
40-49	3.7	10.0	0.3	0.2
50-59	2.2	5.0	0.1	0.2
60-69	0.8	1.7	0.1	0.1

Source: (DCS, 2019)

According to the data in Table 03, use of smart phones has been reported the highest percentage, more than 70 percent, when compared with other devices. In 2020, estimated use of mobile phones in Sri Lanka is approximately 13.5 million and out of which half of phone users own smartphones, whereas number of active SIM cards are estimated to be 17.9 million (Induruwa et al., 2020). On the other hand, the young cohort,

from 15 years to 29 years, are the heavy smart phone users according to the percentages given in the Table 03. The controversy here is if the youngsters have not acquired a substantial knowledge on the protective use of applications and the internet security protocols, and use of software etc. a set of cascading risks are to generate in terms of cyber related crimes.

According to the survey results of Department of Census and Statistics in 2019 an increase of computer literacy 1.8 percentage points from 2017 to 2019. Urban sector shows the highest computer literacy rate (41.5%) among residential sectors in Sri Lanka whereas computer literacy rate for Rural and Estate sectors are 28.6 percent and 13.7 percent respectively. Further, when the distribution of the computer literacy among the provinces is concerned, the highest level of computer literacy is reported from the Western province (43.4%) while the lowest computer literacy is reported from the Eastern province (16.0%). This distribution clearly shows that there is a considerable inequality of learning resources and facilities among the residential sectors and the provinces in Sri Lanka (DCS, 2019).

There are two controversial factors in the analytical context of the given definitions on the computer and digital literacy in Sri Lanka. First, this definitional context, however, is narrowed down to pretend the basic IT skills of the population. Therefore, a comprehensive and accurate measures and indicators are required for tracking the minimal level of knowledge on the IT in a wider spectrum including a recognized competencies of handling devices, applications, and virtual platforms among different age cohorts. Secondly, it is a huge debate that whether we can consider a person whose age is 5 years to setup starting benchmark for the computer and digital literacy indicators in terms of understanding very complex virtual substances that we experience in the current context. Hence a clear categorization which is based on the age cohorts, level of education, intensity of digital and IT engagements and professional background etc. are essentially required to understand whether the country can satisfactorily perform the expected level of digital literacy and IT competencies to mitigate the cybercrime in Sri Lanka.

Nevertheless, many digital users in Sri Lanka are well equipped with the cyber protection mechanisms, cyber security breaches seem to be

apprehensive due to lack of IT related infrastructure in the country. Cyber Security Awareness Survey conducted in 2015 indicates that 67% of internet users have been affected by computer viruses or any type of cyber hacking at least once, even though computer and internet users may install and update antivirus programs and activate firewalls in their computers. Furthering this, studies highlighted that absence of awareness on new media literacy and information technology and raised often young educated users only possess a high computer literacy (Goonathilaka, 2011; Jayasekara & Rupasinghe, 2015). Similarly, another study traced that the need for further policy formulation on the cyber terrorism, which is a most overwhelmed form of cyber threat identified in the global level, in Sri Lanka in line with relevant international standards (KDU, n/d).

### **Discussion: Policy formulation is the key to scale up the necessary implementation**

Vital need for a comprehensive policy framework and efficient legislative and regulatory provisions to combat cybercrime activism must be elevated and integrated with the sufficient awareness for public on the increasing level of cybercrime in Sri Lanka. The policies commenced to increase the awareness in public on the legal provisions which are engraved in tackling cybercrimes in Sri Lanka has not been adequately reflected in policy measures in this concern. Young men with advanced knowledge in computer literacy have shown a tendency to become perpetrators of unlawful acts in the cyber space and lack of awareness of legislations in the country also can be a factor in this. A recent study revealed that cyber hacking has become one of the most intense forms of cybercrime in Sri Lanka. For instance, the case of hacking of the official website of Sri President of Sri Lanka in August, 2016 on two consecutive days by a group who identified themselves as local juveniles became a centre of attraction (Senaratne, 2017).

Another important action is obligatory which is re-evaluate and operationalize the scope and the definitions of computer and digital literacy and cybercrime in the regulations and the operations in Sri Lanka comparing those with internationally adopted standards. Further, reassess the efficiency of the current law enforcement mechanism and regulatory frameworks in responding to cybercrime also would be a necessary action to be reserved in order to identify the current loopholes in the legal system and expedite the jurisdiction process which has enormously impacted

on the effectiveness of the mitigation efforts (Walpita, 2019). In order to develop a resilient environment for cyber interactions Ajayi (2016) suggests that policy makers need to concentrate on two fundamentals to mitigate cybercrimes; understanding the motivations of cybercrime in different contexts and jurisdictional challenges with regard to laws dealing with cybercrime. This study further argues that there are serious challenges in mitigating cybercrime, which may include 1) absence of a global consensus on cybercrime and the legal definition of criminal conduct, 2) inadequacy of legal powers for investigation, 3) access to computers including lack of uniformity between the national procedural laws concerning investigation of cybercrime.

It is essential to build a comprehensive policy framework to assure the efficacy of the regulations and develop an effective social awareness mechanism to create knowledge of cybercrime and its legislative framework among the general public. Being the major legislation with regard to the cybercrime, computer-crime act of Sri Lanka ensures the safeguard the rights of IT professionals and the victims granting necessary powers to stand up against the cybercrimes (Walpita, 2019). However, several ambiguities are there and need to strengthen the act by amendments made on current needs, especially cyber security related issues which is the source for many cybercrimes reported in all over the world. A recent manifestation on the legislative reforms in Sri Lanka are attributing the need of policy formulations for both legal and regulations. According to Induruwa et al. (2020), one major policy decision in the country in terms of complying with international framework was acceding to the Budapest Convention in 2015 which is the Convention on Cybercrime in the Europe. Similarly, inaugurating the Internet Governance Forum between year 2016-2017 and the drafted Cyber Security Act in 2019 aiming to create a trusted and resilient cyber security ecosystem also could be considered as positive and productive steps toward the future endeavour.

What is mostly lack in Sri Lanka in terms of the cyber resilience is effective and robust education system on cyber security and related pedagogies to operate in line with national education framework in the country. The current COVID-19 pandemic and its consequences have marked an eye opening for many aspects of cyber security and IT resilience in the world as the entire social interactions and activities are determined and run by

digital technologies. Many countries have already fastened and strengthen their IT infrastructures and cyber resilience for combating cyber threats with the sharp increase of digital operations to provide essential goods and services for people in this critical pandemic context (AlHinai, 2020; Khan, Gupta, & Gupta, 2020). In fact, this complex scenario stimulates more advanced and effective mechanisms for cyber security and vitality of digital literature among people unprecedentedly.

