Volume 15 • Issue 1
June 2022

Vivekanand Education Society's
Institute of Management
Studies & Research

drj.ves.ac.in

JOURNAL OF DEVELOPMENT RESEARCH

ISSN: 2229-7561

Journal of Development Research is published biannually in June and December by Vivekanand Education Society's Institute of Management Studies and Research.

Journal of Development Research is hosted on our web-based online submission and peer review system. Please read the manuscript submission guidelines on the journal website, and then visit https://peerreview.sagepub.com/drj to login and submit your article online. Manuscripts should be prepared in accordance with the 7th edition of the *Publication Manual of the American Psychological Association*.

Annual Subscription: Individual rate (print only) ₹1,720; institutional rate (print only) ₹2,970. For orders from Pakistan, Bangladesh, Sri Lanka and Maldives, SAARC rates apply: individuals $35; institutional rate $50. Prices include postage. Print subscriptions are available for institutions at a discounted rate. For subscriptions, please write to: customerservicejournals@sagepub.in

Change of Address: Four weeks' advance notice must be given when notifying change of address. Please send the old address label to ensure proper identification. Please specify the name of the journal and send change of address notification to customerservicejournals@sagepub.in

Printed and published by Director, VESIM Business School, Mumbai, on behalf of Vivekanand Education Society's Institute of Management Studies and Research, Hashu Advani, Memorial Complex, 495/497 Collector's Colony, Chembur, Mumbai, Maharashtra 400074, India. Printed at Sai Printo Pack Pvt Ltd, A 102/4 Phase II, Okhla Industrial Area, New Delhi, Delhi 110020.

Editor-in-Chief: Satish Modh

About the Journal

Journal of Development Research started in the year 2009 by Vivekanand Education Society Institute of Management Studies and Research (VESIM) and used to have quarterly publications till 2021. Presently, it is published half-yearly. It is a double-blind peer-reviewed journal. The journal focuses on issues dealing with the management of institutional structural transformation of societies to speed up economic growth, reduction of the level of inequality, and eradication of absolute poverty.

Since its inception, VESIM has been at the forefront of business studies, developing business leaders who strive to make a positive impact on the companies they work with, the people they meet, and the society they serve.

VESIM's success as one of the leading business schools in Mumbai is due to its humanitarian approach to management education. The approach is complemented by a state-of-the-art infrastructure, world-class faculty, transformative pedagogic practices, an interactive and experiential teaching methodology, and a growing distinguished alumni network of professionals who are equipped to lead their business or organizations into (in) the future.

Journal of Development Research is an open access journal with creative commons license CC-BY-NC in use and it is an institutionally sponsored journal.

Vivekanand Education Society's
Institute of Management
Studies & Research

Aims and Scope

Journal of Development Research is a peer-reviewed journal, and it abides by its peer review policies strictly.

The journal adheres to a rigorous double-blind reviewing policy, in which the identity of both the reviewer and author are always concealed from both the parties.

The journal publishes research papers and articles in broad areas such as:

- Banking and Finance
- Business Management articles in the field of Marketing, HRM, OB, Operation, Business
- Research Methods, Business Analytics, and other broad areas.
- Developmental Economics and Social Sectors Development
- Business Environment, Business Ethics, and Corporate Governance
- Sustainable Development, Entrepreneurship, and Social Entrepreneurship

It aims at disseminating new knowledge in the field of different domain areas of management, development studies, and related disciplines. It provides a platform for discussions and exchange of knowledge among academicians, industry professionals, researchers, and practitioners who are associated with the management, financial institutions, public and private organizations, as well as voluntary organizations.

Aruna Despande, *ADMIFMS, University of Mumbai, India*
Rajesh Chandwani, *Indian Institute of Management, Ahmedabad, India*
Varadraj Bapat, *Indian Institute of Technology, Bombay, India*
Prashant Saraswat, *University of Utah, USA*
Sachin Deshmukh, *VES Business School (VESBS), Mumbai, India*
Nisha Pandey, *VES Business School (VESBS), Mumbai, India*
Vaidyanathan, *XIMR, Mumbai*
Vijay Agarwal, *Birla Institute of Technology, Mesra, Patna, India*

Volume 15 Number 1 June 2022

Journal of Development Research

Contents

Editorial

Journal of Development Research
2022, 15(1) 7–9

DOI: 10.1177/22297561221124782
drj.ves.ac.in

Vivekanand Education Society's Institute of Management Studies & Research

In the post-COVID world, sustainability, learning, resilience, agility, productivity and well-being are the words that are spoken and heard endlessly. These are not just spoken words but ideas which need to be implemented across industries. As we are moving into a new dimension, the companies and institutions need to find and seize all new prospects that are available in the environment. It, therefore, becomes imperative to collect data and get insights regarding the issues that impact all industries.

Companies are questioning normed perceptions on how work needs to be done. One shoe will not fit all. Each organisation needs to find their unique size. Each organisation needs to evaluate the talent required, the roles that are relevant, the culture that will lead to excellence, redesign work processes that are required and many more.

Employee wellbeing is defined as the overall mental, physical, emotional and economic health of your employees. It is influenced by various factors such as their relationships with co-workers, the decisions they make, and the tools and resources they have access to. Hours pay and workplace safety also have a significant impact on employee wellbeing.

It is the employer's duty to provide their workers with the necessary support and care for their physical and mental health. Despite this, many organisations still do not have a dedicated well-being strategy. A well-being strategy can help employees feel valued and supported at work. It can also improve employee engagement and motivate teams companywide to reach their goals.

In this issue, we try to gather our understanding regarding the education sector about employee wellbeing and sustainability and also find the learning styles of postgraduate students. An empirical study has been done on capital structure and firm performance. Lastly, a study during the COVID pandemic has been published to see the impact of ban on e-cigarettes in India.

Globally, during pandemic tobacco has caused enormous health burdens and fatality, especially in the LMICs, inspite of continuing efforts under the umbrella of FCTC. India, representing a complex pattern of tobacco use, both in smoking and smokeless forms, remains the second largest tobacco-using country. A well-designed, online or CATI interview-based survey was conducted in eight large metropolitan cities of India. The study, done by Dr Banerjee, Dr Kaur & Dr Bharadwaj, involved over three thousand subjects to derive meaningful and statistically sound conclusions. The total sample size was 3,005 (ST: 1,193, SLT: 966 and EC: 846). The study finds that the COVID-19-induced lockdown and

restrictions affected ST and SLT tobacco as well as the EC user groups albeit differently.

Ms Tripathi, Dr Aziz and Dr Joshi conducted an empirical study of Indian companies to assess the relationship between capital and firm performance. The research used vigorous models on selected listed non-financial Indian companies on an index of the National Stock Exchange (NSE) for a period of 21 years (2000–2020) to investigate the impact of capital structure on their performance. The empirical results indicated that all components of capital structure (debt to equity ratio, debt to market capitalisation ratio and debt to total assets ratio) had a negative impact on financial performance (return on assets, return on net worth and Tobin's *q*).

Two studies have been done on the educational sector. The first study conducted by Ms Jadeja analysed the well-being of teachers through occupational stress factors and concluded that major factors contributing to the feelings of being stressed are sense of insecurity due to poor skills, unable to meet deadlines, lack of clarity, violating formal procedures, uninteresting work, poor quality due to heavy workload, fear of losing job, and lack of training and preparation. The author has also suggested that the symptoms and dangers of stress can be reduced by raising awareness, taking remedial action and engaging in appropriate stress-reduction activities.

In the second study in the education sector, Dr Sant and Dr Kashive conducted research with the postgraduate students to analyse the learning style amongst postgraduate management students with their specialisation and whether there are any significant differences among learning styles concerning gender and specialisation and personality.

One of the important questions that all companies need to ask is whether the culture the company had, is the culture that company needs. An organisational culture will be enabled if it supports the organisation's objectives and helps in its growth. It has become imperative for all organisations to recognise the gap between what is and what should be. The cultural norms will need to be realigned with the new reality or if required imbibe completely a new set of behaviours and norms.

The 2020 Global Talent Trends Study by Mercer has found that employees are eight times more likely to be with an organisation they trust that will provide them with a career, and four times more likely to work in an organisation which has a culture that supports an individual career. During COVID, not only did individuals and groups endure but the organisation's culture was also affected. Issues concerning onboarding, disengagement, fatigue, no informal touch points, and unclear and opaque relationships made a majority of employees alienated. As known, for any culture to support an organisation, its human capital needs to be heard and understood. Employees need to be engaged and valued. Companies are still having some groups working from home and others working from office. To create equity between the two is a challenge, that needs to be addressed by the organisations. Organisational leadership will have to support teams and individuals to adjust to the new normal. Effective conversations need to be held to engage people at individual, group and organisational levels. Thus it is important for leadership teams that they understand individual, personal and work-related needs

to create more communication among its members for shared understanding, creating an environment of integrity and shared values.

As Richard Branson says 'There's no magic formula for great company culture. The key is just to treat your staff how you'd like to be treated'.

Satish Modh
Editor-in-Chief
VESIM Business School, Mumbai
Maharashtra, India
E-mail: satish.modh@ves.ac.in

Article

Experiential Learning Theory: Application for Understanding Learning Styles of Postgraduate Students

Journal of Development Research
2022, 15(1) 10–22

DOI: 10.1177/22297561221115516
drj.ves.ac.in

Seema Sant[1] and Neerja Kashive[2]

Abstract

The article examines the learning style of MBA students and looks into how gender effects the learning styles. Data was collected from a management Institute in Mumbai, and survey questionnaires were adapted from the Kolb Learning Style Inventory to investigate the four learning styles—active experimentation (AE), concrete experience (CE), abstract conceptualisation (AC) and reflective observation (RO). The data were analysed for the frequencies and percentages, and Chi-square for comparison of gender and specialisation. Major learning styles were for both gender and specialisation. Major learning styles were AE and CE, followed by AC for both gender and specialisation. It was seen that for all the students, the two major learning modes were convergent and accommodative, which were also the two major dominant learning modes observed across the genders and all specialisations. ESTJ and ESFJ were the two dominant personality types that emerged. A Chi-square test that revealed learning styles and learning modes did not vary based on different gender and specialisation.

Keywords

Experiential learning theory, Kolb learning styles, active experimentation, concrete experience, convergent and accommodative modes

[1] Vivekanand Education Society's Institute of Management Studies and Research, Mumbai, Maharashtra, India

[2] VES Business School, Mumbai, Maharashtra, India

Corresponding author:
Seema Sant, Vivekanand Education Society's Institute of Management Studies and Research, Hashu Advani Memorial Complex, 495/497 Near Municipal School, Collector's Colony, Chembur, Mumbai, Maharashtra 400074, India.
E-mail: seema.sant@ves.ac.in

Introduction

Learning has always been an essential point of discussion amongst psychological researchers because of its complexity. Learning styles are generally more focused on 'how' the learner prefers to learn rather than 'what' the learner learns, and hence it becomes an essential factor for the students for their academic excellence and attitude. Every individual or leaner has their way of perceiving and retaining the information. Hence, these learning styles become the key factors for the learner's way of perceiving, interacting and also responding to the learning environment. It is seen that each have different styles of learning, and they learn differently from each other.

Learning styles can be defined as a particular way of behaviour and communication, affecting how students' learning takes place. 'Learning style' basically explains a students' natural pattern of getting and processing information in the learning environment. Many authors have researched this concept, but yet there is no consensus about the same; however, the core theme that emerged is that each individual has differed in the way they learn (James & Gardner, 1995). Sims and Sims (1995) have mentioned learning style inventories that mainly focus on the instructional preference or the individual's choice of the environment by using Kolb's Learning Style Inventory (KLSI).

In the twenty-first century, where information is accessible through computer networks and whereby knowledge becomes obsolete very quickly, the need for learning lifelong is required. Knowledge transmission models of teaching will be essential and storage has been losing their functionality. Education systems need to change. If they are fixed in norms, students may not be able to acquire the knowledge or skill that is required; hence, we need to shift and develop new delivery modes that tend to develop students' ability to update knowledge. To understand the learner's ability to absorb, assimilate and transfer learning, more focus is given on pedagogy, which suites the learning style preference as facilitated by the environment. A study was conducted to understand which styles of learning are used by the management students registered for the master's program of management affiliated with Mumbai University in India. Further, the study tried to see if the learning style differs across gender and specialisation chosen by the students.

Review of Literature

Experiential Learning Theory

Experiential Learning Theory (ELT) has its foundation in the twentieth-century research done by the various researchers who emphasise learning through experience as an essential part of individual learning and development.

Basically in ELT, learning is looked as constructive, as knowledge created by the learner again and again by the learner as per their knowledge. It is different from the traditional form of learning in which already prefixed ideas of knowledge are

transmitted to the learner. If we see today's educational system based on the traditional mode of learning, ELT can be defined as learning 'the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience' (Kolb, 1984). ELT model has two different modes of gaining experience—concrete experience (CE) and abstract conceptualisation (AC)—and two different modes of transferring experience—reflective observation (RO) and active experimentation (AE).

The concept of learning style based on ELT focuses on learners' different learning preferences for using different phases of the learning cycle. As per our nature and experiences, we may prefer to choose among four learning modes. We may try to balance between concrete or abstract, or it could be between active or reflective for a certain pattern way of learning. ELT, suggested by Kolb, says that learning decides the development cycle for human beings and that there way do which shapes their personal development later in their lives.

Learning Style and Gender & Discipline

For many years, researchers in ELT have explored learning and Learning Style Inventory (LSI) to study preferred learning among students. Many researchers have also shown keen interest in finding out the how gender affects the learning styles of a learner. Some of the studies do show that there are gender differences in the learning and use of learning styles (Heffler, 2001; Tindall & Hamil, 2003). Then the question arises whether the traditional curriculum addresses this difference among gender. According to Philbin et al. (1995), traditional curriculum support learning styles more favourable to men than women. But for a contemporary discipline such as management education, the need for an application-based curriculum has increased, which has led to a more holistic approach that is catering to all learning styles (Kolb & Kolb, 2005). The researchers agree that the preferred learning style of both genders can be included in the four approaches to learning. But it has been seen that men score high on AC while women score high on concrete learning mode.

Learning styles can be understood as a process in which the learners know and process information (Cano et al., 1992). Each Individual had his necessary ability to learn, but they may unable to learn effectively way (Gregorc, 1979). Garger and Guild (1984) explained learning styles as the characteristics of individuals that are stable and pervasive that can be express by interacting one's behaviour and personality when they start learning task. Many researchers are in opinion that learning is a continuous process of acquiring knowledge which lead to the meaningful behaviour of each individual.

Yet another area of interest is the learning style and its implication to performance of students. Some studies have shown a relationship between performance scores and converging type of learning style. Many researchers have focussed on the chosen learning style and student performance and their evaluation technique used. Every student learns in different ways, and the faculty has different methods of instruction. Both have the same objective of optimal learning.

Using the Kolbe instrument, Loo (2002), in his study, has categorised students into 'hard' and 'soft' major's course learning in business school. The result has found out that hard major's students were in learning styles of assimilators while soft majors core learning students were more towards accommodator learning style.

Learning Style and Personality

Beder (1990) believed that the purposes of adult learning are as follows: facilitate learning, provide support to the learner, increase productivity and improve personal growth. An individual has a unique learning style, and people differ in receiving the information, processing it and applying the gained knowledge for problem-solving. This leads to different personality types and learning styles. Harrington and Loffred (2010) also showed that students preferred online mode for learning more than classroom learning (Komarraju et al., 2011).

Many studies suggested that big five personality traits, if combined with learning styles, lead to higher academic performance and are also able to motivate to influence the academic achievement (De Feyter et al., 2012). It observed that extraversion, agreeableness, openness to experience and conscientiousness leads to intrinsic motivation, while neuroticism leads to extrinsic motivation and core self-evaluation has positive relatedness to intrinsic motivation and negative relatedness to extrinsic motivation

Felder et al. (2002) has studied MBTI personality types to identify the academic performance of an engineering students. It is observed that experimental instructional approach has become important to improve the performance of MBTI types personality (extraverts, sensors and feelers). While in other research, it has not emerged as a factor of learning styles to improve the academic performance (Felder et al., 2002; Matangi et al., 2013). Extrovert and openness as two dominant personality types were found in women working in education. Higher scores were observed for agreeableness, conscientiousness and emotional stability for business administration were observed when compared to those in communication arts. Findings showed significant differences between genders in their learning styles (Pornsakulvanich et al., 2012).

