

# **Science behind Indian Rituals**

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Sudarsana 12.09.2022  
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## Abstract

India the epitome of rituals and the originator of yoga has deep cultural roots, which is world famous. This paper aims to highlight the science behind Indian rituals, show how these rituals help us in our day-to-day life, and lastly promote the scientific reasons behind these rituals among Generation Z so that our roots can be preserved and passed on to the next generation. These aims were achieved using different methodologies like the study of literature already available, and a google questionnaire-based survey of 50 people (aged 18-26) to see what Generation Z thinks about Indian rituals. The questions were formed to understand the perception of Generation Z and how they see rituals as. Preservation of rituals is the main goal behind writing this paper. In the later stage, 10 people were randomly chosen from the first survey to perform Yoga Mudra and some specific rituals for 21 days to find its effect on physical and mental health. Yoga is performed by balancing the elements of the body. Which in order creates harmony of the soul, body, and mind. The participants of the experiment were aged between 18-24 years. The experiment was elaborated to the participants before starting. It was done at a fixed plan time every day for 21 days. It is hoped that this study will be helpful in creating more awareness about the scientific benefits of rituals and encourage people to add yoga to their routine as an everyday activity for better mental and physical health. From the survey it can be said that generation Z likes to believe in facts and evidence based things and from the experiment it can concluded that doing yoga at least for even 20 minutes a day helps in the improvement of our mental health.

## ABSTRACT

कर्मकांडों का प्रतीक और योग के प्रवर्तक होने के नाते भारत की गहरी सांस्कृतिक जड़ें हैं, जो विश्व प्रसिद्ध है। इस पत्र का उद्देश्य भारतीय अनुष्ठानों के पीछे के विज्ञान को उजागर करना है, यह दिखाना है कि ये अनुष्ठान हमारे दैनिक जीवन में कैसे हमारी मदद करते हैं, और अंत में नई पीढ़ी के बीच इन अनुष्ठानों के पीछे के वैज्ञानिक कारणों को बढ़ावा देते हैं ताकि हमारी जड़ों को संरक्षित और पारित किया जा सके। इन लक्ष्यों को पहले से उपलब्ध साहित्य के अध्ययन और 50 लोगों (18-26 वर्ष की आयु) के प्रश्नावली-आधारित सर्वेक्षण जैसी विभिन्न पद्धतियों का उपयोग करके प्राप्त किया गया था ताकि यह देखा जा सके कि नई पीढ़ी भारतीय रीति-रिवाजों के बारे में क्या सोचती है। इस पत्र को लिखने के पीछे कर्मकांडों का संरक्षण मुख्य लक्ष्य है। बाद के चरण में, शारीरिक और मानसिक स्वास्थ्य पर इसके प्रभाव का पता लगाने के लिए 21 दिनों के लिए योग मुद्रा और कुछ विशिष्ट अनुष्ठानों को करने के लिए पहले सर्वेक्षण से 10 लोगों को यादृच्छिक रूप से चुना गया था। शरीर के तत्वों को संतुलित करके योग किया जाता है। जो क्रम में आत्मा, शरीर और मन का सामंजस्य बनाता है। प्रयोग के प्रतिभागियों की आयु 18-24 वर्ष के बीच थी। प्रयोग शुरू करने से पहले प्रतिभागियों को विस्तार से बताया गया। यह 21 दिनों के लिए हर दिन एक निश्चित योजना समय पर किया गया था। आशा है कि यह अध्ययन अनुष्ठानों के वैज्ञानिक लाभों के बारे में अधिक जागरूकता पैदा करने में सहायक होगा और लोगों को बेहतर मानसिक और शारीरिक स्वास्थ्य के लिए दैनिक गतिविधि के रूप में योग को अपनी दिनचर्या में शामिल करने के लिए प्रोत्साहित करेगा। सर्वेक्षण से यह कहा जा सकता है कि नई पीढ़ी तथ्यों और साक्ष्यों पर आधारित चीजों में विश्वास करना पसंद करती है और प्रयोग से यह निष्कर्ष निकाला जा सकता है कि दिन में कम से कम 20 मिनट भी योग करने से हमारे मानसिक स्वास्थ्य में सुधार होता है।

## Executive Summary

This research project addresses the science behind Indian rituals and the benefits of yoga postures in our physical and mental health. The main objective of this project is to uncover the science behind the rituals that we perform for the present adult generation, which is Generation Z so that our rituals can be passed on to the next generation.