Undoubtably, the existing capacity for the cyber security degree programs and professional qualifications are in the current Sri Lankan higher education sector seems to be inadequate in all the ways. For instance, only the SLIIT offers a Master of Philosophy in Cyber Security and Doctor of Philosophy in Cyber Security as a Sri Lanka university grants commission approved higher education institute. Similarly, within the state higher education system, the University of Colombo only offers master programs for information security and cybersecurity whereas another very few UGC approved higher education institutes cater for a limited opportunity of MScs in cyber security and forensic, and information security. According to the UGC data, there are only ten higher education institutes of both state funded and private are offering a substantially a less number of bachelor degrees in cyber security, information security and management (UGC, 2020). Certificate qualifications are mostly based on the Certified Ethical Hacker (CEH), CompTIA Security+, Certified Information System Security Professional (CISSP), Certified Information Security Manager (CISM), Certified Information Systems Auditor (CISA), NIST Cybersecurity Framework (NCSF), Certified Cloud Security Professional (CCSP), Computer Hacking Forensic Investigator (CHFI), and Cisco Certified Network Associate (CCNA) Security. Therefore, Sri Lanka needs to initiate a comprehensive inclusive education program in line with its secondary and higher education system rather than an adhoc infatuation to the current requirement for combatting cyber security threats faced by the country. This effort can be accelerated the cyber security awareness among the public ensuring a resilient cyber security capacity building mechanism in the country to solve the gap between awareness of non-professionals and the professionals in long run.

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## Labor exploitation through 'Work from Home' during Covid-19: A contemporary analysis of the Sri Lankan Law

Bamunuarachchi SM <sup>1</sup>

### Abstract

The Covid-19 health crisis has been a novel and eccentric experience to each and every country worldwide, which particularly brought about numerous unforeseen changes to the employment sector. The "Work from Home" Concept therefore introduced, was one of the most practical methods to tackle the risk of exposure to the virus, but it is a question if the employees are burdened with work overload, excessive work hours, and lack of annual holidays & leave. Even though Labor Exploitation is a legally addressed concept in Sri Lanka, the Covid-19 Pandemic and its unique setting appear to make such laws obsolete. The sole objective of this paper is to review this problem together with the current labor law stance in Sri Lanka and applicable international laws. Through extensive analysis on primary and secondary sources of law, survey findings and personal interviews focused on youth and middle-aged employees working from home during Covid-19 as the sample, it's seen that the laws and regulations on employment, hours of employment, health and comfort of employees as directed by The Shop and Office Employees Act No.19 of 1954 in Sri Lanka has been practically overlooked. This is indeed a violation of workers' rights. As per the International Covenant on Economic, Social and Cultural Rights, all workers are rightfully entitled to reasonable working hours, rest and comfort during work but it's seen that, these regulations seem to be limited to paper itself under the prevailing circumstances in the country. It's been found that Labor Exploitation is tactfully masked by the concept of "Work from Home" thus, it's imperative that this subject area comes to notice in order to oblige employers to maintain strict adherence to labor law and use innovative and creative models to assign job functions to employees to ensure labor utilization while mitigating labor exploitation.

**Keywords:** covid-19, labor exploitation, labor laws, workers' rights, work from home

<sup>1</sup>Sri Lanka Law College, General Sir John Kotelawala Defense University, Sri Lanka, sanduneebamunu@gmail.com

## Introduction

Covid 19 is a severe respiratory syndrome which is currently circulating in the world with more than 183 million reported cases and 3.9 million deaths worldwide. This was identified to be spread through close contact with people. Consequently, to impede the viral spread of the disease due to the nature of it, social distancing measures were needed to be instituted as per the guidelines of WHO.

The impact of the virus is not only limited to individual and societal health but also to the economic standpoint of the country. To minimize the effects of the virus to the economy during the country lockdown, the concept of Work from Home(WFH) was introduced in Sri Lanka as well as other counterparts of the world and thereby employees were forced to transition to work from home. With this, working in a designated work space (i.e. office) changed to working anywhere with a stable connection which has in turn increased the vulnerability of work force to be less monitored and unconsciously exploited.

Work from home concept is highly discussed with concentration to its psychological aspects, but the legal aspect of the issue remains unspoken and ignored. It is of paramount importance that the workers remain legally protected under dynamic and unforeseen environmental conditions. Especially in Sri Lanka, there is no specific legal mechanism adopted to govern employees working from home as the concept itself is novel and was widely introduced as a measure to confront the challenges during Covid-19 in the work environment. The primary focus of this study is to enhance the understanding of the current labor law stance in Sri Lanka and to identify the inaptness of the legal structure relating to the resulting Labor Exploitation through WFM Concept developed.

Being one of the very few studies in this area, this paper attempts to discuss three determinants as forms of labor exploitation during WFM. Firstly, under workers trapped in excessive work hours. Secondly the non-availability of holidays and leave during WFM and thirdly the scrutiny of rest and comfort of workers who WFH. Further these determinants will be examined based on the applicable laws and regulations as explained under the Research methodology

## Research Methodology

The research method adapted for this study is qualitative, yet a quantitative presentation of the anonymous responses collected from the research sample of 61 middle aged persons engaged currently in Work From home together with a comprehensive analysis of primary sources of law given; Shop and Office Employees' (Regulation of Employment and Remuneration) Act No. 19 of 1954, relevant judicial precedents, International Covenant on Economic, Social and Cultural Rights and International Labor Organizations' Standards while the secondary sources; books, journal articles, websites and conference proceedings as correlated.

## Results and Discussion

nka, the labor law comprises of a number of statutes under which different and distinctive areas are governed. Legislations on Social Security Welfare, Well-being of Employees, Occupational safety and health, Workmen's compensation, Terms and Conditions of employment, Law relating to Plantations and Estate labor and laws relating to Foreign Employment appear to be comprehensively built up but unfortunately, due to the provisions being old and out dated, most of Sri Lankan labor law statutes has not been able address the modern socio-economic scenarios. Labor law is a branch of law which amalgamates many areas of laws together because the duty to ensure the socio economic safety for all those engaged in labor is embedded within its legal character (Yana Simutina, 2020).