Wu and Lai (2010) conducted study with respondents as medical students of Taiwan and the United States for learning styles and personality styles and administrated KLSI and personal style inventory (PSI). It was found that there is a difference in learning styles in both the countries' students. The Taiwanese respondents were more assimilators and fewer accommodators than the S respondents. Yanardöner et al. (2014) study has suggested that gender and department does not effect the leaning style (Zimmerman et al., 2006). Researchers investigated that there is a difference in learning styles under Group Embedded Figures Test (GEFT test) and personality (MBTI) among different department's students such as engineering, agriculture and system management. These three groups have high values for field-independent learning styles under GEFT test. On other hand, there was no significant difference seen for MBTI among the

engineering department students. Students of agriculture systems management has students differ from engineering, concerning Sensing. This study has contributed basically to understanding the difference in learning styles of two groups of students (Zimmerman et al., 2006).

EL approach is most look for the learning styles but nevertheless it has its demerits and shortcomings to implement. Many educators has apprehensions to incorporate it fully due to various different purpose (Fowler, 2008; Groves et al., 2013) as it requires more time and expert to plan and implement experiential learning (EL) in their routine tight schedule (Pegg et al., 2012). The EL can also lead to uncertainties and unpredictable situations, and academician requires to be flexible and should be able to connect to with different external stakeholders to manage further to evaluate and presentations for EL applications (Frank, 2010). The academician role could be to design assessment tools and evaluation criteria for ensuring the EL successful launch. There may be issues to student who may face potential problems such as feeling doubtful about complex topics in front of experts (Frank, 2010).

Yanardoner et al. (2014) has conducted a study in which they have investigate the relationship between dominant learning styles and personality traits among students. It is found out that that 'the majority of the students had an assimilator learning style and the most frequent personality trait was agreeableness'.

Kolb's Learning Theory

Kolb's ELT focuses on the importance of the learning process of an individual. According to Kolb, ELT works as a combined effect on perception, cognition, and behaviour that leads to a more holistic approach to learning by an individual.

Kolb has proposed a model with a four-stage cycle shown as follows:

1. Concrete Experience
2. Reflective Observation
3. Abstract Conceptualisation
4. Active Experimentation

Kolb (1984) has suggested that the learning style of an individual should be a combination of various different abilities, which can increase the effectiveness of learning styles. There are four types of learning styles that combine two or more abilities under each style:

1. Diverging Styles (CE/RO)
2. Assimilating (AC/RO)
3. Converging (AC/AE)
4. Accommodating (CE/AE)

Diverging learning style (CE/RO): This style is a combination of feeling and watching. Generally, learners under this styles are sensitive, and they also prefer to watch instead of doing and have the ability to imagination to solution the problems.

Assimilating learning style (AC/RO): this is the combination of the ability to watch and think. Under this learning style, individuals generally prefer a brief and logical approach. This learning style is seen as motivation toward answering the question 'What is there to know?' Hence, it looks for accuracy, being more organised and also respecting the knowledge of the expert.

Converging learning style (AC/AE): This style is the combination of the ability of a learner to think and act. Learners under this category have excellent skills to provide solutions to the problem. They create new ideas and experiment and give solutions.

Accommodating learning style (CE/AE): This style is the combination of the ability of a learner to act and feel. Learners generally believe more in intuition rather than in logic. This style of learners prefer to solve problems by using their own experience. They also prefer other views while learning.

The Objective of the Study

The objective of this study is to analyse the various learning styles of management students across different gender and specialisation.

Research Questions

Many studies conducted to date focus on the EL style in management education. The research questions are as follows:

1. What is learning style among postgraduate management students with their specialisation (business analytics, finance, human resources, marketing and operation)?
2. Are there any significant differences among learning styles concerning gender and specialisation and personality?

Research Methodology

The KLSI scale has been used to measure learning styles. The study was conducted by collecting data from management students from various specialisations across different age groups, genders, qualifications, work experiences and family income. A learning style and MBTI questionnaire was administered to them. A total of 300 questionnaires were sent out to postgraduates students, and a total of 227 responses were received. Hence the response rate was 75.7%.

Results and Discussion

From the data collected through the survey, it was found out that 90.7% of students were from the age group 22–24 years, 8.4% were from 25–27 years and only 0.4% were from the other two categories. It shows that students are more from group age of 22–24 and are freshers who just completed their graduation and joined the postgraduate's course. Of the total 227 data collected from the enrolled management postgraduates, females (16) are found to be more than male (101). This depicts that 55.5% of the participants were female and 44.5% were male.

From Table 1, it was found out that 19.8% had a Bachelor of Engineering (BE), 42.3% a Bachelor of Commerce (BCom), 19.4% a Bachelor of Management Studies/Bachelor of Mass Media (BMS/BMM), 6.6% a Bachelor of Science (BSc) and 11.9% had others educational qualifications. It is observed that more commerce graduate enrolled in a management course compared to other backgrounds

From Table 2 it is seen that around 75.3% of students did not have previous work experience while 22.0% had 1–3 years of experience and 2.2% had 4–6 years of experience. It is observed that maximum students in the course are freshers, while some students have 1–3 years work experience.

Table 3 represents the specialisations chosen by the MBA students, and it was observed that 47.1% of students opted for finance, 22.9% for marketing, 17.2% for human resources, 6.6% for operation and 6.2% for business analytics. It shows that many of them prefer the finance specialisation as more students being from commerce background.

Table 1. Qualification.

	Frequency	%	Valid %	Cumulative %
BE	45	19.8	19.8	19.8
BCom	96	42.3	42.3	62.1
MBS/BMM	44	19.4	19.4	81.5
BSc	15	6.6	6.6	88.1
Other	27	11.9	11.9	100
Total	227	100	100	

Table 2. Work Experience.

		Frequency	%	Valid %	Cumulative %
Valid	1–3 years	50	22.0	22.0	22.0
	4–6 years	5	2.2	2.2	24.2
	Above 7 years	1	.4	.4	24.7
	Nil	171	75.3	75.3	100.0
	Total	227	100.0	100.0	

It is observed in Table 4 that the learning style of the students is 35.2% having AE and 24.7% having CE, and that the preferred learning styles are AE, where postgraduates students are applying the new ideas so as to view and understand their surroundings by going through a project or assignment to see if this real life experiment can help them in enhancing their experiences, and concrete learning, where they learn through real life application of the concept.

As seen in Table 5, the major dominant learning modes are accommodative (33.9%) and convergent (33.0%). Postgraduates students with an accommodative learning style try to learn by doing things practically. They use their to solve the problems as these are CE and AE. Whereas convergent learners always like to solve issues and involve their learning to practical problems.

Table 3. Specialisation Chosen.

	Frequency	%	Valid %	Cumulative %
BE	14	6.2	6.2	6.2
BCom	107	47.1	47.1	53.3
MBS/BMM	39	17.2	17.2	70.5
BSc	52	22.9	22.9	93.4
Other	15	6.6	6.6	100
Total	227	100	100	

Table 4. Learning Model.

	Frequency	%	Valid %	Cumulative %
	15	6.6	6.6	6.6
Abstract conceptualisation	39	17.2	17.2	23.8
Active experimentation	80	35.2	**35.2**	59
Concrete experience	56	24.7	**24.7**	83.7
Reflective observation	37	16.3	16.3	100
Total	227	100	100	

Note: Bold provided two highest values for the style.

Table 5. Dominant Learning Style.

		Frequency	%	Valid %	Cumulative %
Valid		14	6.2	6.2	6.2
	Accommodative	77	33.9	**33.9**	40.1
	Assimilative	28	12.3	12.3	52.4
	Convergent	75	33.0	**33.0**	85.5
	Divergent	33	14.5	14.5	100.0
	Total	227	100.0	100.0	

Note: Bold provided two highest values for the style.

As seen in Table 6, for students opting for all specialisations, AE and CE are the preferred learning styles. The chi-square test shows no significant difference. This proves that there are the same learning modes among postgraduates from different specialisations.

For both males and females, AE and CE have emerged as major learning modes. The chi-square test shows no significant difference, which proves that there is no difference in the learning modes among males and females as seen in Table 7.

Table 6. Specialisation Chosen: Learning Modes—Cross Tabulation.

Count	Learning Modes				
Specialisation Chosen	Abstract Conceptualisation	Active Experimentation	Concrete Experience	Reflective Observation	Total
Business analytics	1	2	7	3	1	14
Finance	8	20	33	25	21	107
Human resource	5	4	12	7	11	39
Marketing	1	10	22	15	4	52
Operations	0	3	6	6	0	15
Total	15	39	80	56	37	227

Table 7. Gender: Learning Modes—Cross Tabulation.

Count	Learning Modes				
Gender	Abstract Conceptualisation	Active Experimentation	Concrete Experience	Reflective Observation	Totals
Female	11	17	45	29	24	126
Male	4	22	35	27	13	101
Total	15	39	**80**	**56**	37	227

Note: Bold provided two highest values for the style.

Table 8. Specialisation Chosen: Learning Style—Cross-Tabulation.

Count	Dominant Learning Style				
Specialisation Chosen	Accommodative	Assimilative	Convergent	Divergent	Total
Business analytics	2	5	1	5	1	14
Finance	4	31	15	37	18	107
Human resource	6	13	7	11	4	39
Marketing	2	25	2	15	8	52
Operations	0	3	3	7	2	15
Total	14	**77**	28	**75**	33	227

Note: Bold provided two highest values for the style.

Table 9. Gender: Learning Style—Cross-Tabulation.

Count		Dominant Learning Style				
Gender		Accommodative	Assimilative	Convergent	Divergent	Totals
Female	12	39	16	40	19	126
Male	2	38	12	35	14	101
Total	14	**77**	28	**75**	33	227

Note: Bold provided two highest values for the style.

As observed in Table 8, convergent and accommodative are two major dominant learning styles observed across all the specialisation. The chi-square test shows no significant difference, which proves that there is no difference in the learning styles among students from different specialisations.

Convergent and accommodative are two major dominant learning styles observed across the two genders, male and female as shown in Table 9. The chi-square test shows no significant difference. This shows that the two groups, male and female, have the same learning styles. For students with AE and CE, the MBTI personality types ESTJ and ESFJ were dominant. The chi-square test shows a significant difference.

Conclusion

The current research is focusing on finding out various aspects of the learning style among the management students and on trying to relate to the gender and specialisation opted amongst them. The data was collected from 227 management students for finding out their learning styles by collecting data from them using LSI based on Kolb (1984).The study had identifies the major learning styles, which are AE and CE followed by AC. AE mode explains those individuals who believe in taking an active role in changing the situation and individuals around them. This kind of individual enjoys learning through real-life application in comparison to reflection; hence, these individuals are like to actively participate rather than observe.

The research showed that the significant learning modes were convergent and accommodative. Convergent and accommodative were also the two major dominant learning modes observed across all the specialisations. It was also observed that convergent and accommodative learning modes were also dominant across the two genders, male and female. Convergent (AC/active experimenter) think through before actually taking up anything and then try it out. They will always ask why before trying anything and they try to understand how things work in practice. They are independent workers. and they use facts and implement small changes. Accommodators (concrete experiencer/active experimenter) believe in doing things and practical application rather than wasting time on thinking. They dislike routine jobs and would take a risk and use creativity to solve the problem. They learn on their own rather than from others. The Chi-square test was not significant, which showed that the two learning modes, like convergent and accommodative, did not vary across the different specialisations.

Managerial Implications

Findings imply that an individual learner can identify their learning behaviour, as well as faculty can help the students understand their learning style. It becomes more comfortable for the students to learn by knowing more about their strengths and weaknesses as learners, which will motivate further learning of the individuals. Even faculty can adopt flexible learning strategies that may interest the learner. Students who can understand their learning strategies and problem-solving skills will be adaptable in their jobs (Allinson & Hayes, 1990). As faculty, if they can understand the learning style of the student, it becomes easy to deliver accordingly to encourage the learner. This will also enhance the awareness of learning styles among the faculty, which leads them to be flexible for teaching styles and will lead to better communication between faculty and management students.

Students enter the higher education system with a mindset of their previous learning experience that their role would be a passive learner in the whole learning process. Providing flexibility to the students to learn on their own and taking responsibility for the learning process will surely lead to a better learning experience (Baxter-Magolda, 1999; Kegan, 1994; King, 2003).

EL can be delivered through different activities such as guest lectures, role plays, simulations and field trips. Study tours and international trips may also be included, which may help in providing transformative experiences. The EL may also include workplace experience, which will connect theory taught in the classroom to the real workplace and will require to have an active liaison between the educational institution and future employer. Students' learning will also depend upon what kind of task given to them while working at the workplace and not only assigning the office task (e.g., photocopying).

According to other scholars, this will also lead to a better capability of students for self-direction (Boyatzis, 1994; Robertson, 1988). The management development and assessment courses would help in self-direction by assessing and providing feedback on learning skills and competencies and by developing a learning plan or goal for each student's career path (Boyatzis, 1994). As per Bransford et al. (2002), there is a need for developing meta-cognitive skills for increasing active learning. According to Keeton et al. (2002), when we are developing them to be active learners, students can be taught to take responsibility for their learning by evaluating themselves in the area where they are uncomfortable. Workshops on EL and learning styles can be organised to develop their metacognitive learning skills.

Limitations and Future Research

The present study has certain limitations. The current study is only based on students who are in postgraduate management programmes at a particular institute. Cultural differences also affect the learning styles, which was not considered. The study may be required to examine the change in the learning styles of the students in the following years and in their professional life.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding

The authors received no financial support for the research, authorship and/or publication of this article.

References

Allinson, C. W., & Hayes, J. (2000). Cross-national differences in cognitive style: implications for management. *International Journal of Human Resource Management*, *11*(1), 161–170.

Baxter-Magolda, M. B. (1999). *Creating contexts for learning and self-authorship: Constructive-developmental pedagogy* (Vanderbilt Issues in Higher Education). Vanderbilt University Press.

Beder, H. (1990). Reasons for non-participation in adult basic education. *Adult Education Quarterly*, *40*, 207–218.

Boyatzis, R. E. (1994). Stimulating self-directed change: A required MBA course called Managerial Assessment and Development. *Journal of Management Educations*, *18*(3), 304–323.

Bransford, J. D., Brown, A. L., & Cocking, R. R. (2000). *How people learn: Brain, mind experience, and school*. National Academy Press.

Cano, J., Garton, B. L., & Raven, M. R. (1992). Learning styles, teaching styles and personality styles of preservice teachers of agricultural education. *Journal of Agricultural Education*, *33*(1), 46–52.

De Feyter, T., Caers, R., Vigna, C., & Berings, D. (2012). Unraveling the impact of the Big Five personality traits on academic performance: The moderating and mediating effects of self-efficacy and academic motivation. *Learning and Individual Differences*, *22*(4), 439–448.

Felder, R. M, Felder, G. N., & Dietz, E. J. (2002). The effects of personality type on engineering student performance and attitudes. *Journal of Engineering Education, 91*(1). https://doi.org/10.1002/j.2168-9830.2002.tb00667.x

Fowler, J. (2008). Experiential learning and its facilitation. *Nurse Education Today*, *28*(4), 427–433.

Frank, A. (2010). Making a case for complementarity of student learning from year-long work-based placements in town planning. *Learning and Teaching in Higher Education*, *4*(2), 21–45.

Garger, S., & Guild, P. (1984). Learning styles: The crucial differences. *Curriculum Review*, *23*(1), 9–12.

Gregorc, A. F. (1979). Learning-teaching styles-potent forces behind them. *Educational Leadership*, *36*(4), 234–236.

Groves, M., Leflay, K., Smith, J., Bowd, B., & Barber, A. (2013). Encouraging the development of higher-level study skills using an experiential learning framework. *Teaching in Higher Education*, *18*(5), 545–556.

Harrington, R., & Loffredo, D. A. (2010), MBTI personality type and other factors that relate to preference for online versus face-to-face instruction. *Internet and Higher Education*, *13*(1), 89–95.

Heffler, B. (2001). Individual learning style and the learning style inventory. *Educational Studies, 27*(3), 309–316.

James, W. B. & Gardner, D. L. (1995). Learning styles: Implications for distance learning. *New Directions for Adult and Continuing Education, 67*, 19–31.

Keeton, M. T., Sheckley, B. G., & Griggs, J. K. (2002). *Efficiency and effectiveness in higher education*. Kendall/Hunt Publishing Company.

Kegan, R. (1994). *In over our heads: The mental demands of modern life*. Harvard University Press.

King, P. M. (2003). Student learning in higher education. In S. R. Komives, D. B. Woodward, Jr. & Associates (Eds), *Student services: A handbook for the profession* (pp. 234–268). Jossey Bass.

Kolb, D. A. (1984). Experiential learning: *Experience as the source of learning and development.* Prentice Hall.