India is the birthplace of Yoga and Ayurveda with thousands of rituals that have been followed over the years. Not only do rituals have religious meaning behind them, but they are based on science that our sages knew about even before the emergence of the concept of science. Every ritual we follow contributes to our health in some way or the other. To find out how Generation Z perceives Indian customs, a questionnaire survey was conducted on 50 individuals aged 18-26 (this age group falls under Generation Z as of 2022). The results of the survey are shown in the tables (figures) in the results section.

Rituals are used on a daily basis and are not something that is done occasionally. India is a secular country where people of different religions live together. Each religion has its own customs which differ from each other. A Tulsi plant can be seen in almost every Hindu household, as Hindus consider it an incarnation of Goddess Lakshmi and the science behind keeping a Tulsi plant is that it acts as an agent of antimicrobial, mosquito repellent, antioxidant etc. It can be said that rituals help in creating a proper and balanced life which contributes to our wellbeing.

Generation Z accepts their culture and doesn't shy away from accepting the things they don't know. The problem lies in passing on the proper knowledge of a particular ritual. There should be magazine and newspaper articles for the aged population of the country on the scientific benefits of rituals. If the older population can become aware of its benefits, then its knowledge will automatically be transferred to the generations to come under them. The rites and customs are generally passed down from one generation to the next in Indian families. Therefore, more emphasis should be laid on making the middle-aged and older population aware of its benefits. The generations above Generation Z know the rituals but do not know the science behind their observance. Generation Z is technically and intellectually better than other generations and a generation that has full access to the internet, prefers to believe in facts and evidence-based things. All our rituals are fact and science based, which not many people are aware of and this is something that is not discussed much in public. In order to increase the knowledge about the scientific benefits of rituals, compulsory chapters on science and the benefits of Indian rituals should be added in the school curriculum. Therefore, children from an early age come to know their benefits and follow the rituals voluntarily and are not forced to follow them. We need to be more open about its scientific benefits from a newer point of view in order to preserve our rituals and pass them on to future generations. This can be sustained only if we focus on spreading the knowledge of the sacraments based on the perceptible needs of a generation. Although for centuries our rituals have been passed down on religious and customary grounds to generation Z, this does not seem to be the case.

India is a diverse country, every part of the country has different rituals but even after having different rituals, it joins together to celebrate the common customs and rituals together.

Majority of the households in India practice rituals every day. 70% agree that there are scientific benefits behind rituals and 60.8% said that before introducing a ritual in an Indian household the scientific benefits are not discussed or taught to the child. Not discussing a ritual before introducing it to the growing generation is where the gap between following and preserving rituals comes in. The

majority agreed that they would rather greet someone with 'Hi' while meeting them for the first time rather than by doing 'Namaste'.

Children from a lower age should be encouraged to do yoga. It not only helps you to be patient but also teaches you about your own culture. Yoga is a basic and everyday necessity that everyone should know. To develop this concept an experiment was done on 10 individuals. They were asked to perform 5 Yoga Mudra for 21 days to see if they felt any difference before and after the experiment. It was observed during the experiment that the individuals were excited about the experiment and it can be said that they were searching for a relaxation technique to escape from their hectic life. This was done for 21 days in order to form a habit of doing yoga. India is now the world's 5th largest economy and the workload and everyday rush are only increasing. So, it is very important to calm our minds during hectic days for a healthy life. With the idea that yoga can bring that necessary break for calmness that we have all been searching for, this experiment was done.

The 21 days theory was given by Maxwell Maltz in his popular book about behavior, Psycho-Cybernetics. This theory says that it takes 21 days to form a habit and on the 22nd day we consciously or subconsciously will follow that routine that we have done for 21 days. This theory was first discussed with the participants and only with their consent, it was done.