Given the fact that Sri Lanka has ratified the International Covenant on Economic, Social and Cultural Rights (ICESCR), ICESCR proclaims the right to work as per its Article 6 and openly develops its components by the recognition provided in Article 7 which declares the right of everyone to ensure the enjoyment of just and favorable conditions of work and the right to safe working conditions.

Further, by being a respected member of the International Labor organization (ILO) which empowers better relations and harmony between Employers and their employees, Sri Lanka upholds industrial relations in a very high level. Out of the 47 ILO Conventions, 41 ILO Conventions are ratified by Sri Lanka, which includes the eight core conventions (International labour standards in Sri Lanka and the Maldives, n.d.) but has failed to ratify the Home Work Convention, 1996 (No. 177) which is of paramount importance in

the current WFH times and the upcoming remote work era.

In order to examine the labor exploitation during the newly adapted work from home concept, the statute relating to conditions of employment in Sri Lanka which is the Shop and Office Employees' (Regulation of Employment and Remuneration) Act No.19 of 1954 will be studied in this paper together with ICESCR and ILO standards based on the responses collected by the research sample to analyze the practicality of the current law.

To start with, Exploitation appears to be underexplored in relation to WFM concept in Sri Lankan Law. Given that, exploitation should not be confined to slavery and servitude, forced and compulsory labor. Exploitation is about taking unfair advantage of someone or taking unfair advantage of someone's vulnerability and the resulting bargaining weakness (Hugh Collins, 2018 ).The current Shop and Office Employees' (Regulation of Employment and Remuneration) Act No.19 of 1954 includes provisions to administrate labor exploitation to address issues like restriction of work hours, availability of holidays and leave, proper remuneration and proper rest and comfort in the work environment. But through the introduction of the WFH and due to the nature of the WFM concept, the provisions of the statute appear to be inept.

This paper firstly intends to discuss the provisions under the SOEA No. 19 of 1954 to identify the current labor law position in Sri Lanka in relation to the three determinants considered by this paper as forms of labor exploitation through WFM.

#### **Workers trapped in excessive work hours.**

Restriction of hours of employment is provided for in the Section 3 of the SOEA No.19 of 1954 which states that, the normal period for work in one day should not exceed 8 hours and in one week shouldn't exceed 45 hours excluding any period allowed or rest and intervals.

Even though the law or the rule is as such, according to the qualitative data collected through the sample of this study, it shows that 44% of respondents who are working from home engages in work all day long as requested by the top level managers. This shows that, workers today amidst the pandemic are insentiently or unconsciously exploited under the

concept of WFH. Precisely as per the collected statistics, 27 people out of every 61 people working from home appear to be working excessively long hours while being overloaded with work (See Figure 1 based on Annexure 'A' – Questionnaire). This suggests that, the provisions on the restriction of working hours for employees is solely focused on employees Working from Office and is of disuse when it comes to WFH.

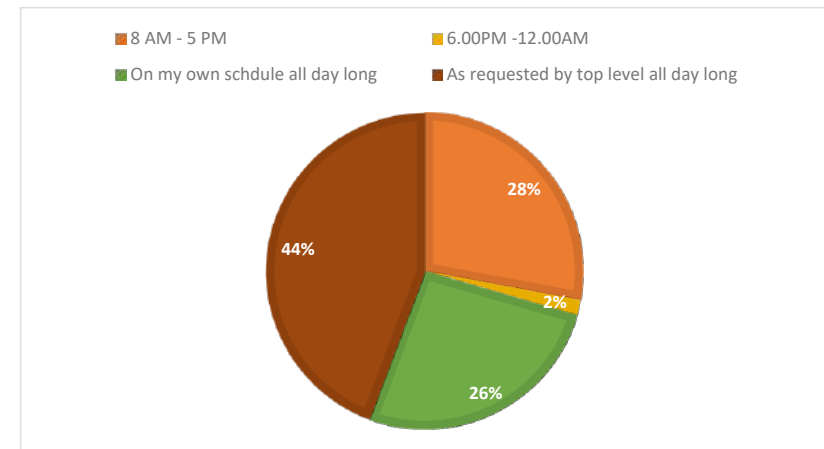


Figure 1 – Working hours during Working from Home (based on Annexure 'A'-Questionnaire)

The determinants of excessive work hours as per the responses to the questionnaire clearly gives out, the conditions of injustice thrown upon workers while engaging in WFH (See Figure 2 based on Annexure 'A' -Questionnaire). Further its evident upon the collected data that, the work from home concept tactfully violates labor rights and overlooks the SOEA No.19 of 1954 provisions in a discreet manner while bringing out a different conception of labor Exploitation amidst the pandemic.

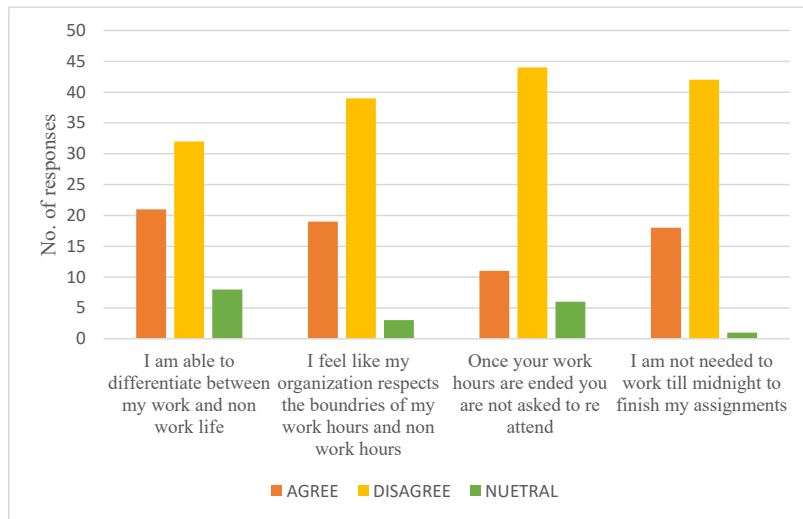


Figure 2: Determinants of Excessive Work Hours during WFH (based on Annexure 'A'-Questionnaire)

### Non-availability of holidays and leave during WFM

Holidays and leave is extremely important for workers to continue efficient work. Employees who take regular holidays are more motivated about their work and are more effective than those who don't take as much holiday. Stress levels are known to lower when having an opportunity for a well-deserved holiday, which also results in fewer sickness absences (Riley, 2018 ).