Kolb, A. Y., & Kolb, D. A. (2005). Learning styles and learning spaces: Enhancing the experiential learning in higher education. *Academy of Management Learning & Education*, *4*, 193–212.

Komarraju, M., Karau, S. J., Schmeck, R. R., & Avdic, A. (2011). The Big Five personality traits, learning styles, and academic achievement. *Personality and Individual Differences*, *51*(4), 472–477.

Loo, R. (2002). A meta-analytic examination of Kolb's learning style preferences among business majors. *Journal of Education for Business, 77*(5), 252–256.

Matangi, E., Kashora, P., Mhlanga, A., & Kachere, W. (2013). Personality and learning preference interactions of women in tertiary education. *International Journal of Humanities and Social Science*, *3*(1), 172.

Pegg, A., Waldock, J., Hendy-Isaac, S., & Lawton, R. (2012). *Pedagogy for employability*. https://www.advance-he.ac.uk/knowledge-hub/pedagogy-employability-2012

Philbin, M., Meier, E., Huffman, S., & Boverie, P. (1995). A survey of gender and learning styles. *Sex Roles*, *32*, 485–494.

Pornsakulvanich, V., Dumrongsiri, N., Sajampun, P., Sornsri, S., John, S. P., Sriyabhand, T., Nuntapanich, C., Chantarawandi, C., Wongweeranonchai, P., & Jiradilok, S. (2012). An analysis of personality traits and learning styles as predictors of academic performance. *ABAC Journal*, *32*(3).

Sims, R. R., & Sims, J. S. (1995). *The importance of learning styles: Understanding the implications for learning, course design, and education.* Greenwood Press.

Tindall, T, & Hamil, B., (2003). Gender disparity in science education: The causes, consequences, and solution. *Education, 125* (2), 282–295.

Robertson, D. L. (1988). *Self-directed growth*. Accelerated Development, Inc.

Wu, C. K., & Lai, H. S. (2010). Learning style and personality type profiles of hospitality undergraduate students of Taiwan and the United States. 止善, (8), 111–139.

Yanardöner, E., Kiziltepe, Z., Seggie, F. N., & Sekerler, S. A. (2014). The learning styles and personality traits of undergraduates: A case at a state university in Istanbul. *The Anthropologist*, *18*(2), 591–600.

Zimmerman, A. P., Johnson, R. G., Hoover, T. S., Hilton, J. W., Heinemann, P. H., & Buckmaster, D. R. (2006). Comparison of personality types and learning styles of engineering students, agricultural systems management students, and faculty in an agricultural and biological engineering department. *Transactions of the ASABE*, *49*(1), 311–317.

Article

Developing a Framework for New-Normal Supply Chain Management

Journal of Development Research
2022, 15(1) 23–34

DOI: 10.1177/22297561221125260
drj.ves.ac.in

Rupesh Siyodia[1] and Ritu Chakraborty[2]

Abstract

COVID-19 has exposed the risks of complex and disconnected supply chain. Many businesses have realised that they need to reach a state of greater visibility and agility across their supply chain. This crisis has forced practical, agile thinking, giving the courage to test, fail fast and try again. Digital transformations that would have taken months or years are being done in a matter of weeks.

In view of the above perspective, this article first studies the various initiatives taken by companies to make their end-to-end supply chain resilient, agile and robust. Then it identifies various factors for a new age technology that are evident for new-normal supply chain management. Using New Rough Stepwise Weight Assessment Ratio Analysis (SWARA) approach, the factors are evaluated for most appropriate factor required for implementation.

Keywords

New-normal, supply chain management, digital supply network, e-procurement, new age technologies

Introduction

On December 2019, the first case of COVID-19 was found in Wuhan city of China, which subsequently spread across the world by the end of March 2020. The outbreak of coronavirus was a sudden and unexpected incident. Almost the entire world is affected by the working of various industries coming to a halt. Situations such as lockdown, quarantine, mental distraction and job loss are the major outcomes of the pandemic. This has also created a huge burden on medical

[1] N. L. Dalmia Institute of Management Studies and Research, Mira Bhayandar, Maharashtra, India

[2] Sheila Raheja School of Business Management and Research, Mumbai, Maharashtra, India

Corresponding author:
Rupesh Siyodia, N. L. Dalmia Institute of Management Studies and Research, Mira Bhayandar, Maharashtra 401107, India.
E-mail: Rupesh.siyodia@ves.ac.in

facilities. Due to job losses, medical facilities are not reaching the lower strata of society. There is a demand–supply mismatch where the demand for certain goods such as face shields and pharmaceutical products is very high but the supply is negligible compared to this demand. On the other hand, there is no demand for goods such as cars, jewellery and shoes but the supply is high. Due to this, the global supply chain (SC) is disturbed. Due to the pandemic, 12,000 facilities of more than 1,000 SC companies are under quarantined areas in China (Ivanov & Dolgui 2020). Manufacturers of SC lack labour to perform production activities, despite ample availability of raw material.

India has faced the worst recession due to the outbreak of coronavirus after the great depression in 1930. The GDP growth rate is 1.9%, which is the lowest recorded figure due to coronavirus. International trade has drastically declined and companies majorly dependent on trades have suffered huge losses.

The two main objectives of any corporate in the current scenario are:

- Managing the cash flow which is the most important chunk of operating capital during this pandemic and surviving in this lockdown with sharp downturn.
- Designing the supply chain for the new normal.

On advice of the World Health Organization, the Government of India announced an unanticipated lockdown, which led to a spike in demand for groceries and fast-moving consumer goods. It was a challenge for the outbound SC to function smoothly as consumers were buying the available products without considering the brand. This forced retail distributors to increase the speed of replenishment, for satisfying the customer demand.

The scenario was opposite in the Inbound SC. Organizations were trying their best to cover up their inventory for a longer lead time. There was a short supply due to the sudden lockdown announced by government authorities. Organisations were looking for alternative resources. Most of the industries were focusing on protecting the businesses until the pandemic got over, by acquiring their supplies either through local or global sources to sustain their business activities.

The key impact of the pandemic on SC planning was to apply different strategies for the forward and backend/backward SC. In the normal conditions, the forward and backend/backward SC were working in congruence.

As we look ahead, there is no ‘one-size-fits-all’ model and companies will have to work closely with their manufacturing, logistics, distribution, marketing and sales department to define their future SC. This is where the need for designing SC for the ‘new normal’ comes into the picture.

Objectives of the Study

- To understand the initiative taken by organisations to make their end-to-end supply chain resilient, agile and robust.
- To identify the factors to redesign the supply chain.

Literature Review

Supply Chain Management

Various definitions of supply chain management (SCM) have evolved, thereby making it a very important process. SCM is the management of business processes in organisations that handle SC (Croxton et al., 2001). Traditional SC was linked with purchasing and logistics management but with the advancement over traditional ways of purchasing and logistics, SCM is management of materials and distribution (Tan, 2001). The main role of SCM is to convert raw materials into finished goods and deliver the same to end users in a timely manner (Vincent & Venkataramanan, 2007). The whole of SC majorly consists of retailers, distributors, manufacturers and suppliers who give goods and services to end users and add value to upstream and downstream channels through movement of information and resources. It also aims at improving product or service attractiveness (Machowiak, 2012). For the development of economy, creating a demand and supply balance is very crucial. This is where SCM plays a role. It incorporates supply and demand management inside and across companies (Randall & Mello, 2012). Apart from demand and supply management, it regulates the relationship within the chain of people involved in the process (Min & Mentzer, 2011).

Impact of COVID-19 in SCM

With the widespread of COVID-19 virus, multiple countries all over the world declared health emergency. India developed its first COVID-19 case on 30 January 2020. Various restrictions were imposed, leading to a halt in business processes and affecting the business cycle of almost all organisations.

The coronavirus pandemic showed a huge impact on SC of almost all organisations, which in turn affected the functioning of manufacturers, retailers and wholesalers. Companies were struggling to uphold the sound movement of goods and services during this difficult time. Goods such as frozen food, medicines, masks and grocery items that were in huge demand faced obstacles due to disrupted SC. This led to an interruption in manufacturing, procurement, distribution and supplies. Previously forecasted demand and budgets remained unworkable. Due to the lockdown manufacturing plants were forced to shut down and special permission was required to operate plants manufacturing special goods required during the pandemic. Movement between inter and intra-state was at a halt leading to absenteeism of workforces, less staff at warehouses and shops and interrupted procurement of domestic raw materials. The use of existing infrastructure drastically reduced as it remained unused.

Various literature on ‘lean supply chain’ were developed to enhance the effectiveness of SCM. It is a linking of companies for managing movement of information, products, services and money upstream and downstream also

enabling low cost and meeting customer demands (Vitasek et al., 2005). Many companies all over the world implemented this for an efficient SC. The major advantage of lean SCM is reduction in inventory level helping companies to keep their inventory and hence the storage costs low. Due to the pandemic, companies were building up their inventory and in turn faced the disadvantages of lean supply chain (Roy, 2020).

Initiative by Organisations During the Pandemic

With the pandemic disturbing and disrupting the SCM, many organisations have taken various initiatives to improve the SCM and bring it back on track. Using various literatures, this article has listed the initiatives.

1. Majority of the offices are in metro cities, such as Kolkata, Bangalore and Mumbai, but due to the pandemic, companies are considering the options of work from home or working once a week from office. Due to this, people are moving towards non-metro cities considering them as low-income cities. In addition, many organisations are looking forward to moving their offices to non-metro offices.
2. For fulfilling the desired positions in organisations, companies are recruiting people from anywhere in the world. Hence, location is not a constraint for job since people will work from home. This has also attracted highly talented people.
3. With lower travelling and more time saved, organisations are giving more growth options in terms of training and development.
4. The pandemic has made organisations believe that having one or multiple specialisations of the same product is not enough. Hence, many companies are now opting for multiple variations in the product line. Manufacturing and selling hand sanitisers by a liquor company, making masks for all occasions by the fashion industry and manufacturing medical equipment like ventilators by an auto company are some of the initiatives.

Robust SCM and Use of New Age Technologies

SC has to undergo tremendous change in its way of functioning. The robust implementation of SC can be implemented by the use of new-age technology and drastic ways of processing.

SC's first and primary element is manufacturing. Laborers play a significant part in the production process in the labor-intensive industry of manufacturing. The demand of the hour is for motivated as well as skilled labour. However, we have noticed a change in labourers' behaviour recently. Production is not crucial to them. They determine that the product they make is not necessary, so they skip work. Some are influenced by their family' decision not to go back to work. Traveling might be challenging for certain people because of restrictions and lockdowns.

Instead of sticking to conventional ways of procurement networks, having a digital SC is the way out. Digital supply chain networks are fast. There is continuous flow of information with the supply network and due to its integrated nature and use of analytics, it helps organisations remain connected with all the stages of SC. E-procurement is one of the techniques used nowadays by companies to overcome the problems of manufacturing (Chang et al., 2013). Olig and Spears (2001) mentioned various advantages of it. Electronic procurement or e-procurement, defined in its basic form, is the usage of electronic resources such as the internet and email for buying and selling goods or rendering services (Carayannis & Popescu, 2005). It includes ordering through electronic means, use of portals, extranets and Electronic Data Interchange (EDI) for bidding processes (Dooley & Purchase, 2006); purchasing cards and reverse auctions are also included (Moon, 2005). Connecting multiple organisations electronically to handle the purchasing procedure is the main motive (Dooley & Purchase, 2006).

Electronic sourcing or e-sourcing is the identification of new suppliers over the Internet, including tendering in which requests for prices and related information are sent (Boer et al., 2002).

Further to adding new technologies, Artificial Intelligence (AI) holds space in SCM. It is the ability of machines to communicate with humans and reproduce the capacities of humans (Holsapple & Whinston, 1990). It is helpful in various areas to solve problems, has high accuracy, higher speed and can take large amount of data. Artificial neural network (ANN) which is a variant of AI helps in forecasting techniques (Ketter et al., 2011), used for pricing of products and services (Peterson & Flanagan, 2009) combined with k-means which is used for customer segmentation. Genetic Algorithm (GA) conducts sales promotion and other promotional activities. Taratoukhine and Yadgarova (2018) suggested a technique to handle product life cycle using multi-agent systems (MASs). Lee et al. (2011) suggested a way to handle logistics workflow using AI in combination with radio-frequency identification (RFID). AI is also used to control and suggest improvements in quality of products and services.

Use of robots in SC is now picking up demand. SC integrated with robotics is the future of SCM. With options of relocation due to the pandemic, success in terms of quality and productivity is achieved. The e-commerce giant Amazon in 2012 acquired Kiva systems. The only reason was to increase its pace of picking and packing using robots used by Kiva Systems, though it had to invest heavily for the acquisition. Within two years of the acquisition, Amazon started using automated robots in its various centres. The robots transport goods from one inventory store to another being picked up manually and others being automatically returned to the shelves in the store. In future, robots will be used for truck unloading, collecting orders, inventory examining and transportation of goods. Robots will also be used to deliver goods to customers and customers can track the robots using mobile applications. For a robot failure, there would be a backup robot, and for repairing the broken robot, fixing would be done using cloud where the data are stored.

The concept of blockchain is widely discussed in the SC organisation. It is a database, which can be accessed by a peer-to-peer network. In this, sequential

blocks are linked together, for a timely transaction to happen and are secured by a cryptographic key on a network that is verified. Once a component is added, it cannot be changed or altered which makes blockchain a reliable source for past records (Seebacher & Schüritz, 2017). Blockchain is highly beneficial for SCM as it is traceable, trusted and reliable for all members of SC. It can also help in reducing the operational cost by eliminating intermediaries.

Although there is great potential for IoT in SCM, the real business value of IoT in the SC has not yet been fully recognised or thoroughly addressed. According to a survey by Accenture of large global companies with more than 1,000 senior managers, most companies (about 90%) still have difficulty understanding how the IoT can benefit their SC. By linking machines, products, people and SC members, the IoT provides a new environment for supply chain managers. It enables process integration and information communication, allows machine-enabled decision-making and fosters more efficient and effective SCM. In this entirely new business and technology environment, supply chain managers need to innovate their traditional SCM practices and strategies (Li & Li, 2017).

Various other providers of services and models would be created in the upcoming future. The only criteria for them to continue in the market would be the extent to which they can keep up their promises. There can also be a change in the behaviour of competitors. The only way to understand and survive in the changing environment is to do scenario analysis. It implies how to innovate your operations, what model fits the best and what ecosystem the business should have.

Research Methodology

New Rough Stepwise Weight Assessment Ratio Analysis (SWARA) (Zavadskas et al., 2018) developed is a relatively new method used to solve problems in various areas. In this method, experts play a major role in evaluation. Using their own expertise, they rank all the criteria with Rank 1 as the most significant and the least significant is given the highest rank. The ranking of the experts is the main component of this method. In addition, this method is easy to apply. The decision-making process using this technique is achieved quickly and accurately. This research is undertaken to assess the factors for a robust SCM post-pandemic situation.

Working of Rough SWARA Method

The rankings collected by the experts consist of the first two steps of the method. In the third step, individual responses of the experts are converted into group matrix *cj*. In the fourth step, the previous matrix is normalised wherein the worst ranked criteria will have the highest value. Also, the first element is equal to one

while other elements are found by dividing the elements with the highest value. In the fifth step, all the elements except the first one which has Value 1, must be added with the number 1 and a new matrix '*kj*' is formed. In the sixth step, the weight matrix in terms of '*qj*' is recalculated by diving '*q*(*j*–1)' with *kj* retaining value which is the first element. In the seventh and the last step, relative weights of the criteria are obtained.

Data Collection

Data were collected from experts having experience of more than 10 years. Experts were practitioners of SC holding various strategic positions in production, procurement, sales, logistics and distribution of multiple industries. These experts were chosen with the intention that they are well versed in the existing problems and the changing pattern of the SCM industry. Data collection was done through a structured questionnaire distributed through emails. Out of 50 questionnaires distributed, 23 responses were received. The demographic profile is exhibited in the following table:

Demographic Details of Experts	
Gender	
Male	15
Female	8
Age	
30–35 years	3
35–40 years	18
40–45 years	2
Experience	
10–15 years	7
15–20 years	8
20–25 years	8
Department	
Purchase	4
Distribution	5
Sales	7
Pricing	3
Manufacturing	4
Industry	
FMCG	9
Logistics	5
Pharmaceutical	3
Retail	6

Factors Identification

Literature review explains various factors that are required for a robust and agile SCM. Using the Literature 4 main criteria and 14 sub criteria are identified. They are listed as per the following table and are validated by the experts.