The provisions relating to holidays and leave is given out very illustratively in the SOEA No.19 of 1954. Holidays that are provided for in the act are labeled under Weekly holidays, annual holidays and leave, public holidays and Poya day holidays. Section 5 of the SOEA No. 19 of 1954 states that, every worker is to be allowed to have one holiday and half-holiday with full remuneration in each week, during which he has worked for a total period of not less than twenty-eight hours, exclusive of any period of overtime work. These holidays specified in Section 5 can be obtained in the same week or the immediately succeeding week.

Annual leave is discussed in the section 6 of the SOEA No.19 of 1954 stating if the commencement of employment has taken place between January and April of a certain year, such workers are allowed to have a paid leave of 14 days. In cases where the employment is commenced

between April and July of a certain month, such workers are entitled to a 10-day leave with full remuneration and in situations where a worker has commenced work between July and October, 7 days of leave and if the commencement is after the 1<sup>st</sup> day of October the annual holiday will be 4 days with full remuneration.

Certain employers permit unutilized annual leave to be carried forward to the next year (this is mostly done according to employer discretion and under contractual terms. Under the leave entitled for the year of termination, it's given that each employee is entitled for an annual leave of one day for each month, if the employee has worked for a period less than 10 months and further if the employee has worked for more than 10 months during the year of termination, the full annual leave with 14 days can be taken (Jivan Goonathilake, n.d.).

Conversely, the survey statistics shows that 31 out of 61 respondents (more than 50%) has disagreed with the third factor under availability of holidays and annual leave during WFM stating "I was NOT able to take annual leave/weekly leave during WFH" (See Figure 3 based on Annexure 'A' – Questionnaire). This qualitative information collected shows that, even though the laws are coded in acts, along with the rising dynamic changes in the working environment, these laws appear to be practically inactive.

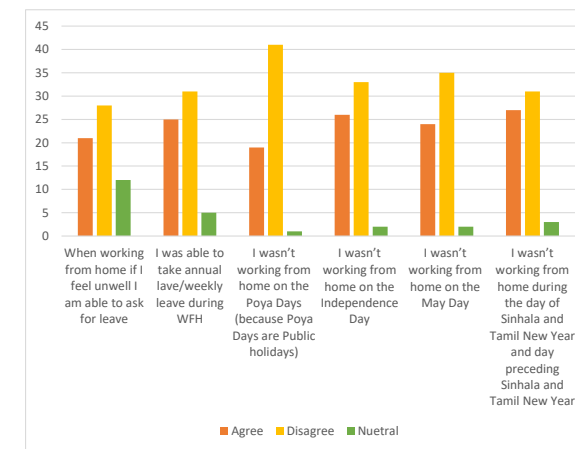


Figure 3: Determinants of Holiday availability for workers who WFH

Section 7 of the SOEA No.19 of 1954 gives out that, every worker is



entitled for a holiday with full remuneration on each of public holidays under the Holidays Ordinance, as are declared by the Minister or by Order published in the Gazette declaring holidays. This section further states that the number of paid holidays as such not to exceed eight days. Present public holidays under the act are as follows; Tamil Thai-Pongal Day, National Day, Milad-Un-Nabi (Holy Prophet's Birthday), Day Prior to Sinhala and Tamil New Year Day, Sinhala and Tamil New Year Day, May Day, Day Following Vesak Full Moon Poya Day and Christmas Day (Jivan Goonathilake, n.d.).

However, the analysis of qualitative data of this study shows that, 33 of 61 respondents were working from home on the independence day, 35 of 61 respondents were working from home on the May Day which is the international labor day celebrating labors and historic struggles of the working class. 31 of the 61 respondents have even being working on the day of Sinhala and Tamil New Year and the day preceding, which clearly shows that the current SOEA is overlooked when it comes to practicality.

Relating to Poya day holidays, Section 7A of the SOEA No.19 of 1954 as amended by No.29 of 1971 provides that every person employed in a shop or an office is to be allowed for a paid holiday on every full moon

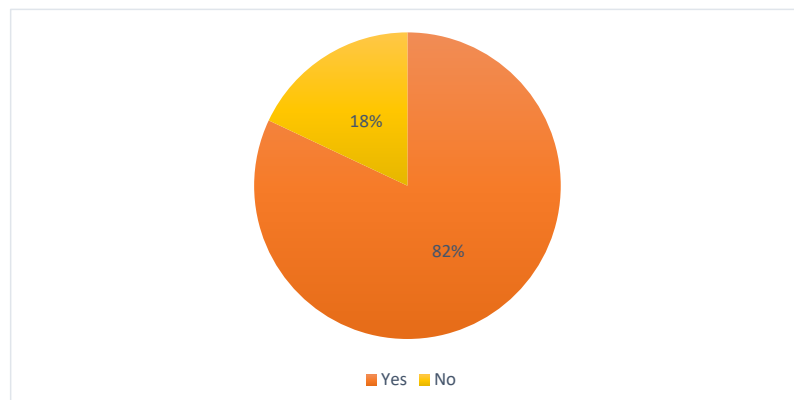


Figure 4: Availability of extra remuneration for working on Poya Days(based on Annexure 'A'- Questionnaire)

Poya day and as per Section 7B of the same states that employment on a full moon Poya day allows a worker to be paid a salary plus of one

and half times his/her daily wage. The questionnaire results relating to the study displays that 41 of 61 respondents have stated that "I was working from home on Poya days" (See Figure 3 based on Annexure 'A' – Questionnaire) and 82% of workers are not getting additional remuneration for employment on a Poya day as conferred by Section 7A of the SOEA (See Figure 4 based on Annexure 'A' – Questionnaire). This practical notion highlights the importance of the need to explore new aspects to assure legal protection to workers who are exploited knowingly or insentiently under WFH.