Detailed Calculation Stepwise of Rough SWARA

The Rough SWARA calculation is first performed on the 4 main criteria followed by 14 sub criteria. A total of 23 experts were asked to rank the 4 main criteria in the range of 1 to 4, where 1 is the best rank and 4 is the worst rank. The same procedure is followed for 14 sub criteria. The following table describes the ranking by 23 experts where Cj stands for 'criteria' and Ej stands for 'experts'.

Codes	Main Criteria	Sub Criteria
C1	Inventory buffering	
C1-a		Alternate sourcing
C1-b		Securing critical inventory
C1-c		Shared resources
C1-d		Diversification
C2	Digital supply network	
C2-a		Artificial intelligence
C2-b		Robots
C2-c		Internet of things
C2-d		Blockchain
C3	Work environment	
C3-a		Flexible
C3-b		Restricting non-essential travel
C3-c		Location tracking
C4	Alignment of IT systems	
C4-a		System stability
C4-b		Network robustness
C4-c		Data security

	Experts											
Main Criteria	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12
C1	4	4	4	4	4	4	3	4	4	4	3	4
C2	1	1	1	1	1	1	2	1	1	1	2	1
C3	3	3	3	3	3	3	4	3	3	3	4	3
C4	2	2	2	2	2	2	1	2	2	2	1	2

Main Criteria	Experts										
	E13	E14	E15	E16	E17	E18	E19	E20	E21	E22	E23
C1	4	3	4	4	3	4	4	4	4	3	4
C2	1	2	1	1	2	1	1	1	1	2	1
C3	3	4	3	3	4	3	3	3	3	4	3
C4	2	1	2	2	1	2	2	2	2	1	2

Sub Criteria	Experts											
	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12
C1-a	9	10	9	10	10	9	9	9	10	10	10	9
C1-b	13	14	13	14	14	13	13	13	14	14	14	13
C1-c	12	11	12	11	11	12	12	12	11	11	11	12
C1-d	10	9	10	9	9	10	10	10	9	9	9	10
C2-a	6	5	6	5	5	6	6	6	5	5	5	6
C2-b	14	13	14	13	13	14	14	14	13	13	13	14
C2-c	1	2	1	2	2	1	1	1	2	2	2	1
C2-d	2	1	2	1	1	2	2	2	1	1	1	2
C3-a	8	7	8	7	7	8	8	8	7	7	7	8
C3-b	11	12	11	12	12	11	11	11	12	12	12	11
C3-c	7	8	7	8	8	7	7	7	8	8	8	7
C4-a	4	3	4	3	3	4	4	4	3	3	3	4
C4-b	3	4	3	4	4	3	3	3	4	4	4	3
C4-c	5	6	5	6	6	5	5	5	6	6	6	5

Sub Criteria	Experts										
	E13	E14	E15	E16	E17	E18	E19	E20	E21	E22	E23
C1s-a	9	9	10	9	10	9	10	9	9	9	9
C1-b	13	13	14	13	14	13	14	13	13	13	13
C1-c	12	12	11	12	11	12	11	12	12	12	12
C1-d	10	10	9	10	9	10	9	10	10	10	10
C2-a	6	6	5	6	5	6	5	6	6	6	6
C2-b	14	14	13	14	13	14	13	14	14	14	14
C2-c	1	1	2	1	2	1	2	1	1	1	1
C2-d	2	2	1	2	1	2	1	2	2	2	2
C3-a	8	8	7	8	7	8	7	8	8	8	8
C3-b	11	11	12	11	12	11	12	11	11	11	11
C3-c	7	7	8	7	8	7	8	7	7	7	7
C4-a	4	4	3	4	3	4	3	4	4	4	4
C4-b	3	3	4	3	4	3	4	3	3	3	3
C4-c	5	5	6	5	6	5	6	5	5	5	5

Using the steps described above of Rough SWARA, the relative weights matrix of Main Criteria and Sub Criteria are calculated and presented in the following table.

Main Criteria	Relative Weights
C2	0.471571
C4	0.324995
C3	0.178386
C1	0.090754

Sub Criteria	Relative Weights
C2c	0.248438528
C2d	0.223612025
C4b	0.180208816
C4a	0.14343341
C4c	0.103504648
C2a	0.073845359
C3c	0.048224612
C3a	0.031177907
C1a	0.018599148
C1d	0.010993993
C3b	0.006036588
C1c	0.003286744
C1b	0.001671758
C2b	0.00084371

As per the 'relative weights', in the above table, of 'main criteria', we can find out that 'digital supply network' received the high weightage as per experts followed by alignment of IT systems. Work environment and inventory buffering received the least weight.

Looking at 'relative weights, in the above table, of 'sub criteria', C2c that is criteria resembling IOT receives the highest weight followed by C2d which is blockchain. Network robustness and system stability received 3rd and 4th highest weights, respectively. The other criteria received lower weights as mentioned in the above table.

Implications of the Research

The spread of the COVID-19 pandemic has affected large number of companies. The SC cycle has also been affected and new avenues to revive it is necessary.

The study accessing the factors for a new normal SC reveals that use of 'digital supply network' is required for reviving the SCM cycle. Companies should re-examine their SC network. To infuse the agility in SC, scalable solutions combined with automation are the key. While going after agility, firms should also consider the cost, as no organisation wants its operational expenses to go up.

Conclusion

Development in technology should be considered the main source of survival in a pandemic-like situation. The focus of the organisation now should be to have a strong digital infrastructure to effectively communicate and manage future challenges.

The current scenario brings up the fact that companies cannot control the demand; therefore, to cope with the ever-changing demand pattern, they have to build flexible SC and production systems.

For accurate planning, precise forecasting is a must, and for precise forecasting, the use of big data and machine learning is a must. Further, firms cannot rely on available metrics, particularly for planning. Undoubtedly, it is time to move to the new metric—net promoter score—to measure the effectiveness of the SC to meet customer expectations.

This is the era where data are available in abundance right from the point of sale to consumer buying behaviour. Data-driven decision-making has enabled the demand planner to take accurate decisions. Tools such as AI and machine learning are aiding the decision-making process by extracting valuable information out of big data. Going forward, SC transformation will play a key role in enhancing the business performance.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding

The authors received no financial support for the research, authorship and/or publication of this article.

References

Boer, L. D., Harink, J., & Heijboer, G. (2002). A conceptual model for assessing the impact of electronic procurement. *European Journal of Purchasing and Supply Management*, *8*, 25–33.

Carayannis, E. G. (2005). Profiling a methodology for economic growth and convergence: Learning from the EU e-procurement experience for central and eastern European countries. *Technovation*, *25*, 1–14.

Chang, H. H., Chuan, Y., & Hsu, C. H. (2013). E-procurement and supply chain performance. *Supply Chain Management: An International Journal*, *18*, 34–51.

Croxton, K. L., Dastugue, S. G., Lambert, D. M., & Rogers, D. (2001). The supply chain management processes. *The International Journal of Logistics Management*, *12*, 13–36.

Dooley, K., & Purchase, S. (2006, March). Factors influencing e-procurement usage. *Journal of Public Procurement*, *6*, 28–45.

Holsapple, C. W., & Whinston, A. (1990). Business expert systems: Gaining a competitive edge. *IEEE Xplore*, *3*, 249–256.

Ivanov, D., & Dolgui, A. (2020). Viability of intertwined supply networks: Extending the supply chain resilience angles towards survivability. A Position Paper Motivated by COVID-19 Outbreak. *International Journal of Production Research*, *58*(10), 2904–2915.

Ketter, W., Collins, J., Gini, M., & Gupta, A. (2011). Real-time tactical and strategic sales management for intelligent agents guided by economic regimes. *Information Systems Research*, *23*(4), 1263–1283.

Lee, C., Ho, W., Ho, G. T. S., & Lau, H. (2011). Design and development of logistics workflow systems for demand management with RFID. *Expert Systems with Applications*, *38*, 5428–5437.

Li, B., & Li, Y. (2017). Internet of things drives Supply Chain Innovation: A research framework. *The International Journal of Organizational Innovation*, *9*(3), 71–92.

Machowiak, W. (2012). Risk management-unappreciated instrument of supply chain management strategy. *LogForum*, *8*(4), 277–285.

Min, S., & Mentzer, J. T. (2011). Developing and measuring supply chain management concepts. *Journal of Business Logistics*, *25*(1), 63–99.

Moon, M. J. (2005). E-procurement management in state governments: Diffusion of e-procurement practices and its determinants. *Journal of Public Procurement*, *5*, 54–72.

Olig, E., & Spears, G. (2001). Benefits of Internet-enabled procurement. *Hospital Materiel Management Quarterly*, *22*, 42–46.

Peterson, S. P., & Flanagan, A. B. (2009). Neural Network Hedonic Pricing Models in Mass Real Estate Appraisal. *Journal of Real Estate Research*, *31*, 147–164.

Randall, W. S., & Mello, J. E. (2012). Grounded theory: An Inductive method for supply chain research. *International Journal of Physical Distribution & Logistics Management*, *42*, 863–880.

Roy, V., Bruno, S. S., & Singh, S. (2020). Reactive and proactive pathways to sustainable apparel supply chains: Manufacturer's perspective on Stakeholder salience and organizational learning toward responsible management. *International Journal of Production Economics*, *227*(1), 107672.

Seebacher, S., & Schüritz, R. (2017). *Blockchain Technology as an Enabler of Service Systems: A Structured Literature Review.* International Conference on Exploring Services Science, Springer, Cham. https://doi.org/10.1007/978-3-319-56925-3_2

Tan, K. C. (2001, March). A framework of supply chain management literature. *European, Journal of Purchasing & Supply Management*, *7*, 39–48.

Taratoukhine, V., & Yadgarova, Y. (2018). Towards a socio-inspired multiagent approach for new generation of product life cycle management. *Procedia Computer Science*, *123*, 479–487.

Vincent, A. M., & Venkataramanan, M. A. (2007). Special research focus on supply chain linkages: Challenges for design and management in the 21st century. *Decision Sciences*, *29*, 537–552.

Vitasek, K., Manrodt, K., & Abbott, J. (2005). What makes a lean supply chain. *Supply Chain Management Review*, *9*, 39–45.

Zavadskas, E. K., Stevic, Z., Tanackov, I., & Prentkovskis, O. (2018, March). A novel multicriteria approach – Rough Step-Wise Weight Assessment Ratio Analysis Method (R-SWARA) and its application in logistics. *Studies in Informatics and Control*, *27*, 97–106.

Article

Employee Well-being and the Path to Sustainability: A Study of the Education Sector

Journal of Development Research
2022, 15(1) 35–44

DOI: 10.1177/22297561221120108
drj.ves.ac.in

Hiteshwari Jadeja[1]

Abstract

The promotion of employee well-being and performance is one of the key goals of organisations after COVID-19. Nonetheless, the current economic crisis tyrannises this goal, cruelly jeopardising the sustainability of prior decades' well-being and performance. It is acknowledged that stress is unavoidable and if not managed properly, can have a negative impact on teachers' health and well-being. In the current research, responses were collected from 512 university teachers to understand the challenges they are facing and the results were analysed with the help of 'principal component analysis'. Results revealed that major factors contributing to the feelings of being stressed are sense of insecurity due to poor skills, unable to meet deadlines, lack of clarity, violating formal procedures, uninteresting work, poor quality due to heavy workload, fear of losing job, and lack of training and preparation. The symptoms and dangers of stress can be reduced by raising awareness, taking remedial action and engaging in appropriate stress-reduction activities.

Keywords

Mental health and well-being, organisational sustainability, occupational stress, university teachers

[1] C. U. Shah University, Surendranagar, Gujarat, India

Corresponding author:
Hiteshwari Jadeja, C. U. Shah University, Surendranagar, Gujarat 363030, India.
E-mail: hiteshwari.jadeja@gmail.com

Introduction

The Sustainable Development Goals (SDGs) of the United Nations serve as a 'common blueprint' for global action in order to achieve a more just, equitable and sustainable world for all by the year 2030. SDG 3 specially describes Mental health and well-being (MHW) which is crucial for achieving sustainable development. Mental health issues account for over 13% of the worldwide disease burden, affect up to 10% of people at any given moment during their lives, and account for more than a quarter of the years people live with disability globally.

We thrive on performance, competitiveness and perfection in today's world, which leads to an alarming condition of ever-increasing stress levels. Stress has existed since the dawn of time, yet its toll is now greater than ever. Because we do not examine and evaluate stress closely, we frequently underestimate the harm it can cause in our lives. Understanding the existing state of employees' health and well-being, as well as internal and external stakeholders' expectations, is a crucial step. The epidemic has prompted several significant modifications in company policy that promote employee health. The current study presents empirical data and information on stress and work–life balance among university professors. It detects main stressors influencing the work environment and family environment, as well as measures to reduce stressful feelings.

Literature Review

A happy workforce is more productive than an unhappy one. In order to ensure that employees are healthy and fine, it is essential to identify the stressors that contribute towards the disturbances among the workers. In their study, Doss et al. (2018) determined and compared the levels of occupational stress and professional burnout among 220 teachers. Various tests were used to arrive at the conclusion that stress and burnout levels differ considerably between male and female teachers. Teacher burnout was predicted by poor working conditions, time pressures and student misconduct. Banerjee and Mehta (2016) in their study revealed that teaching stress leads to job avoidance, whereas work overload stress and poor interpersonal relationships lead to job dissatisfaction. Offering social support and implementing better coping strategies are so much correlated to good performance among the teachers. Social support factors such as instrument support, emotional support and co-workers contribute to the well-being of an individual.

It is also essential to frame good work–life policies to help the employees to maintain a good work–life balance. Hasan and Teng (2017) suggested that work–life policies should be developed to ensure employee engagement and create a healthy work–life balance. According to Agha et al. (2017), work interference with personal life and personal life interference has a negative association with job satisfaction, while work and personal life enhancement have a good relationship with job satisfaction. Rajkumar (2016) studied the factors of job stress among teachers by reviewing various literatures. Stress is prevalent at a high level among faculty members, according to the analysis of many sources,

and hence actions should be taken to control it. The result of the study conducted by Sabherwal et al. (2015) indicates that lack of regular breaks (85%) and long working hours (83%), harassment by managers/staff/students (75%), lack of communication with staff (73%), poor pay prospects (81%) pace and intensity of change (75%), high degree of uncertainty about work cause maximum stress. Kalpana and DhineshBabu (2015) suggested that women's health should be prioritised by management, who should encourage sports and leisure activities, as well as eating healthy foods and obtaining adequate sleep. Additionally, time should be set aside to deal with family emergencies so that they are able to manage their work and family effectively.

A sustainable workplace tries to foster a culture that actively decreases stress and supports individuals in achieving their full potential. Mayor (2015) has stressed the women's disadvantage in health and stress. Environmental effects, individual behaviour and genetic factors cause disadvantage to the women's health. The amount of satisfaction of the teachers has a significant impact on motivation, which is a psychological process. When people are motivated, they are more likely to work harder and act as a driving force within them. Siddique and Farooqi (2014) found a positive relationship between job satisfaction and motivation of university teachers. A study by Desrani (2013) describes various physical and work performance symptoms of stress. It also recognises job insecurity, high demand for performance, technology, workplace culture, personal or family problems, and uncertainty at workplace as various causes of stress.

Assuring that workplace is stress-free and that employees have access to engaging ways of working that suit their preferences is an important part of lowering stress. Saha et al. (2011) suggested that systematic division of workload management policy, adequate delegation of authority, recognition of efforts, training, stress and time management can be the useful measures to overcome stress and promote sustainable workplace. According to Winefield et al. (2003), inadequate financing and resources, work pressure, bad management practices, job insecurity, and insufficient recognition and reward are all key contributors to stress. Saranya and Gokulakrishnan (2013) found a positive association between work–life balance and imbalance in the contexts of depression and psychological stress. When we practise sustainability in our daily lives, it benefits both ourselves and the world, implying that personal well-being and environmental sustainability do not have to be mutually contradictory aims. We can pave the way for a happy future by investigating these effects and what organisations can do to enhance employee well-being and sustainability. Business leaders are becoming increasingly aware of how their workplaces are set up, as well as their responsibility to prevent detrimental effects on people's health and well-being.

Research Gaps

While it may be difficult to predict the workplace's future as new technology and trends arise, we can be certain of one thing: The future workplace should encourage our health. Furthermore, given the growing interest in well-being among younger

generations, a healthy workplace can be a valuable advantage in attracting and retaining talent.

Although many academics have worked to discover the factors that influence university professors' health, with the emergence of new technology and increased competition, the factors may change from time to time. With the rising focus on sustainable and healthy workplaces, it is critical to detect the potential sources of issues for university professors and to improve overall well-being. Also due to COVID-19, many individuals suffered from anxiety and depression which led to multiple problems and hence it was imperative to recognise those challenges and resolve them.