### Scrutiny of rest and comfort of workers who WFH

"Chaining yourself to a desk or scarfing down your lunch in your cubicle isn't a recipe for success – it's a recipe for disaster" (Kohll, 2018)

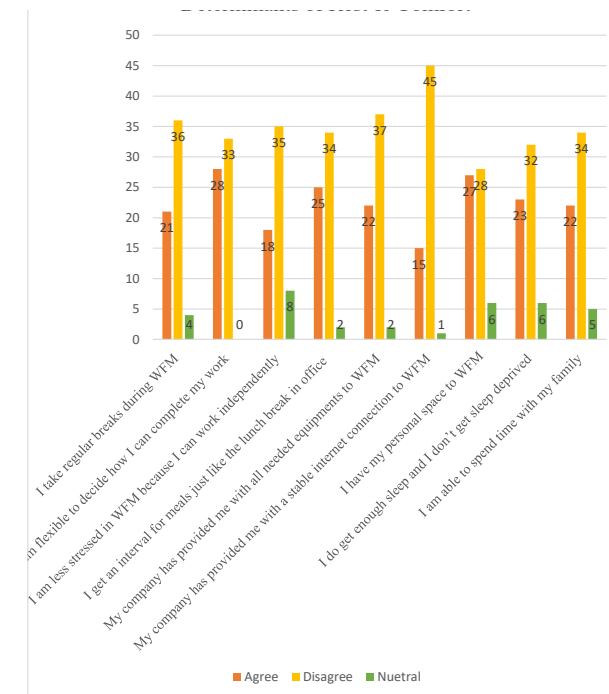


Figure 5: Determinants of Rest and Comfort

The questionnaire built up has investigated in to factors such as regular breaks, proper sleep and flexible schedules at work to determine the scrutiny of Rest and Comfort. Comfort is further studied in relation to

having good working conditions while Working from Home and the distinction of office and Private lives at Home.

A study conducted by Center for Disease Control and Prevention (CDC) in America depicted that, 35 percent of American adults who work from home are not getting the doctor recommended hours of sleep (Hyde, 2021). Same appear to be the issue in Sri Lanka in relation to WFH. As per the stats collected for this study, 32 out of 61 respondents answered that they are sleep deprived while struggling to meet deadlines and 36 out of 61 respondents answered that they are unable to take regular breaks during WFH while 34 out of 61 respondents have answered stating that "I DON'T get an interval for meals during WFH like the lunch break at the office" (See Figure 5 based on Annexure 'A' – Questionnaire).

Section 9 in the SOEA No.19 of 1954 provides that all employees are entitled to a lunch break or an interval for meals as mentioned descriptively in the schedule of the act. The schedule states as follows; Where any person employed during the hours including 11a.m. to 2p.m. persons employed as such shall be allowed an interval of one hour, commencing between those hours, for rest or a meal and if working hours includes the hours 4p.m. to 6p.m., persons employed as such shall be allowed an interval of half an hour, commencing between those hours, for rest or a meal. Further if work hours include the hours 7p.m. to 10p.m., that persons employed as such shall be allowed an interval of one hour, commencing between those hours, for rest or a meal.

In relation to rest and meals within a one whole day Section 2 of the Schedule states that, every person employed relation to this act shall, on each day on which he is so employed, be allowed an interval of half an hour for rest or a meal every four hours during which he has been continuously employed.

The provisions enacted by the SOEA No.19 of 1954 as conversed above in relation to three forms of labor exploitation that occur during this WFH concept, shows that the statute is practically overlooked to protect workers under the WFH concept, even though its useful to safeguard workers who are working at the office.

### **Review of the international law**

In discussing the status of international law, the monist and dualist views

are to be reflected suitably. Monist view is the system where international law can be brought in to domestic law without a special ratification whereas the dualist view suggests that, international law needs to be specifically endorsed or ratified in a country for it to be legally acceptable inside the country. *Singarasa v The Attorney General of Sri Lanka* brought up the view that international treaties are formed and operate at the international level could, if necessary, be transformed into national law through appropriate legislation in Sri Lanka. Those contained in these treaties then only becomes domestic law upon ratification. (Sornarajah, 2016-2017)

### **Labor Protection under ICESCR and its Applicability in Sri Lanka**

Sri Lanka has ratified the International Covenant on Economic Social and Cultural Rights(1966) on the 11<sup>th</sup> of June 1980 (UN treaty Body Database , n.d.). The covenant in general aims to achieve socio economic equality and recognition with no discrimination to all human beings. In respect of regulating discretion of employers in ruling over employees and with the view to safeguard workers' rights, the ICESCR has stipulated the Article 6 providing everyone the opportunity to gain his living by engaging in work that he freely chooses or accepts while the Article 7 strengthens this right to work by requiring Parties to the present Covenant recognizes the right of all to the enjoyment of just and favorable conditions of work which particularly ensure at least the minimum wage to all employees, fair and equal remuneration for work of equal value, A decent living for employees and their families, Safe and healthy working conditions, equal opportunity for everyone for employee promotion and availability of Rest, leisure and reasonable limitation of working hours and periodic holidays with pay, as well as remuneration for public holidays. (Manual on Human Rights Education with Young People-Council of Europe)

The applicability of the given Articles 6 and 7, are ex facie inoperative during this WFH era even though the ICESCR is ratified in Sri Lanka. The reasons being; excessive work load and indecorous work hours, non-availability of holidays, leave and unseemly rest and comfort conditions during WFH resulting Labor Exploitation as examined above comprehensively in the Discussion section in accordance with the collected survey data.

### ***Applicability of International Labor Organizations' standards in Sri Lanka***

The International labor organization has 187 member states. Sri Lanka became a member of the ILO in 1948 and has currently ratified 41 conventions. Among the ratified conventions, Sri Lanka has excluded the Home Work Convention, 1996 (No.177) which is of great importance currently to legally address this unexpected socio-economic change.

As per the Article 1 of the Home Work Convention, 1996 (No.177) '**home work**' means work carried out by a person, in his or her home or in other premises of his or her choice, other than the workplace of the employer; for remuneration; which results in a product or service as specified by the employer, irrespective of who provides the equipment, materials or other inputs used. Article 4 states that, the national policy on homework shall be instituted in a way it shall promote, as far as possible, equality of treatment between homeworkers and other wage earners, giving consideration to special characteristics of home work and appropriate, conditions applicable to similar type of workers.

A system of inspection consistent with national law and practice needs to be set up to ensure compliance with the laws and regulations applicable to home work needs to be implemented in accordance with Article 9(1) The national policy on home work needs to be implemented according to laws and regulations, collective agreements, arbitration awards or in any manner consistent with national practice as per Article 5 of the convention.