Research Methodology

The deterioration of psychological well-being has important consequences in economic terms (Robertson & Cooper, 2010). Teachers play a crucial role in the teaching-learning process. However, as instructors are expected to fulfil various jobs at the institutional level, stress has become one of the most important issues in today's world. The present study highlights the sources of stress which affect the psychological well-being of the teachers. The data collection was done through primary and secondary sources. Past literatures were referred to identify the factors that have a significant influence on the stress levels among the university teachers. With the help of a structured questionnaire with 5-point Likert scale, opinions of respondents were taken. The variables selected in the present study in order to recognise the opinions of the respondents regarding occupational stress are purely descriptive in nature. The Occupational Stress Index (OSI) standardised by Srivastava and Singh (1984), Teacher's Stress Inventory developed by Dr M. J. Fiman (1984), and The Scale of Occupational Stress by the Bristol Stress and Health at Work Study were reviewed to identify the variables that assess the occupational stress among the university teachers.

The researcher found the primary components that contributed to the feelings that created stressful situations and had an impact on the work–life balance of the participants. The occupational stress was measured through variables covering workload, unclear job role, group pressure, role conflict, responsibility for others, underutilisation of abilities, participation in decision-making, relationship with colleagues, resource inadequacy, working condition, inequity of pay, job security, discipline, management support and intrinsic insufficiency. The replies were gathered from 512 university professors in order to understand how they felt about their jobs.

Principal component analysis (PCA) was used to extract the maximum common variance from all the variables used for the study. There were a few factors that never contributed to feelings of stress, some factors that led to rare feelings of stress, situations that occasionally contributed to those feelings and a few factors that mostly contributed to stress out of 33 phrases that aimed to identify the feelings of university teachers towards their job.

Findings

Following the preliminary investigation, the factors that contributed to stress sensations were identified as never, seldom, occasionally, mostly and always. The factors that mostly contribute to stress are a major concern from the management's perspective. Figure 1 shows the factors.

A sense of insecurity in the workplace due to lack of skills generates stress for 242 university professors, followed by 236 responses indicating insufficient knowledge or skill. Frustration stemming from a lack of discipline is followed by deadlines, a lack of clarity in one's professional function, uninteresting work, a lack of infrastructure, formal procedures, fear of losing one's job, a lack of authority and a lack of promotion.

PCA is being utilised to find the causes of stress with the highest loadings in this study. In order to assess the appropriateness of PCA, Kaiser–Mayer–Olkin (KMO) Test is performed.

As seen in Table 1, the measure of sample adequacy is 0.911 which is higher than the average value of 0.7 and hence the available data are considered reliable for PCA. The PCA was carried out to explore the underlying factors associated with 33 items. Table 2 explains the total variance through PCA.

Table 1. Kaiser–Meyer–Olkin Measure of Sampling Adequacy.

Kaiser–Meyer–Olkin Measure of Sampling Adequacy		.911
Bartlett's Test of Sphericity	Approx. chi-square	6.235
	df	528
	Sig.	.000

Source: SPSS 16 output based on primary data.

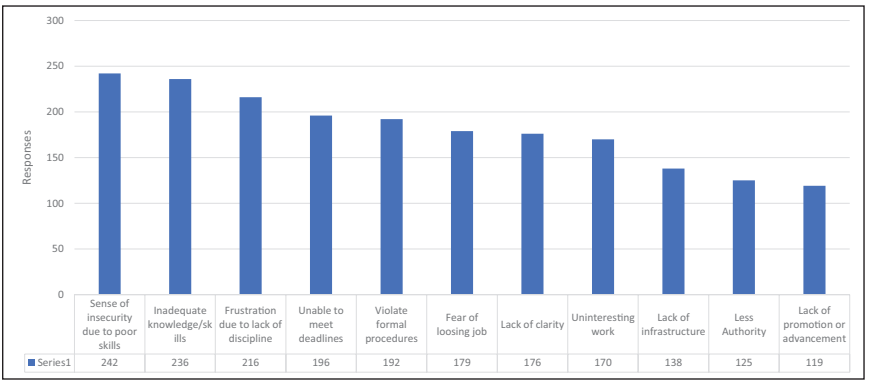

Figure 1. Factors that Mostly Contribute to the Stress.

Source: Output based on primary data.

Table 2. Total Variance Extracted through Principal Component Analysis.

	Initial Eigen Values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.491	28.760	28.760	9.491	28.760	28.760	4.123	12.495	12.495
2	2.079	6.301	35.061	2.079	6.301	35.061	3.744	11.345	23.840
3	1.826	5.532	40.593	1.826	5.532	40.593	3.013	9.130	32.969
4	1.587	4.808	45.401	1.587	4.808	45.401	2.745	8.319	41.288
5	1.219	3.693	49.094	1.219	3.693	49.094	1.653	5.010	46.298
6	1.146	3.472	52.567	1.146	3.472	52.567	1.626	4.927	51.225
7	1.034	3.134	55.701	1.034	3.134	55.701	1.477	4.475	55.701

Source: SPSS 16 output based on primary data.

Note: Extraction method: Principal component analysis.

Seven factors are extracted from the analysis along with their eigenvalues, and the per cent of variance attributable to each factor. The first factor is responsible for 28.76% of the variance, while the second factor is responsible for 6.30%, the third factor is responsible for 5.53%, the fourth factor is responsible for 4.81%, the fifth factor is responsible for 3.69%, the sixth factor is responsible for 3.47% and the seventh factor is responsible for 3.13%. The total percentage of the factors extracted is 55.701%.

The first component with highest loadings consists of eight factors. They are sense of insecurity due to poor skills 0.731, unable to meet deadlines 0.689, lack of clarity 0.581, violate formal procedures 0.566, uninteresting work 0.562, poor quality due to heavy workload 0.560, fear of losing job 0.559 and lack of training & preparation 0.509. These factors reveal the professional competence of the university teachers which they are expected to be good at. Lack of these factors or skills affects the competence level of the teachers which increases their feeling of stress.

Discussion

Workplace well-being is critical for cultivating a sense of worth in employees, assuring their engagement and eventually leading to improved levels of productivity and organisational performance. In recent years, having an environmentally friendly and stress-free workplace has moved to the top of the company agenda, and it has become significantly more essential to employees. Sustainable workplaces promote culture that encourages employees for an outstanding performance by extending support and healthy work environment. Many firms have switched to remote working as a rule rather than an exception in a world where COVID-19 keeps us on our toes.

The present study intended to identify the factors contributing to stress among the university teachers. The availability of material online has increased the body of knowledge, posing a challenge to faculty members in disseminating the information in a meaningful manner so that students are motivated to learn. The factors recognised among the university teachers that contributed to a sense of uneasiness were the fear of losing employment, lack of clarity, uninteresting work, lack of infrastructure, less authority and lack of promotion or advancement chances.

PCA was performed to recognise the major factors. Insecurity owing to weak abilities, inability to fulfil deadlines, lack of clarity, breaching formal processes due to group pressure, uninteresting work, low quality due to heavy workload, fear of losing job, and lack of training and preparation are among the variables included. The component accounted for 55.71%variance in overall stress. The results were supported by the study conducted by Slišković & Seršić (2011) who concluded that the biggest cause of teaching stress has been found as a focus on quantity of work rather than quality improvement. High amount of work, issues and arguments and demands from co-workers and supervisors, insufficient resources for suitable performance, insufficient skills to the demands of their role, and a sense of underutilisation were found by Ahmdy et al. (2007).

Conclusion

Well-being is inextricably linked to a company's overall sustainability strategy and mission. It is also acknowledged that stress is unavoidable and, if not managed properly, can have a negative impact on teachers' health and well-being. The role of educators, their obligations and teaching activities are all influenced by the fast-changing educational process, which causes stress and affects an individual's psychological well-being. A teacher's job description includes extra responsibilities such as administrator, motivator, counsellor and mentor. Teaching professionals are increasingly confronted with conflicting conditions at work and at home as a result of their performance in these professions. The study analysed the components at the workplace that contribute to stress and create an imbalance between work and family in order to gain a meaningful understanding of the challenges encountered by educators.

The symptoms and dangers of stress can be reduced by raising awareness, taking remedial action and engaging in appropriate stress-reduction activities. Researchers, academics, educational policymakers, administrators, educational institutions, counsellors and teachers can use the data gathered and the conclusions produced by the researcher to guide future orientations.

Managerial Implication

The study's findings revealed a number of implications that might be implemented in order to create a stress-free working environment and attain work–life balance. Teachers felt stressed due to lack of adequate knowledge and skills to justify the roles & responsibilities and it was suggested to conduct faculty development programmes to cover the aspects such as effective communication skills, research skills, classroom discipline and innovative teaching pedagogy. In order to help with the issue of over workload, it was suggested to distribute the workload methodically. It was suggested to execute strategies like setting annual goals with the help of dean or director and develop a support system and network in order to have more clarity about the role and set the priorities. To overcome the fear of losing job, teachers should be guided with in-lesson preparation and post-lesson activity. Job discontent is caused by lower pay compared to work performance, and if teachers are unhappy, students will be unhappy as well. As a result, regular recognition of work performed in monetary or non-monetary elements, as well as higher promotion possibilities, might be beneficial. As the level of competitiveness and pressure to work as a team rises, official procedures are being broken. To overcome such troubles, a list of standards and expectations should be drafted, and team-building exercises should be done to foster teacher cooperation.

Limitation

The research is hampered by the quality of composition of the sample under investigation. The study is limited to public and private university teachers only and other categories are not examined. Although the sample size is adequate, larger population could be covered.

Declaration of Conflicting Interests

The author declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding

The author received no financial support for the research, authorship and/or publication of this article.

References

Agha, K., Azmi, F. T., & Irfan, A. (2017). Work–Life Balance and Job Satisfaction: An Empirical study Focusing on Higher Education Teachers in Oman. *International Journal of Social Science and Humanity*, *7*(3), 164.

Ahmdy, S., Changiz, T., Masiello, I., & Brommels, M. (2007). Organizational role stress among medical school faculty in Iran: Dealing with role conflict. *BMC Medical Education*, *7*(1), 1–10.

Banerjee, S., & Mehta, P. (2016). Determining the antecedents of job stress and their impact on job performance: A study among faculty members. *IUP Journal of Organizational Behavior*, *15*(2), 7.

Desrani, H. (2013). Occupational stress and management policies. *Journal of Research in Humanities and Social Sciences*, *1*(6), 15–22.

Doss, C. A. V., Rachel, J. J., AbuMadini, M. S., & Sakthivel, M. (2018). A 258 comparative study to determine the occupational stress level and professional burnout in special school teachers working in private and government schools. *Global Journal of Health Science*, *10*(3), 42.

Hasan, N. A. B. B., & Teng, L. S. (2017). Work-life balance and job satisfaction among working adults in Malaysia: The role of gender and race as moderators. *Journal of Economics, Business and Management, 5*(1), 18–24.

Kalpana, S., & DhineshBabu, S. (2015). A study on work–life balance among women married college teachers in Trichy district. *Shanlax International Journal of Management*, *3*(2), 57–69. https://www.shanlax.com/wp-content/uploads/SIJ_Management_V3_N2_006.pdf

Mayor, E. (2015). Gender roles and traits in stress and health. *Name: Frontiers in Psychology*, *6*, 779.

Rajkumar, A. D. (2016). Job stress among teaching faculty: A review. *International Journal of Applied Engineering Research*, *11*(2), 1322–1324.

Robertson, I. T., & Cooper, C. L. (2010). Full engagement: The integration of employee engagement and psychological well-being. *Leadership Organization Development Journal*, *31*(4), 324–336.

Sabherwal, N., Ahuja, D., George, M., & Handa, A. (2015). A study on occupational stress among faculty members in Higher Education Institutions in Pune. *SIMS Journal of Management Research*, *1*, 18–23.

Saha, D., Sinha, R., & Bhavsar, K. (2011). Understanding job stress among healthcare staff. *The Online Journal of Health and Allied Sciences*, *10*(1), 6.

Saranya, S., & Gokulakrishnan, A. (2013). Work–life balance among women academician with reference to colleges in Chennai. *Asian Journal of Managerial Science*, *2*(2), 21–29.

Siddique, U., & Farooqi, Y. A. (2014). Investigating the relationship between occupational stress, motivation and job satisfaction among university teachers (A case of University of Gujrat). *International Journal of Academic Research in Progressive Education and Development*, *3*(4), 36–46.

Slišković, A., & Seršić, D. (2011). Work stress among University teachers: Gender and position differences. *Archives of Industrial Hygiene and Toxicology, 62*(4) 299–307.

Srivastava, A. K., & Singh, A. P. (1984). *The occupational stress index*. Manavaigyanic Parikshan Sansthan.

Winefield, A. H., Gillespie, N., Stough, C., Dua, J., Hapuarachchi, J., & Boyd, C. (2003). Occupational stress in Australian university staff: Results from a national survey. *International Journal of Stress Management*, *10*(1), 51.

Article

Impact of COVID-19 Lockdown and E-cigarette Ban on Tobacco and Nicotine Use in India

Journal of Development Research
2022, 15(1) 45–63

DOI: 10.1177/22297561221119261
drj.ves.ac.in

Debjani Banerjee[1], Hardeep Kaur[1] and Sandeep Bhardwaj[1]

Abstract

The global tobacco pandemic continues to cause enormous health burden and fatality, especially in the low and middle-income countries (LMICs), in spite of continuing efforts under the umbrella of FCTC. India, representing a complex pattern of tobacco use, both in smoking and smokeless forms, remains the second largest tobacco-using country. This study was designed to understand the impact of COVID-19 pandemic and associated restrictive measures on all groups of tobacco users and the impact on the users of e-cigarettes (EC), as a result of imposition of ban.

A well-designed, online or CATI interview-based survey was conducted in eight large metropolitan cities of India on 3005 samples (smoking tobacco [ST]: 1,193; smokeless tobacco [SLT]: 966; and EC: 846). The study finds all groups were affected albeit differently.

The COVID-19 crisis affected all tobacco user segments positively as well as negatively. EC users, unless supported appropriately, were likely to revert to tobacco use after having quit it successfully.

Keywords

Tobacco, smoking tobacco, smokeless tobacco, e-cigarette, COVID-19, EC ban, tobacco cessation, India

[1] VES Business School, Mumbai, Maharashtra, India

Corresponding author:
Debjani Banerjee, Hashu Advani Memorial Complex, 495/497 Collector's Colony, Chembur, Mumbai, Maharashtra 400074, India.
E-mail: debjani.banerjee@ves.ac.in

Introduction

India has been among the leading member states of the World Health Organization (WHO) to adopt and ratify the Framework Convention on Tobacco Control (FCTC), which was negotiated in 2003 as a comprehensive public health response to the global tobacco pandemic (Framework Convention Alliance [FCA], 2020). The provisions of the FCTC were immediately given a legislative frame in India by enacting the Cigarette and Other Tobacco Products Act (COTPA) on 18 May 2003 (Ministry of Health and Family Welfare [MOHFW], 2003). Under this legislation and other related provisions, the plan of action formulated by the MOHFW, Government of India (GOI), aimed at reducing tobacco prevalence by 15% at the end of 2020 and by 30% by the year 2025 (MOHFW, 2018b). Yet, today, after over one-and-a-half decades, India remains the third largest producer and the second largest consumer of tobacco in the world. One of the main reasons attributable to the continuing high prevalence of tobacco burden in India is the diverse ways in which tobacco is manufactured, marketed and consumed. The latest Global Adult Tobacco Survey (GATS) report shows that India had 267 million adults using some form of tobacco, either smoking tobacco (ST) or smokeless tobacco (SLT), accounting for about 12% of the entire global tobacco consumption (MOHFW, 2018a). The Indian tobacco landscape included 199.4 million SLT users (masticators) and 99.5 million ST users (smokers), which was 28.6% of the entire ≥15-year age group population comprising 42.4% men and 14.2% women (MOHFW, 2018a; Singh, 2020). While the prevalence of ST is seen in around 10.7% of Indian adults, it was estimated to be at least two-fold more for SLT (approximately 21.4%). In addition, it was also estimated that ~30.2% of Indian adults were exposed to second-hand smoke in indoor workplaces, ~7.4% in restaurants and ~13.3% in public transportation (MOHFW, 2018a), further increasing the tobacco-related health burden. This acquired and avoidable lifestyle factor directly contributed to >1 million deaths every year in India, which is equivalent to ~3,500 deaths per day (Sinha et al 2014), significantly more (about 3½ times) than the real-time Indian mortality from the current COVID-19 pandemic (MOHFW, 2020). Nearly half of the deaths due to use of different forms of tobacco are attributable to cardiovascular diseases (CVD) and are primarily seen among the people of 30–59 years age group (WHO, 2018). Among current smokers, life expectancy is expected to contract by about 11 years for women and by about 12 years for men, compared to never-smokers (Jha et al, 2013). Tobacco consumption, primarily SLT, is also directly attributed to nearly 80% of all oral cancers as well as about 45% of all cancers among men and 17% among women, in India (International Agency for Research on Cancer [IARC], 2004; National Cancer Registry Programme [NCRP], 2013).