It is apparent on the study of these provisions that, through ratification of the Home Work Convention, 1996 (No.177) it orders the national laws to include provisions relating to Remote work or Home Work in the national legislature while giving more discretion to national law making bodies to adapt its laws to suit respective economies.

Further, the ILO's Addendum to the 2020 General Survey during the Covid-19 Pandemic, the Committee had observed the exponential increase in recourse to telework that is to Work from Home, the Committee suggests in its conclusions that, to ensure the success of the concept it must be verified that the WFH concept provides adequate legal protection to workers, under appropriate working time and the right to disconnect

from work. (Application of International Labour Standards in times of crisis : importance of International Labour Standards and effective and authoritative supervision in the context of the Covid-19 pandemic , 2020 )

### **Observations and Recommendations**

The Unforeseen Covid-19 crisis, which led to the introduction of WFH concept in Sri Lanka has certainly impacted the Sri Lankan Labor law positively since it has opened the path to review out dated legislation and to investigate upcoming labor law issues.

As per the results of the questionnaire relating to this study, and the practical obsolete statues in the country, it can be assessed that workers are unconsciously exploited during the engaging in Work from Home. Hence, following recommendations can be made to address this issue.

The established *Deutsche Bank case* (Federación de Servicios de Comisiones Obreras (CCOO) v Deutsche Bank SAE) provided that European Union Member States must require employers to set up a system enabling the duration of daily working time of employees to be measured. The bank did not have a system to monitor the working hours of its employees which led the employees to work as per the discretion of their employer. As given by the case, its significant to bring out a system to monitor work hours of employees. Especially when working from home due to it being problematical to differentiate work and private life when the office is home.

Sri Lankan labor law consists of number of statues but in order to address labor exploitation and labor related issues during work from home is been silent for many years even though the ILO has brought Home work in to notice in 1996. Consequently, it could be recommended that, ratification of the Home Work Convention, 1996 (No.177) is of extreme necessity while bringing up suitable national legislations with an eye to the future to protect labor in the future to come.

The current labor exploitation during WFH has resulted due to the loopholes and the unpracticality of the present labor law to address unforeseeable situations and modern world challenges faced by workers. Therefore, the current legislations must be subjected to further review

and update in order to rightfully protect workers.

The problem of labor exploitation through WFH is mostly ignored due to it being hard to detect. The workers themselves are unaware of the fact that they are being exploited. Therefore, proper programs must be established in work places to increase awareness among workers to have a proper idea on their rights and privileges as an employee.

Most Significantly, since remote work is the rising employment type in the world, it's imperative to Legitimize remote work in Sri Lanka.

### Conclusion

The study reveals that the existing Sri Lankan labor law is practically overlooked in addressing the complications of Work from Home concept introduced widely in the country during the Covid-19 pandemic resulting unconscious exploitation of labor which is tactfully masked by the WFH concept.

While analyzing the issue, it has come to notice that the Covid-19 Crisis has brought about many unforeseen challenges to workers and their protection, hence its needed to further review on these complications and bring about effective legislations to tackle the issue by giving more attention to particular areas such as restriction of work hours, availability of holidays and leave, proper remuneration and proper rest and comfort in the work environment.

Further, it's imperative that this subject area comes to notice in order to oblige employers to strictly adapt to labor law and use innovative and creative models to assign job functions to employees to ensure labor utilization while easing off labor exploitation.

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## Usage of cosmetics and its adverse reactions: A Case Study on University Female Students Community

Farwin SJF<sup>1</sup> & Ruzaik F<sup>2</sup>

### Abstract

Use of cosmetics is considered a common practice in the world today. Global social change have changed people's consumption patterns. Thus, cosmetics are one of the most required commodities among young women today. Actually, the use of cosmetics is determined by social and ecological factors, and they have the potential to directly or indirectly affect people's health. Accordingly, today a large number of young women are suffering from various health disorders. The main reason is that they never think about the cosmetics related side effects because of their positive view of these products. So this study mainly focused on evaluating the adverse effects of cosmetics. All the primary and secondary data used in this study were collected through structured quiz interviews and observations and the data were analysed using qualitative and quantitative methods employing Excel software.

Cosmetics usage is more prevalent among young women (96%) studying at the Universities. This study shows that, they apply cosmetics mixed with chemicals to various body parts such as hair, face, and body, which have sometimes caused health disorders. The adverse effects observed were allergic reaction, irritations, wounds, pimples, and skin burning. its' continues use has also been found to cause serious health disorders such as cancer and infertility. Similarly, knowledge on green beauty products among university students is insufficient. Further, it has been found that there is no correlation between the use of cosmetics and the level of education.

**Keywords:** *cosmetics, consequence, ecological factors, health disorders, green cosmetic.*

<sup>1</sup>Independent researcher, Department of Geography, University of Colombo

<sup>2</sup>Department of Geography, university of Colombo, fareena@geo.cmb.ac.lk

### Introduction

Cosmetics is one of the primary aspect of the human daily life style in all the generations and it has spread among the people for numerous uses and purposes (Saudi Food and Drug Authority, 2008). The field of cosmetics have expanded as the production of cosmetics has increased not only for use of each part of body but also for different seasons as well. Cosmetics play a significant role in increasing attractiveness because they are a part to enhance facial symmetry. Women are more likely to be psychologically in need of maintaining their beauty and attractiveness. The cosmetics industry does have significant impact on college women today (Britton, 2012). Traditionally cosmetics have been used by women to control their physical appearance and presumably their physical attractiveness (Vanessa et al., 2011). It is supposed that the character of a person depends on his or her local appearance too. The agreement that they need to put their best self forward is more normal among ladies than men. That is the reason today the enthusiasm of ladies in utilizing beautifiers is unfathomable.

Cosmetics products have been generally defined as "articles intended to be applied to the human body by being rubbed, poured, sprinkled, or sprayed for cleansing, promoting attracting, beautifying, or altering the appearance" (FADCA-The Federal Food Drug and Cosmetic). Khan et al. (2019) defined skin care products or cosmetic as mixtures of synthetic or natural chemical compounds used to improve the appearance or smell of the body. Based on these definitions products such as skin creams lotions, perfumes lipsticks, nail polishes, soap, shampoos, hair colours, and toothpastes fall under the category of cosmetics. Three factors such as production, quality and low side effect have been identified as the major influencing factors when purchasing cosmetics.