The rainbow spectrum of tobacco consumption in India has sustained primarily due to the availability of a variety of relatively inexpensive tobacco products. The range of ST products available in India includes indigenous, home-based, hand-rolled or small factory-manufactured products such as *bidi, chillum* and *hookah*, among others, besides the factory-made, different types and sizes of cigarettes. Similarly, SLT products include betel quid with tobacco, *khaini, gutkha, zard*, and

paan masala, among about 40 other variety of products widely available in convenient small pouches to cheaper large packings. This wide range of products and practices combined with sociocultural and economic realities of India make tobacco control efforts complex and highly challenging, explaining, at least in part, the reasons for the poor tobacco control outcome (Farsalinos, Russel, et al., 2019). Under the provisions of COTPA (HOHFW, 2003), various agencies of the GOI responsible for tobacco control (Rao & Chaturvedi, 2010), have been applying standard measures, such as counselling with or without nicotine replacement therapies (NRTs), taxation on products, statutory health warnings on packings, advertisement bans, smoking or chewing tobacco prohibitions in healthcare establishments and educational institutions, and no smoking in public places, among others. Nonetheless, the outcome of the efforts has been anything but below expectations not only in India but also largely across the spectrum of the low and middle-income countries (LMICs). It is reported that in LMICs there has been an increase of 33 million tobacco users in the period between 2010 and 2015 (Action on Smoking and Health [ASH], 2019). In sharp contrast, during the same period, high-income countries (HICs) recorded positive impact of tobacco control measures with reduction of tobacco users by an estimated 62 million (ASH, 2019; Pierce et al, 1998).

One of the many possible reasons for the relative success of tobacco control in HICs is seen to be the availability of harm-reduced products (HRPs) among the other NRT options for those who wish to quit tobacco. Among various HRPs, electronic cigarette (EC) of different kinds has been the front-runner. EC is regarded as a convenient electronic device to meet the nicotine demand of a tobacco user. An EC is made up of a sequentially interconnected air inlet, an atomiser, an aerosol passage, and a mouthpiece with an atomiser and liquid supply containing pharmaceutical-grade nicotine dissolved in propylene glycol or vegetable glycerine with or without different flavouring agents (Grana et al., 2014; Public Health England [PHE], 2015; Royal College of Physicians [RCP], 2016). Though not absolutely safe, EC is devoid of almost all major toxicants and carcinogens typically found in ST or SLT preparations, except nicotine in equivalent quantity (Das et al., 2019; Farsalinos, Russel et al., 2019). Hence, EC, an HRP, is reported to be 95% less harmful than ST and is considered as a more pleasant alternative to the existing NRTs (PHE, 2015). Today, an estimated 400 different brands of EC are available along with multitude of e-liquids, including flavoured ones (Bhatnagar et al, 2014). One recent study from India on EC found that it was an effective NRT for both ST and SLT users, successfully helping them in quitting tobacco after shifting to EC. The users also reported some health benefits with minimal side effects (Sharan et al, 2020). However, Chakma and associates from the Indian Council of Medical Research (ICMR)—the apex body in India for the formulation, coordination and promotion of biomedical research—published a white paper in 2019 and recommended a complete ban on EC in India (Chakma et al., 2019). Though criticised by global scientists for cherry-picking favourable research publications and ignoring credible but unfavourable scientific reports in drawing its conclusion in this white paper (Farsalinos, Ambekar, et al., 2019), the GOI accepted the recommendations of the white

paper and promulgated a complete ban on EC in India with effect from September 2019 (MOHFW, 2019).

Another pandemic, COVID-19, gripped the world in a most unprecedented way in the first few months of the year 2020, which still prevails across different geographical barriers (MOHFW, 2020; WHO, 2020). It has tremendously affected all aspects of lives, livelihoods and living across the globe due to the lockdowns and other restrictive measures to control the spread of the virus. Consequences of such measures have been widespread, resulting in closure of businesses, collapse of supply chains, economic slowdowns, and strained health and other medical services that could potentially adversely affect tobacco users both psychologically and physiologically as many of them could have been deprived of their usual nicotine requirement.

Keeping the existing magnitude and complexity of Indian tobacco landscape and its massive national health burden in mind, which might have got further compounded due to the COVID-19 pandemic and the related lockdown and restrictive measures during the current period, this study was designed to primarily capture and analyse the impact of the pandemic on ST and SLT users holistically. Since EC, a widely accepted safer substitute for nicotine replacement, was also banned in India just about six months prior to the onset of the COVID-19 pandemic, we have additionally tried to capture that impact as well on the EC users who were facing a dual situation—the COVID-19 pandemic and the EC ban. Hence, the primary objective of this study was to understand and analyse the similarities and differences in the impacts of the COVID-19 pandemic on the three exclusive groups of people habitually using ST, SLT (including pharmaceutical products such as nicotine gums, patches and lozenges) and EC in India. An additional objective was to also map the impact of the ban of EC in India currently in effect during this COVID-19 pandemic period. The null hypothesis formulated for the study was as follows: the COVID-19 pandemic effected tobacco (ST and SLT) as well as EC using population groups equally in India.

Methodology

A pan-India, cross sectional survey-based study, designed on a random, convenience sampling model, was conducted on adult subjects aged 18 years and above, the inclusion criteria being current or former tobacco users of any form of tobacco/nicotine—ST and/or SLT, or an EC user. Eight largest metropolitan Indian cities (Ahmedabad, Bengaluru, Chennai, Delhi, Hyderabad, Kolkata, Mumbai and Pune) were chosen for the survey-based study. A sample size of 3,000 was targeted in order to increase the power to conduct analysis of different subgroups (e.g., ST, SLT, EC, gender, prevalence, health, etc.). A structured format of survey in English was developed for the study, which was tested in two successive batches to minimise potential misunderstandings and conflicts in the given responses. A final questionnaire was developed based on the test and was implemented utilising the online survey platform the Survey Monkey. The questionnaire consisted of eight sections covering the socio-demographic profiles, history of exposure to tobacco,

usage patterns of ST and SLT to understand their prevailing status, impact of COVID-19 on tobacco usage patterns, usage patterns of EC, and the impact of the COVID-19 pandemic and the EC ban on the status of EC use.

The survey questionnaire was uploaded on the Survey Monkey portal and the link was spread randomly across potential subjects in the eight selected metropolitan cities. The survey was conducted either online (self-administered) or in computer-assisted telephonic interview (CATI) mode, where needed. In all cases, a unique respondent ID was maintained to facilitate random validation of responses. We followed ESOMAR guidelines for fieldwork for the study (International Chamber of Commerce [ICC] & ESOMAR, 2016). Survey results were collated in Microsoft Excel format for further analysis as well as to produce certain pre-designed dashboards to validate the analysis.

Statistical analysis: Statistical analysis was conducted using SPSS Statistics package (v 20.0). All categorical values have been reported as percentages. Descriptive statistics was applied to measure the differences between socio-demographic variables and tobacco (ST and SLT) or EC consumptions using Pearson Chi-square test at a significance level of $p < .05$.

Results

Demographics

A total of 3,489 subjects from the eight target cities in India returned the survey. Of them, 3,005 responses were selected for further analysis based on the inclusion and exclusion criteria. This final dataset consisted of 39.7% (1,193) ST users or smokers; 32.1% (966) SLT, including pharmaceutical tobacco products such as nicotine gums, patches and lozenges users or masticators; and 28.2% (846) EC users or vapers (Figure 1).

Participants belonged to almost all states and union territories (UTs) of India by their state or UT of birth (domicile). However, more than 50% of them belonged to four large states, that is, Maharashtra (19.7%; 593), Gujarat (12.9%; 389), Karnataka (11.0%; 331) and West Bengal (9.7%; 291), while about six small states and UTs returned less than four responses each. While Maharashtra topped the count among smokers and masticators, Gujarat topped among vapers.

Route of first exposure to nicotine: Nearly half of the subjects (45.5%; 1,366/3,005) had the first exposure to nicotine via smoking while about one-third (33.4%; 1,005/3,005) through SLT, together making tobacco the major initiator of nicotine exposure for the Indian population (78.9%; 2,371/3,005). Currently, 92.8% (933/1005) of the subjects whose first exposure to nicotine was through SLT products continue with SLT as compared to 82.8% (1,131/1,366) in the ST group. EC was found to be the route of first exposure to nicotine for 21.1% (634/3,005) of the population, almost all of which continue to use EC (97.2%; 616/634) currently. Overall, 89.2% (2,680/3,005) of the subjects continued using the first product they used for nicotine exposure. Among the remaining 10.8% (325/3005), who shifted to other products different from first exposure, 72.3%

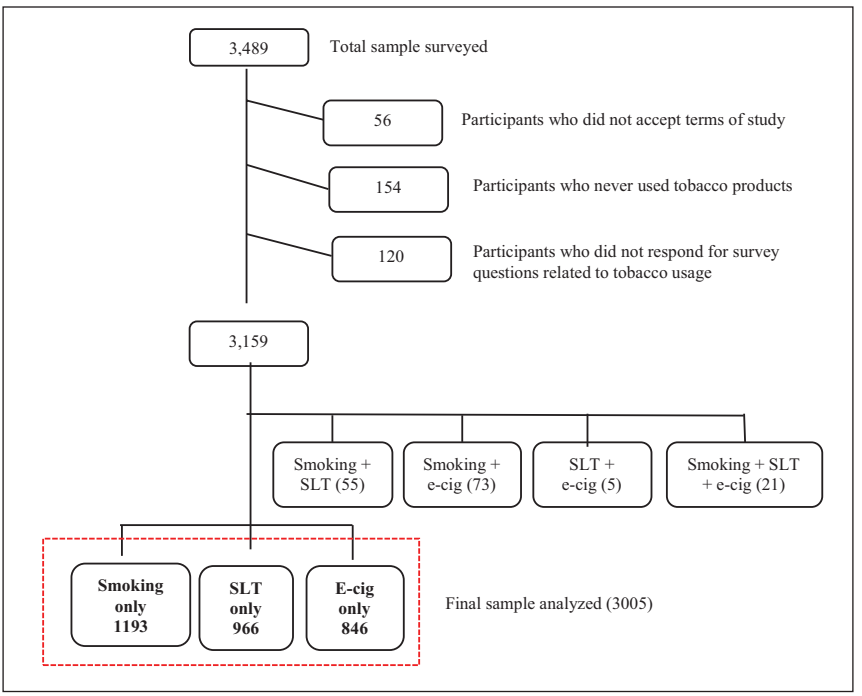

Figure 1. Distribution of Study Sample.

Note: SLT = Smokeless tobacco users; e-cig = Electronic cigarettes users.

(235/325) were smokers. Among smokers, 85% (1,020/1,193) were cigarette smokers, 72% (693/966) were masticators using *gutkha* and 42.6% (360/846) were vapers using pods (open system EC; Figure 2).

Tobacco usage pattern: Majority of the subjects (38.5% of smokers, 45% of masticators and 59% of vapers) have been using the products since 1–5 years and were currently using them on a daily basis. Most of the ST (65%; 777/1,193) and SLT (65%; 623/966) users took their first dose of the product on a regular day 30 minutes or later after waking up in the morning. Both user groups felt the strongest urge of the product in the mornings than the rest of the day, with nearly equal levels of restlessness (X^2; $p = .89$) in places or situations where use of tobacco products was forbidden. While the smokers did not feel like smoking when unwell, masticators continued using SLTs (X^2; $p < .0001$). More than 60% of both ST and SLT users self-reported that they were addicted to it (X^2; $p = .15$). Among smokers, more than half (56%) felt that menthol cigarettes were safer than non-menthol cigarettes and 67% of masticators lived with the fear of getting oral or other cancers (Table 1).

EC usage pattern: Majority (59.0%; 499/846) of vapers had been using EC for the last one to five years at a frequency of twice/thrice (33.0%; 279) or less (23.9%; 202) a week. While a fourth (25.1%; 367) of them started using it because they felt EC was less toxic than tobacco, about an equal number of users

Table 1. Usage Patterns of Tobacco Among Smokers (ST Group) and Smokeless Tobacco (SLT Group) Users.

Question*	ST only	SLT/NRT only
	# (%)	# (%)
	1,193 (100%)	966 (100%)
How soon do you use your respective tobacco product after you wake up?		
Within 5 min	102 (8.5%)	73 (7.6%)
6–30 min	298 (25.0%)	267 (27.6%)
31–60 min	331 (27.7%)	313 (32.4%)
After an hour	446 (37.4%)	310 (32.1%)
Do you use respective tobacco product even when unwell?		
Yes	499 (41.8%)	549 (56.8%)
No	681 (57.1%)	414 (42.9%)
Do you think you are addicted to your respective tobacco product?		
Yes	729 (61.1%)	624 (64.6%)
No	451 (37.8%)	339 (35.1%)
On an average, how many respective tobacco products you use per day?		
Average quantity used	3.81	5.2

Note: *Non-responders are not shown in the table. Ranged between 13 and16 among smokers and three non-responders among SLT/NRT group.

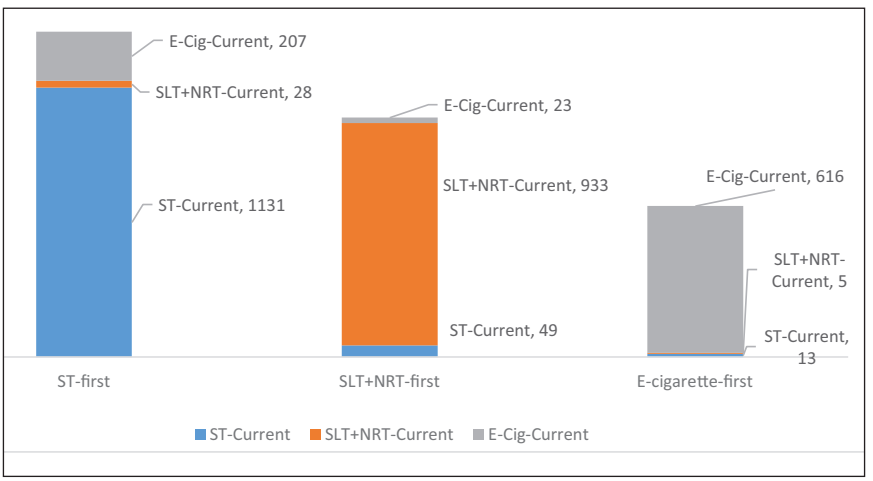

Figure 2. Tobacco Product Currently in Use Against the First Ever Product Used (N = 3,005).

(23.7%; 347) had the moral satisfaction of consuming something smokeless without inconveniencing others. EC was introduced to majority of vapers by friends (peers; 40.4%; 342) or by online sale portals (27.4%; 232). The most commonly used nicotine strength among vapers was in the range of 4–12 mg (63.5%; 627). A large number of users liked free-base nicotine (43.4%; 413), while some preferred nicotine salts (31.7%; 301). About one-fourth (24.9%; 237) of vapers were using EC without nicotine (Table 2).

Table 2. Usage Patterns of EC Among Vapers.

Question*	Vapers Only n (col %) 846 (100%)
How were you introduced to e-cigarettes (EC)?	
✓ Friends	342 (40.4%)
✓ Tobacco shop	113 (13.4%)
✓ Online sites	232 (27.4%)
✓ Electronic cigarette users' forums	110 (13.0%)
✓ Healthcare professionals	40 (4.7%)
How long have you been using e-cigarettes, either regular or occasionally?	
✓ 0–3 months	35 (4.1%)
✓ 4–12 months	174 (20.6%)
✓ 1–5 years	499 (59.0%)
✓ 6–10 years	122 (14.4%)
✓ >10 years	7 (0.8%)
Why did you start using EC? (Please check all those applicable)#	
✓ Alleviating cravings for cigarettes	184 (12.6%)
✓ Health reasons—less toxic than tobacco	367 (25.1%)
✓ Moral satisfaction towards consumption of something smokeless	347 (23.7%)
✓ Avoid withdrawal symptoms	248 (16.9%)
✓ Cheaper than smoking	129 (8.8%)
✓ Social factors (no smell, less inconvenience to others etc.)	190 (13.0%)
✓ Total*	1,465 (100%)
What kind of e-cigarette device do you use most often?	
✓ Closed system pods	270 (31.9%)
✓ Open system pods	360 (42.6%)
✓ Mechanical mods	156 (18.4%)
✓ Others	50 (5.9%)

(Table 2 continued)

(Table 2 continued)

Question*	Vapers Only n (col %) 846 (100%)
What kind of nicotine due you use? (check all those applicable)	
✓ Freebase	413 (43.4%)
✓ Nicotine salts	301 (31.7%)
✓ No bicotine	237 (24.9%)
✓ Total*	951 (100%)
What e-liquid nicotine strength do you commonly use? (check all those applicable)	
✓ 0–3 mg	177 (17.9%)
✓ 4–6 mg	303 (30.7%)
✓ 7–12 mg	324 (32.8%)
✓ 13–18 mg	135 (13.7%)
✓ 19–36 mg	30 (3.0%)
✓ More than 36 mg	19 (1.9%)
✓ Total*	988 (100%)

Notes: *Non-responders are not shown in the table. Ranged between 9 and 10 for various questions. #Total responses for few questions are more than the sample size as multiple responses were allowed.

Influence of EC on tobacco cessation and health of users: Majority of EC users (35.9%; 304) took 3–6 months for shifting from smoking to vaping while some (27.7%; 234) did it in under three months. Due to switching to EC, approximately 44.4% (376) smokers could completely quit smoking and 71.6% (606) could completely quit chewing for variable periods. About one-third smokers and a significantly large, two-thirds, of masticators, on the other hand, did not experience such benefits . It was interesting to note that a majority (85.2%; 721/846) of vapers were clear that EC vaping was a low-risk alternative to smoking or masticating but was itself not totally harmless. Nearly half (48.5%; 410/846) of the respondents felt better in their overall status of health since they started using EC, while 39.7% (336/846) felt no significant change and 8% (68/846) felt that their health condition worsened. On the other hand, about one-fifth of the vapers (21.4%; 181/846) reported worsening of smell, and a smaller fraction, 12.1% (103/846), worsening of breath. Major side-effects self-perceived by the vapers were chest pain (18%), headache (16.2%), abdominal pain (15.1%) and throat irritation (15.1%), which together contributed to nearly 65% of all complaints.

Effects of CoViD-19 pandemic related restrictive measures on smokers, masticators and vapers: Over three-fourth of smokers (75.9%) and two-third of masticators (66%) as well as a large majority of vapers (75.2%) reported an overall significant impact of COVID-19 pandemic on their respective consumption patterns (X^2; $p < .05$). Compared to the pre-COVID-19 pandemic period,

consumption of tobacco products on a daily basis reduced by 44.3% (506 to 282 users) among smokers, by 27.3% (594 to 432) among masticators and by 20.9% (182 to 144) among vapers during the pandemic. Weekend consumptions declined marginally by 25.6%, 7.1% and 6.6%, respectively. However, there was a significant rise in tobacco consumption during stress of any kind on the user, with masticators recording 171.7% and smokers recording 101.4% increase in consumption. In contrast, under a comparable situation, the increase in vaping was found to be only 36.2% under stressful situations. A social factor, such as the company of friends (peers), affected tobacco and EC usage patterns differently. While it positively influenced smoking by13.9% and masticating by 16.0%, it negatively impacted vaping by 9.1% . On the other hand, another factor, fear of seriously falling ill during the COVID-19 pandemic, affected all three groups almost equally (28.2%, 35.9% and 28.5%, respectively, for ST, SLT and EC groups). Though nearly a fourth of all user groups felt restless during the COVID-19-related lockdown and restrictions, they also saw it as an opportunity to quit tobacco completely. This was found to be highest among vapers (35.5%). Fewer smokers (22.7%) and even less masticators (12.7%) felt the same (X^2 $p < .05$). All three user groups tried procuring respective products from friends, neighbours and street vendors, braving the risk of contracting COVID-19 infection when they were out of supply. This, however, also reinforced each user group's desire of quitting nearly equally (57.1% among smokers, 53.6% among masticators and 60.6% among vapers; X^2 $p < .05$) during the lockdown. Over one-third (38.7%) of smokers as well as vapers and slightly less (31.6%) of masticators made more than two attempts to quit, while a much larger number of users in each group (70.2% among smokers, 65.8% among masticators and 73.8% among vapers) made at least one attempt to quit during the lockdown period. Most users in all three groups considered talking to a doctor, nurse or counsellor and/or attending a class or group programme for help in their attempt to quit. Though there was no significant difference in opinion among tobacco users about the affordability of pharmaceutical cession products (X^2; $p = .051$), the smokers felt that NRTs could help in quitting if they were cheaper (X^2; $p < .05$). More than half of vapers had stocked up e-liquids, which could cater to their needs for a few months . When analysed for the factors influencing the process of quitting, the order of priority was cost, availability, harmful effects, convenience and social response across all the users.

Effects of EC ban on the vapers: More than 90% (763/864) of the respondents in this cohort were aware of the ban on EC imposed by the GOI, and approximately 60% (504/864) felt the ban was okay. Nearly two-third of subjects (68.9%; 583/846) were sure about EC being less harmful than other forms of tobacco wherein the SLT products were the most harmful . Two-third (77.3%; 654/846) of subjects were afraid that the EC ban will push them back to smoking again. Among them, while 44.9% (789) favoured switching to pharmaceutical alternatives followed by SLT and ST, 25.2% (442) opted for procurement through online resources, friends abroad or the black market, and 29.9% (525) preferred taking up meditation and/or seeking support of friends and family members to reduce or quit EC. While the respondents felt that the justifications given for

banning EC were largely okay about its adverse effects on foetal development and pregnancy, they found others only partially correct (e.g., respiratory, cardiovascular and neurological disorders and carcinogenicity). About 45.2% (382) of vapers felt that the ban was not justified with the given reasons, while the remaining majority was neutral on the claimed effects of EC on DNA damage, and cellular, molecular and immunological toxicities as the reasons for banning EC in India . At the same time, 49.2% (416) respondents felt that the ban had some social merit and has health benefits, and around 52.6% (445) felt that the ban would help them in quitting tobacco (Table 3).

Table 3. Impact of EC Ban on Vapers in India.

Question*	e-cigarette users n (col %) 846 (100%)
The Government of India has passed a ban on EC. Are you aware of the ban?	
Yes	763 (90.2%)
No	65 (7.7%)
Do you support this ban?	
Yes	504 (59.6%)
No	324 (38.3%)
What was your reaction to this ban?	
Piled up a personal use-stock with the hint of ban	121 (14.3%)
Tried looking for options for getting the supply through black market	138 (16.3%)
Assembled parts or/and e-liquid at home (DIY)	264 (31.2%)
Indifferent towards the ban as I could go back to other forms of nicotine	93 (11.0%)
Considered this to be an opportunity to quit e-cigarettes	213 (25.2%)
Do you consider e-cigarettes to be less harmful than other forms of tobacco?	
Definitely	583 (68.9%)
Not sure	213 (25.2%)
They are same	32 (3.8%)
In your understanding, what do you think is most harmful to your health among these?	
Smokeless tobacco products	404 (47.8%)
E-cigarettes	225 (26.6%)
Smoking tobacco products	168 (19.9%)
Pharmaceutical tobacco products	26 (3.1%)
As e-cigarettes are banned and one cannot buy them legally, how likely would it be that you go back to smoking or increase the number of cigarettes you smoked if you are still smoking?	
Very likely	400 (47.3%)
Likely	254 (30.0%)
Not Likely	166 (19.6%)

(Table 3 continued)

(Table 3 continued)

Question*	e-cigarette users n (col %) 846 (100%)
What do you feel are the alternatives available for you if you are unable to procure e-cigarettes due to ban?	
Procure e-cigarettes from black market	91 (5.2%)
Procure e-cigarettes from overseas through friends	142 (8.1%)
Online purchase of e-cigarettes	209 (11.9%)
Switch to smoking tobacco products	200 (11.4%)
Switch to smokeless tobacco products	250 (14.2%)
Switch to pharmaceutical nicotine products	339 (19.3%)
Meditate and try to reduce/stop consumption	213 (12.1%)
Do yoga and try to reduce/stop consumption	135 (7.7%)
Take help of others (friends/family) to engage myself to reduce/stop consumption	177 (10.1%)
Total responses	1,756 (100%)
If purchased through black market, how do you feel about the quality of the e-cigarettes	
Good	47 (5.6%)
Average	80 (9.5%)
Poor	11 (1.3%)
How would you rate this move of the government with the justifications given?	
Completely disagree	213 (25.2%)
Somewhat disagree	169 (20.0%)
Neutral	211 (24.9%)
Partly agree	137 (16.2%)
Completely agree	81 (9.6%)
Do you agree that the ban has social merit and health benefit?	
Completely disagree	94 (11.1%)
Somewhat disagree	67 (7.9%)
Neutral	234 (27.7%)
Partly agree	235 (27.8%)
Completely agree	181 (21.4%)
Do you consider this ban would help you in quitting tobacco consumption?	
Completely disagree	92 (10.9%)
Somewhat disagree	60 (7.1%)
Neutral	214 (25.3%)
Partly agree	246 (29.1%)
Completely agree	199 (23.5%)

Note: *Non-responders are not shown in the table. Non-responders ranged between 17 and 35 years in different questions.

Discussion

India continues to be a complex public health challenge due to the diverse ways in which tobacco products are manufactured, marketed and consumed, thus encouraging a large number of people to indulge in use of a variety of tobacco products (Shah et al, 2018). There are conclusive evidences of this habit resulting in disease, disability and death. (Mishra et al., 2012). The challenge is severe and all-encompassing, covering issues of lives and health, livelihood and economy, and direct and indirect impact on national productivity, causing a multifaceted problem with biomedical, economic and geopolitical impacts (Mohan et al., 2018). Despite all efforts to contain this tobacco pandemic since the adoption of FCTC and the consequent enactment of COPTA in 2003 in India (MOHFW, 2003), tobacco control appears way behind the set targets of the GOI's plan to reduce the national tobacco burden by 15% by the end of the current year of 2020 and, further, by 30% by the year 2025 (MOHFW, 2018b). It becomes further evident when we consider the prevalence of tobacco usage data for India in the GATS-2 report covering the 2016–2017 period (MOHFW, 2018a). The data shows that India continues to be home to over 267 million tobacco users, making it the second largest tobacco-consuming population in the world where over 20% of the entire population and 48% if men used tobacco in one or other form. Over the period of about eight years since GATS-1, the absolute tobacco usage in India decreased only by 6% (from 34.6% to 28.6%) and the prevalence among minors (15–17 years) decreased from 10% to 4%, with the age of initiation increasing by an average of one year for smokers (from ~17.9–~18.9 years). While these are positive correlates, India also recorded the second lowest quit rate among the GATS-2 countries despite the high prevalence of public knowledge about the grave health consequences of smoking tobacco and/or chewing SLT. GATS-2 data also showed that only about 55% of smokers and 50% of masticators ever thought of or intended to quit, with poor to very poor success rates. The use of behavioural and pharmacological interventions towards cessation approach has been found to have a positive impact on tobacco cessation outcomes (Nethan et al., 2018). Recognising this, the India Tobacco Cessation Centres (TCC) were mandated to provide both behavioural and pharmacotherapy interventions. However, it has been observed that a very limited number of tobacco users accessed these clinics with very limited cessation outcome (Thankappan, 2014), raising serious questions on the effectivity of TCCs in the field.

A major concern is over the evidence coming from medical, social and behavioural sciences exhibiting 58 million women and young girls as SLT users. India currently has 58 million women users of SLT products and over half of them do not desire to quit (Singh et al., 2020). And the worrying reality is that smoking is predicted to rise further in LMICs, which includes India (Lancet Editorial, 2018; Roy et al, 2017; WHO, 2015).

India faced, along with rest of the world, an unprecedented situation with the advent of the COVID-19 pandemic since March 2020, which is still ongoing (Li et al., 2020; Pal & Yadav, 2020; Wu et al., 2020). This pandemic necessitated impositions of national lockdowns and severe restrictions across India. All efforts

to contain the COVID-19 pandemic have been, at best, marginally successful till now. This second pandemic related to COVID-19 has also affected the lives and livelihoods of people in an unforeseen way, and perhaps as intensely as the tobacco pandemic did in the beginning of the millennium and continues to do so to its users. Therefore, we designed and conducted this study, which we believe is first of its kind in India, to primarily capture and analyse the impact of the COVID-19 pandemic on tobacco users (both combustible tobacco smokers and smokeless tobacco masticators) holistically in a pan-India coverage mode as far as practicable. In an effort to reduce the global tobacco health burden, technologies have been in development in the last about a decade or so to deliver nicotine in a relatively safe form, minimally contaminated with tobacco-specific toxicants and carcinogens, to a person dependent on tobacco for the nicotine supply. Such technologies are increasingly becoming popular additional avenues of meeting the nicotine demand of a tobacco user in several HICs where it is also helping a user in their tobacco cessation effort (ASH, 2019; Das et al., 2019; RCP, 2016; Sharan et al., 2020). Today, various electronic nicotine delivery systems are available, among which EC are the oldest and perhaps most widely used in several countries. GATS-2 estimated that about 0.02% or approximately 0.19 million Indians aged 15 years or above used EC at that time (MOHFW, 2018a). Though under intense debate over its safety and efficacy concerns, GOI banned it a few months earlier than the advent of the COVID-19 pandemic (MOHFW, 2019). Since India had small but sizeable number of EC users, through this survey-based study, we attempted to monitor the state of the vapers now under dual restrictions—first, from the imposed ban, and second, due to the COVID-19 pandemic.

It was interesting to see that a significant majority in all three user groups were impacted differently by the lockdown and restrictions imposed due to the prevailing COVID-19 pandemic. Tobacco users had an overall higher impact than the EC group. Compared to the pre-COVID-19 period, the daily consumption was reported to reduce maximally among smokers (44.3%), while it was a bit less for masticators (27.3%), reaching a minimum (20.9%) among vapers, which declined further variably during the weekends. It was intriguing to note that the maximum decline during the COVID-19 pandemic and lockdown restriction was reported by smokers (ST group) compared to a marginal decline reported by masticators (SLT group) as well as vapers (EC group), suggesting possibly that the indoor stay and/or the presence of other members of the household or both might have acted as a stronger deterrent to smoking only and not to masticating or vaping. In contrast, under stress situations, both tobacco user groups reported a huge surge in their consumption patterns (101.4% and 171.7% for ST and SLT groups, respectively) as compared to a significantly low increase in the vaper group (36.2%), even though all three user groups reported almost equal (28.2%, 35.9% and 28.5% for ST, SLT and EC users, respectively) fear of contracting COVID-19 infection during the pandemic and the lockdown .The fear of its unavailability due to lockdown made them pile up stock and considering it to be their primary mechanism in controlling stress and anxiety made them consume

more (Report of National Cancer Registry Programme, 2020; Yach, 2020). Does it indicate that tobacco use makes people more stress-prone in comparison to EC use is a proposition that should be investigated further.

It was heartening to note that the restrictions and the lockdown adversely affected the supply of all tobacco products as also the components of EC, making all three user groups think almost equally resolute to use the opportunity to quit tobacco. This is in contrast to a study conducted in Italy where the majority of exclusive cigarette smokers have considered quitting while very few exclusive EC users have considered quitting (Caponnetto et al., 2020.) However, we recorded a positive outcome of the COVID-19 pandemic and its associated lockdown and restrictions in terms of tobacco cessation, which made 57.1% smokers, 53.6% masticators and 60.6% vapers think of quitting and approximately two-third (70.2%, 65.8% and 73.8%, respectively) making at least one, and about one-third (38.7%, 31.6% and 38.7%, respectively) making two, attempts to quit during the period of our study. It is apparent that the desire as well as the attempts to quit are influenced not only by the addictive potential of a product but also by several other contributing factors (e.g., cost, availability, health impact, etc.), as also noted in several previous studies (Copeland & Brandon., 2000; Hymowitz et al., 1997; Maddux & Roggers 1983; McCaul et al 2006; Orleans et al, 1994; Romer & Jameson, 2001). This is reflected in the marginally stronger motivation noted among vapers to take the lockdown and restrictions as opportunities to quit in relation to tobacco users, wherein the motivation level was found to be higher among smokers and least among masticators.

The cohort of vapers, quite well aware of the ban imposed on EC in India about six months before the COVID-19 pandemic, reacted in a mixed way to the forced ban . More than 50% felt that the ban was okay in general and may have some social merits. Nearly two-third of users knew that EC was a safer option than tobacco products and expressed fear that the EC ban would push them to tobacco use again, which most of them did not desire . This clearly shows the maturity of EC users who seem to be reasonably well aware of the science behind the health implications of EC. This study finds that almost 49% of vapers feeling that with vaping they consumed something that is not only smokeless but also less toxic. This motivation may be an important contributing factor for their continuing with EC.