The comprehension of self-stylish excellence is always there in ladies from the early eras. However, ancient ladies made themselves beautiful by utilizing the materials in the home or from natural environmental resources. Yet, today, the utilization of beauty care products is not quite the same as the ancient times. This implies that beautifying agents blended in with synthetic substances that are sold in the market today are generally devoured, aside from home use items. It is believed that such products have a reasonable degree of safety and tolerability (Lucca et al., 2020). Recent studies reevaluated that exposure to various chemical

substances present in cosmetics poses a health risk. Gender, age, allergies to medications and food, family history of allergy, mixing cosmetics, and frequent switching of cosmetic brands are being associated with adverse effects (Lucca et al., 2020). Some of the cosmetic ingredients are emerging pollutants too. They reach the environment in multiple ways, often through water, posing health risks to marine and freshwater ecosystems and to humans (Pereira & Pereira, 2018). The examination depends on the commonness of contrasts in the utilization of beautifying agents among ladies to survey the pervasiveness of corrective use among youthful grown-ups.

### Research problem

Cosmetics has become a need of the society but cosmetics which make us beautiful temporarily contain number of chemicals and lead to various kinds of side effects on long term use. Despite the fact that these cosmetics make us look good, in the end they are going to leave a negative effect as well. Today most teenage girls are increasingly using infectious chemicals that are framed as cosmetics to alter or enhance their natural appearance. The users forget the negative effects caused by the cosmetics. Often cosmetics are made up of combinations of different types of chemicals that can have different effects on the human body. For example, chemicals are found in cosmetics, such as parabens, dioxin, polyethylene could lead to cancer when it enters the body. Cosmetics are seen as products that affect the physical health and healthy life of women by causing effects such as infertility and female gland dysfunctions. Consumption of these cosmetics have a high rate of use in young women. They do not consider the consequences of using cosmetics and the awareness among them about the effects of cosmetic use is very low. Due to this unawareness, the use of cosmetics is higher among them. In this context, this study focuses on raising explanation on the awareness of the usage of cosmetics among the University students with the research questions such as.

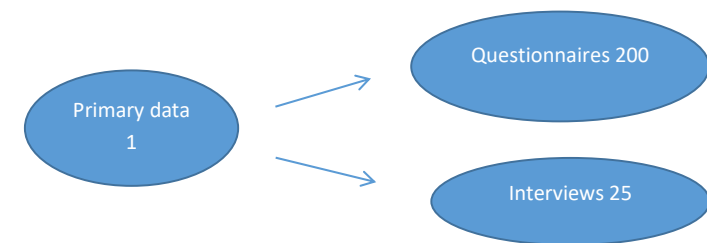
- what are the beauty products most commonly used by young women?
- what are the adverse effects of cosmetics? and
- are there awareness among young women about the effects of cosmetics use?

### Research objective

- To identify the most consumed beauty products by young women studying in Universities
- To evaluate the adverse effects of cosmetics as identified by the University students

### Methodology

This study was planned as a descriptive study based primarily on qualitative data as well as simple quantitative data to achieve the study objectives. The essential data required for the study are collected through the primary data, which is obtained through the structured questionnaire and the interview.



Data was collected from universities located in different parts of the country. The Universities selected included University of Jaffna from Northern province, South Eastern University of Sri Lanka from Eastern province, University of Peradeniya from Central province, University of Colombo from Western province and University of Ruhuna from Southern province as representing several geographical areas. A sample of 40 female students were selected by simple random sampling method from each university and 200 were surveyed from all the 5 universities. In addition 25 female students were interviewed over the phone. The questionnaire used in the study mainly focused on four major areas;

1. demographic factors of participants.
2. utilization of cosmetics.
3. perception in effects of using cosmetics
4. awareness of green cosmetics.

Further, the secondary data required for the study and the research articles related to the research topic, such as texts and journals were collected and subjected to quantitative analysis by Excel and all the data were dated and displayed.

### Results and Discussions

My survey is about the usage of cosmetics with their adverse reactions among female students from the universities in Sri Lanka. Beauty products used for cosmetic purposes can create a bad condition to human health because they contain a highly toxic metal. So nowadays the use of natural cosmetics has declined and also the use of cosmetics containing such Chemicals has increased, on the other hand, its impact has been prominent in human health.

### Analysis of the usage of cosmetic products

If we look at the trend of use of cosmetics among young women based on the research data collected based on the samples taken, the use of cosmetics among women can be viewed as a common thing. 96 % percent of those surveyed were found to be using cosmetics. Thus the extent to which these products are used at least once a day is found to be more prevalent among young women. Therefore, research has shown that the use of cosmetics among them has become more prevalent on daily basis.

**Table 1 Usage of cosmetic products**

Body part	Cosmetics
Hair	Hair Oil ,Shampoo ,Conditioner, Henna
Face	Cream, Face Powder , Oil ,Gel ,Foundation
Skin	Skin Powder, Lotion, Skin Toner, Skin Cream, Cleanser
Eye	Eyeliner ,Mascara ,Eye Shadow ,Kajal ,Eyebrow Pencils
Nail	Nail Lacquers, Nail Bleaches
Lip	Lipstick ,Lip Liner ,Lip Balms

Source: Field survey 2020/2021

Research has shown that cream, spray, lotion, shampoo, and gel are some of the most commonly used cosmetics in everyday life, especially Mascara, eyeliner, powder, and cream which are the most common cosmetics used by young women on a daily basis. This Study have also shown that the face, body, hands, feet, and eyes are

the most common part which were considered for cosmetic purposes.

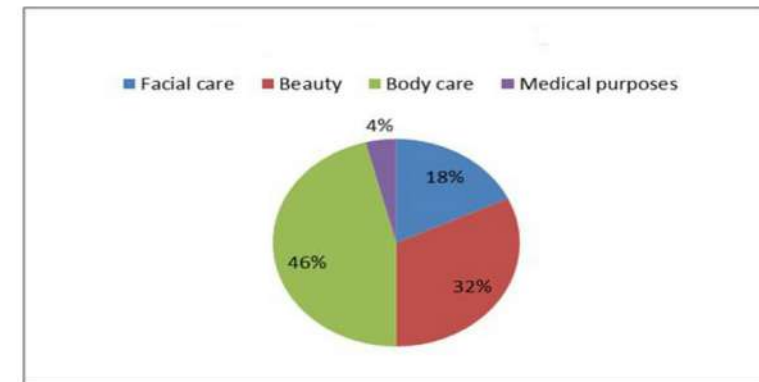


Figure 1: Purposes of Using cosmetics

Sales sites and advertisements are seen as the principal medium in bringing in, and women are consuming it based on their instruction to enhance their appearance. Thus the effects of cosmetics are not highlighted during consumption but only its benefits are highlighted.