Limitations

A limitation of this study is that it was designed on convenience sampling; hence, it cannot assure representing the entire Indian population. Additionally as the study wanted to understand the impact of lockdowns, hence, it had to be completed within a short time-frame. Also being a cross-sectional study, it is unable to confirm the causal relationship. The impact study of COVID-19 on tobacco consumption should be expanded to tier-II cities and rural India too.

Conclusions

The primary aim of the study was to holistically capture a pan-India impression of the COVID-19 pandemic on both ST and SLT users in India. A small fraction of the Indian population has been using ECs, believed to be a technology-driven nicotine delivery device and considered a reduced-harm product with tobacco cessation potential, before it was banned in September 2019. The study finds revealing patterns of ST, SLT and EC usage as well as the effectivity of EC as a technology driven source of meeting the demand of nicotine of typical tobacco users in the Indian populations that can be potentially useful in the ongoing efforts to control the tobacco pandemic in India and help realise its committed goals towards reducing the tobacco burden. We find that the COVID-19 induced lockdown and restrictions affected both tobacco user segments and EC user groups. The COVID-19 pandemic was also seen by a large segment of all three user groups as an opportunity to quit tobacco. On the other hand, vapers, who had successfully quit combustible as well as smokeless tobacco with its help, were likely to revert to tobacco products unless supported appropriately and adequately. Though the EC cohort did not agree with the justifications for imposing the ban, they also felt it had social merit and health benefits and, thus, were willing to use it as an opportunity to quit tobacco using lifestyle factors such as meditation and yoga; consultation with doctors, nurses and counsellors; and classes or programmes tailored towards cessation.

Acknowledgements

The authors extend their thanks to Dr Chakrapani Chatla (public health specialist, Hyderabad, India) for his support and review of data management and analysis. We extend our gratitude to Professor R. N. Sharan (Department of Biochemistry, North-Eastern Hill University, Shillong) for providing insightful feedback through review and editing. Special thanks to Mr Samrat Choudhury, director HRPR, for funding the research project. We thank all the respondents who agreed to give their response to make this study complete successfully.

Declaration of Competing Interests

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: Financial support was provided for the completion of this research work by Harm Reduction Policy & Research (HRPR, Mumbai, India). The funding agency had no involvement in designing, collection, analysis and interpretation of data, or writing of report and decision to submit the research work for publication.

References

Action on Smoking and Health. (2019). *Fact sheet: Tobacco and the developing world*. https://ash.org.uk/uploads/Tobacco-Developing-World.pdf

Bhatnagar, A, Whitsel, L. P., Ribisl, K. M., Bullen, C., Chaloupka, F., Piano, M. R., Robertson, R. M., McAuley, T., Goff, D., Benowitz, N. American Heart Association Advocacy Coordinating Committee, Council on Cardiovascular and Stroke Nursing, Council on Clinical Cardiology, & Council on Quality of Care and Outcomes Research. (2014). Electronic cigarettes: A policy statement from the American Heart Association. *Circulation*, *130*, 1418–1436. https://doi.org/10.1161/CIR.0000000000000107

Caponnetto, P., Inguscio, L., Saitta, C., Maglia, M., Benfatto, F., & Polosa, R. (2020). Smoking behavior and psychological dynamics during COVID-19 social distancing and stay-at-home policies: A survey. *Health Psychology Research*, *8*(1), 68–74. https://doi.org/10.4081/hpr.2020.9124

Chakma, K. J., Dhaliwal, R. S., & Mehrotra, R. (2019). White paper on electronic nicotine delivery system. *Indian Council of Medical Research*. https://doi.org/10.4103/ijmr.IJMR_957_19

Copeland, A. L., & Brandon, T. H. (2000). Testing the causal role of expectancies in smoking motivation and behavior. *Addictive Behaviors*, *25*(3), 445–449. https://10.1016/S0306-4603(99)00003-9

Das, S., Choudhury, Y., & Sharan, R. N. (2019). A systematic review and meta-analysis on the health and safety implications of Electronic Nicotine Delivery Systems. *Indian Journal of Clinical Practice*, *29*(11), 1016–1026. https://ijcp.in/Pages/Post_Detail.aspx?wid=20305&A%20Systematic%20Review%20and%20Meta-analysis%20on%20the%20Health%20and%20Safety%20Implications%20of%20ENDS

Farsalinos, Ks., Ambekar, A., & Polosa, R. (2019b). White Paper on electronic nicotine delivery systems by the Indian Council of Medical Research: A critical appraisal of the scientific evidence. *Indian Journal of Clinical Practice*, *30*(3). https://ijcp.in/Admin/CMS/PDF/03_Original%20Article_G02.pdf

Farsalinos, K., Russell, C., & Sharan, R. (2019). The prospects of e-cigarettes in India: Overview of evidence, opportunities and challenges based on experience in western countries. *Indian Journal of Clinical Practice*, *29*(12), 1106–1120. https://ijcp.in/Admin/CMS/PDF/Perspective.pdf

Framework Convention Alliance. (2020). *Parties to the WHO FCTC (ratifications and accessions)*. https://www.fctc.org/parties-ratifications-and-accessions-latest/

Grana, R., Benowitz, N., & Glantz, S. A. (2014). E-cigarettes: A scientific review. *Circulation*, *129*(19). http://dx.doi.org/10.1161/CIRCULATIONAHA.114.007667

Hymowitz, N., Cummings, K. M., Hyland, A., Lynn, W. R., Pechacek, T. F., & Hartwell, T. D. (1997). Predictors of smoking cessation in a Cohort of adult smokers followed for five year. *Tobacco Control*, *6*(Suppl. 2). https://doi.org/10.1136/tc.6.suppl_2.s57

International Chamber of Commerce. & ESOMAR. (2016). *ICC/ESOMAR international code on market, opinion and social research and data analytics*. International Chamber of Commerce. https://www.esomar.org/uploads/pdf/professional-standards/ICCESOMAR_Code_English_.pdf

International Agency for Research on Cancer. (2004). *Tobacco smoke and involuntary smoking* (IARC Working Group on the Evaluation of Carcinogenic Risks to Humans). IARC Monographs on the Evaluation of Carcinogenic Risks to Humans (Vol. *83*). IARC.

Jha, P., Ramasundarahettige, C., Landsman, V., Rostron, B., Thun, M., Anderson, R. N., McAfee, T. D., & Peto, R. (2013). 21st century hazards of smoking and benefits of

cessation in the United States. *New England Journal of Medicine*, *368*, 341–350. https://doi.org/10.1056/NEJMsa1211128

Lancet Editorial. (2018). Progress towards a tobacco-free world. *Lancet*, *392*(10141), 1. https://doi.org/10.1016/S0140-6736(18)31482-X

Li, Q., Guan, X., Wu, P. et al. (2020). Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. *New England Journal of Medicine*, *382*(13):1199–1207. doi:10.1056/NEJMoa2001316

Maddux, E. J., & &Rogers, W. R., (1983). Protection motivation and self-efficacy: A revised theory of fear appeals and attitude change. *Journal of Experimental Social Psychology*, *19*(5), 469–479. https://doi.org10.1016/0022-1031(83)90023-9

McCaul, K. D., Hockemeyer, J. R., Johnson, R. J., Zetocha, K., Quinlan, K., & Glasgow, R. E. (2006). Motivation to quit using cigarettes: A review. *Addictive Behaviors*, *31*(1), 42–56. https://doi.org/10.1016/j.addbeh.2005.04.004

Ministry of Health and Family Welfare. (2003). *The Cigarettes and Other Tobacco Products (prohibition of advertisement and regulation of trade and commerce, production, supply and distribution)* Act, 2003. An Act enacted by the Parliament of Republic of India by notification in the Official Gazette (Act 32 of 2003).

Ministry of Health and Family Welfare. (2018a). *Global Adult Tobacco Survey GATS 2 India 2016–17*. Tata Institute of Social Sciences and Ministry of Health and Family Welfare, Government of India.

Ministry of Health and Family Welfare. (2018b). *Report on Tobacco Control in India, 2004*. Ministry of Health and Family Welfare, Government of India. http://www.who.int/fctc/reporting/Annex6_Report_on_Tobacco_Control_in_India_2004.pdf

Ministry of Health and Family Welfare. (2019). *The Prohibition of Electronic Cigarettes (Production, Manufacture, Import, Export, Transport, Sale, Distribution, Storage and Advertisement) Bill*, 2019. https://www.prsindia.org/billtrack/prohibition-electronic-cigarettes-production-manufacture-import-export-transport-sale-0

Ministry of Health and Family Welfare. (2020). *COVID-19 INDIA*. Ministry of Health and Family Welfare, Government of India. https://www.mohfw.gov.in/

Mishra, G. A., Pimple, S. A., & Shastri, S. S. (2012). An overview of the tobacco problem in India. *Journal of Medical and Pediatric Oncology: Indian Journal of Medical and Pediatric Oncology*, *33*(3), 139–145. https://doi.org/10.4103/0971-5851.103139

Mohan, P., Lando, A. H., & Panneer, S. (2018) Assessment of tobacco consumption and control in India. *Indian Journal of Clinical Medicine*, *9*, 1–8. https://doi.org/10.1177/1179916118759289

National Cancer Registry Programme. (2013). *Consolidated Report of Hospital Based Cancer Registries 2007–2011*. National Cancer Registry Programme, Indian Council of Medical Research.

National Cancer Registry Programme. (2020). *Indian Council of Medical Research/ National Centre for Diseases Informatics and Research*. https://ncdirindia.org/All_Reports/Report_2020/Brf_2020/NCRPReport202_Brief_write_up.pdf

Nethan, S. T., Sinha, D. N., Chandan, K, Mehrotra, R. (2018). Smokeless tobacco cessation interventions: A systematic review. *Indian Journal of Medical Research, 148*; 396–410. https://doi.org/10.4103/ijmr.IJMR_1983_17

Orleans, C. T., Jepson, C., Resch, N., & Rimer, K. B. (1994). Quitting motives and barriers among older smokers. The 1986 Adult use of tobacco survey revisited. *Cancer*, *74*(7 Suppl.), 2055–2061. https://doi.org/10.1002/1097-0142(19941001)74:7+<2055:AID-CNCR2820741712>3.0.CO;2-Q

Pal, R., & Yadav, U. (2020). COVID-19 Pandemic in India: Present scenario and a steep climb ahead. *Journal of Primary Care & Community Health*, *11*. https://doi.org/10.1177/2150132720939402

Pierce, J. P., Gilpin, E. A., Emery, S. L., White, M. M., Rosbrook, M., & Berry, C. (1998) Has the California tobacco control program reduced smoking? *Journal of the American Medical Association*, *280*(10), 893–899. https://doi.org/10.1001/jama.280.10.893

Public Health England. (2015). *E-cigarettes around 95% less harmful than tobacco estimates landmark review*. https://www.gov.uk/government/news/e-cigarettes-around-95-less-harmful-than-tobacco-estimates-landmark-review

Rao, V., & Chaturvedi, P. (2010). Tobacco and health in India. *Indian Journal of Cancer*, *47*(5), 3–8. http://www.indianjcancer.com/text.asp?2010/47/5/3/64373

Royal College of Physicians. (2016). Nicotine without smoke: tobacco harm reduction. RCP report on e-cigarettes. https://ukctas.net/rcp.html#:~:text=The%20Royal%20College%20of%20Physicians,are%20muc

Romer, D., & Jamieson, P. (2001). The role of perceived risk in starting and stopping smoking. In P. Slovic (Ed.), *Smoking: Risk, perception, & policy* (pp. 64–80). SAGE Publications. https://doi.org/10.4135/9781452232652.n4

Roy, A., Rawal, I., Jabbour, S., & Prabhakaran, D. (2017). Tobacco and cardiovascular disease: A summary of evidence. In D. Prabhakaranj, S. Anand, T. A., Gaziano, J. C. Mbanya, Y. Wu & R. Nugemt (Eds), *Cardiovascular, respiratory, and related disorders* (Vol. *5*, 3rd ed.). https://doi.org/10.1596/978-1-4648-0518-9

Sharan, R. N., Chanu, T. M., Chakrabarty, T. K., & Farsalinos, K. (2020). Patterns of tobacco and e-cigarette use status in India: A cross-sectional survey of 3000 vapers in eight Indian cities. *Harm Reduction Journal*, *17*, 21. https://doi.org/10.1186/s12954-020-00362-7

Shah, S., Dave, B., Shah, R., Mehta, T. R., & Dave, R. (2018). Socioeconomic and cultural impact of tobacco in India. *Journal of Family Medicine and Primary Care*, *7*(6), 1173–1176. https://doi.org/10.4103/jfmpc.jfmpc_36_18

Singh, S., Jain, P., Singh, P. K., Reddy, K. S., & Bhargava, B. (2020). White paper on smokeless tobacco & women's health in India. *Indian Journal of Medical Research*, *151*, 513–521. https://doi.org/10.4103/ijmr.IJMR_537_20

Sinha, D. N., Palipudi, K. M., Gupta, P. C., Singhal, S., Ramasundarahettige, C., Jha, P., Indrayan, A., Asma, S., & Vendhan, G. (2014). Smokeless tobacco use: A meta-analysis of risk and attributable mortality estimates for India. *Indian Journal of Cancer*, *51*(Suppl. 1), S73–S77. https://doi.org/10.4103/0019-509X.147477

Thankappan, K. R. (2014). Tobacco cessation in India: A priority health intervention. *The Indian Journal of Medical Research*, *139*(4), 484–486.

World Health Organization. (2015). *Cardiovascular diseases: Fact sheet*. https://www.world-heart-federation.org/wp-content/uploads/2018/05/Factsheet-Tobacco-and-CVD_Healthcare-professionals-v2.1.pdf

World Health Organization. (2018). *Factsheet 2018 India*. https://apps.who.int/iris/bitstream/handle/10665/272672/wntd_2018_india_fs.pdf?sequence=1

World Health Organization. (2020). *Coronavirus disease 2019 (COVID-19)* (Situation Report-40). https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200229-sitrep-40-covid-19.pdf?sfvrsn=849d0665_2

Wu, J. T., Leung, K., & Leung, G.M. (2020). Nowcasting and forecasting the potential domestic and international spread of the 2019-nCoV outbreak originating in Wuhan, China: Modelling study. *Lancet*, *395*(10225), 689–697. https:doi.org/\:10.1016/S0140-6736(20)30260-9

Yach, D. (2020, 9 September). Tobacco use patterns in five countries during the Covid-19 lockdown. *Nicotine & Tobacco Research*, *22*, 1671–1672. https://doi.org/10.1093/ntr/ntaa097

Manuscript submission

- The preferred format for your manuscript is MS Word.
- The journal does not consider a paper that has been published elsewhere or that is under submission to another publisher. Authors must attest to this at the time of submission. It is also author's responsibility to disclose any potential conflict of interests regarding their submitted papers.
- Authors will be provided with a copyright form once the contribution is accepted for publication. The submission will be considered as final only after the filled-in and signed copyright form is received.

Basic formatting of the manuscripts

The journal publishes the following article types:

- **Research Papers.** The paper length should not exceed 7000 words including figures, tables, references and appendices. Abstract (of up to 150 words) and 5 or more keywords are mandatory for a research paper.
- Case Studies
- Reports

Please refer to the Submission Guidelines on the journal website for details on formatting.

Spelling and numerical usages

- Consistent use of British spelling is advised.
- Spell out numbers from one to nine, 10 and above to remain in figures. However, for exact measurements use only figures (e.g. 3 km, 9%). Please use '13th' instead of 'thirteenth century'; use '1960s' instead of 'nineteen sixties'.

Quotations, notes, tables and figures

- British English uses single quotation marks to indicate quotations or dialogue, double quotation marks for quotation inside quotation (nested quotation).
- Notes should be numbered serially and presented at the end of the article. Notes must contain more than a mere reference.
- Tables and figures must be cited in the text, and indicated by number separately (Table 1), not by placement (see Table below). Source details for figures and tables should be mentioned irrespective of whether or not they require permissions.
- All photographs and scanned images should have a resolution of minimum 300 dpi and 1500 pixels, and their format should be TIFF or JPEG. Due permissions should be taken for copyright-protected photographs/images.

References and their text citations

- References and their citations should be given in accordance with APA 7th edition.
- Please ensure that all references mentioned in the reference list are cited in the text and vice versa.

For detailed style guidelines, please visit https://drj.ves.ac.in/

Vivekanand Education Society's Institute of Management Studies & Research

spectrum Journals Powered by SAGE