In addition, the generalized conclusion of the study is that while women consume beauty products while the quality, the company pays attention to price content, etc. They consume products based on high quality because they feel that the consequences are much lesser when the quality is right.



Figure 2: Purchasing cosmetics

The main reason for the use of cosmetics is that they have the attitude that the use of such cosmetics helps to show that they are beautiful and

that their appearance is remarkable. These products are harmful to human health when used in large amounts for various reasons. Although the cost of beauty products is high among young women, 71.4% of them use it with awareness about its effects, i.e. their safety. It has revealed that they are careful in consuming eco-friendly beauty products.

### Estimate the adverse effects of using cosmetics

However, research has shown that in several cases the effects of such devices are unavoidable. So considering their report, most adverse effects were manifested as skin irritation, skin burning, headaches, and eye irritation.

**Table 2 Adverse effects of using cosmetics**

Body part	Effects
Hair	Hair Damage, Hair Loss, Headache.
Face	Allergies, Pimples, Redness
Skin	Skin Irritation, Skin Burning, Skin Atrophy
Eye	Eye Irritation, Eye Redness, Dry Eye
Nail	Brittle Nails, Allergic Reactions
Lip	Wounds, Skin Allergies, Chapping On The Lips

Source: Field survey 2020/2021

According to the data obtained accordingly by beauty products, it is clear that skin diseases can occur. They point out that chemicals added to cosmetics that brighten the skin can cause skin irritation and skin cancer. Similarly, eye damage is also an adverse effect caused by beauty products. Some cosmetics used for the eyes and hair can also cause eye diseases and infections. For example, when applying shampoo to the hair, it can indirectly harm the eyes. The study also found that such beauty products can alter the appearance of the skin. It has also been reported that overuse of cosmetics can sometimes cause wrinkles on the skin and cause aging. Similarly, this study's samples explain that these devices cause inflammation. For example, overuse of shampoo and conditioner can sometimes lead to allergies.

Therefore, based on the modern sphere of life, the widespread use of cosmetics among young women has been shown to have the potential to

directly or indirectly cause various effects on human health. Ignorance of users is the main reason for such effects on human health.

### Consumer perception in green cosmetics

Green cosmetic are defined as products made from natural molecules in the environment. Consumers concern about their health so, healthy life style is changing their mind set towards the eco-friendly cosmetics. According to the data collection the awareness of green cosmetics is low among young women of that 40% are aware of it, 60% do not know about green cosmetics. The people were aware that there is a difference between green cosmetics and chemical cosmetics. They have realized that green cosmetics provide them better health and a green environment around them. They feel that green cosmetics are safe to use without any side effects. So health consciousness and environmental concern are the main reasons to motivate the consumers towards green cosmetics.

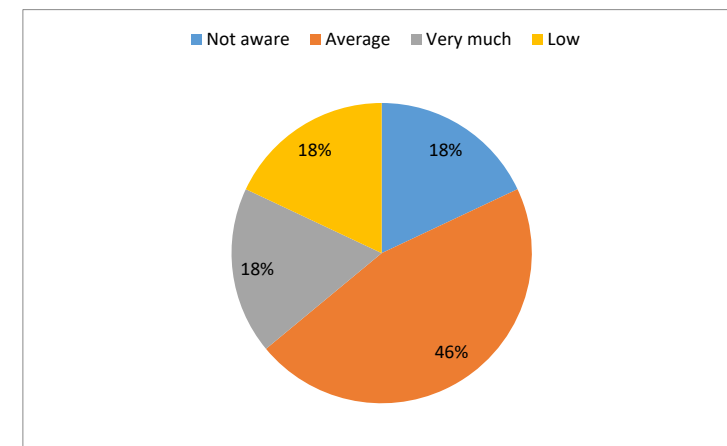


Figure 3: Awareness about harmful effects of using cosmetics

The study population wants to be aware of their health and the environment, so they want to know more about green cosmetics and consume them. Based on that 84% of women would like to buy green cosmetics and 17% are not sure about it. They neither like it nor do not like it. Therefore, young women need more awareness about green cosmetics.

### Conclusion & Recommendation

The changing sphere of life may have improved the status, quality, and behaviour of women in society, but this change has also affected



the consumption spheres of women. The attitude of seeking to beautify oneself in the indoor and outdoor environment is seen as one of the things that attracts young women in relation to the consumption of cosmetics. So nowadays most people go for synthetic cosmetics.

According to the study, young women in universities use these products on many parts of the body, such as the face, hands, feet, hair, etc. to address their needs. Because of the combination of chemicals in the products marketed today, Cosmetics used for short-term purposes are more likely to have long-and short-term health problems. The main ingredients in cosmetics are a kind of combination of Lead, Chromium, Nickel, Mercury, Arsenic, Cadmium, etc. so their continued use can cause to cancers kidney disorders, diabetes, high blood pressure and many other health disorders.

Therefore lack of knowledge about the ingredients that are included in the cosmetic products is the reason to face such a health hazards. Because the main purpose of young women is to highlight their appearance by using various the products. The effects may be due to a lack of awareness among young women today and optimism about the consumption and use of products. To avoid these effects it is best to use natural sources to get a healthy physique and heal and beautify your skin naturally. Getting natural beauty in that way is not a very difficult task; with the products we use every day at home, we can easily achieve natural beauty without spending any money. Honey, Turmeric, Aloe-vera, Neem leaves, Curry leaves, Oats, Potatoes, Tomatoes, Lemon are some kind of home natural beauty resources. The side effects of taking these products to beautify our body are minimal thus, awareness on vulnerabilities should be created and knowledge on green cosmetics should be developed. As well as when implementing appropriate programs or educating young women on this they can protect their health from the repercussions of cosmetics. Therefore, it is important to pay attention to their hygiene and the environment when using cosmetics.

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**Institute of Human Resource Advancement  
University of Colombo**

275, Bauddhaloka Mawatha, Colombo 07

+94 11 250 3393

[journal@ihra.cmb.ac.lk](mailto:journal@ihra.cmb.ac.lk)

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