Yoga Mudra proved to create better mental health hygiene in the subjects. 8 out of 10 subjects said that Yoga is beneficial for mental health and all the participants agreed that school curriculums should add Yoga as a compulsory subject for adolescents.

Passing on culture and tradition is tough, especially in a country with a high population like India. Initiatives should be taken by the government of exposing different rituals both on the national and state levels by celebrating different days and by conducting seminars for school and university students.

### **कार्यकारी सारांश (EXECUTIVE SUMMARY)**

यह शोध परियोजना भारतीय अनुष्ठानों के पीछे के विज्ञान और हमारे शारीरिक और मानसिक स्वास्थ्य में योग मुद्राओं के लाभों को संबोधित करती है। इस परियोजना का मुख्य उद्देश्य उन संस्कारों के पीछे के विज्ञान को उजागर करना है जो हम वर्तमान वयस्क पीढ़ी के लिए करते हैं, जो कि नई पीढ़ी है ताकि हमारे संस्कार अगली पीढ़ी को दिए जा सकें।

भारत योग और आयुर्वेद का जन्मस्थान है, जहां हजारों अनुष्ठानों का पालन वर्षों से किया जाता रहा है। कर्मकांडों के पीछे न केवल धार्मिक अर्थ होते हैं, बल्कि वे विज्ञान पर आधारित होते हैं जिनके बारे में हमारे ऋषि-मुनियों को विज्ञान की अवधारणा के उद्भव से पहले ही पता था। हमारे द्वारा पालन किया जाने वाला प्रत्येक अनुष्ठान किसी न किसी रूप में हमारे स्वास्थ्य में योगदान देता है। यह पता लगाने के लिए कि नई पीढ़ी भारतीय रीति-रिवाजों को कैसे मानती है, 18-26 आयु वर्ग के 50 व्यक्तियों पर एक प्रश्नावली सर्वेक्षण किया गया था। सर्वेक्षण के परिणाम परिणाम अनुभाग में तालिकाओं (आंकड़ों) में दिखाए गए हैं।

अनुष्ठान दैनिक आधार पर उपयोग किए जाते हैं और ऐसा कुछ नहीं है जो कभी-कभी किया जाता है। भारत एक धर्मनिरपेक्ष देश है जहां विभिन्न धर्मों के लोग एक साथ रहते हैं। प्रत्येक धर्म के अपने रीति-रिवाज होते हैं जो एक

दूसरे से भिन्न होते हैं। तुलसी का पौधा लगभग हर हिंदू घर में देखा जा सकता है, क्योंकि हिंदू इसे देवी लक्ष्मी का अवतार मानते हैं और तुलसी के पौधे को रखने के पीछे का विज्ञान यह है कि यह एक औषधि के रूप में कार्य करता है। यह कहा जा सकता है कि अनुष्ठान एक उचित और संतुलित जीवन बनाने में मदद करते हैं जो हमारी भलाई में योगदान देता है।

नई पीढ़ी अपनी संस्कृति को स्वीकार करती है और उन चीजों को स्वीकार करने से नहीं कतराती जिन्हें वे नहीं जानते हैं। समस्या एक विशेष अनुष्ठान के उचित ज्ञान को पारित करने में निहित है। अनुष्ठानों के वैज्ञानिक लाभों पर देश की वृद्ध आबादी के लिए पत्रिका और समाचार पत्र लेख होने चाहिए। यदि वृद्ध जनसंख्या इसके लाभों के प्रति जागरूक हो जाती है, तो इसका ज्ञान अपने आप आने वाली पीढ़ियों को हस्तांतरित हो जाएगा। भारतीय परिवारों में संस्कार और रीति-रिवाज आम तौर पर एक पीढ़ी से दूसरी पीढ़ी तक चले जाते हैं। इसलिए मध्यम आयु वर्ग और वृद्ध आबादी को इसके लाभों से अवगत कराने पर अधिक जोर दिया जाना चाहिए। नई पीढ़ी से ऊपर की पीढ़ियां कर्मकांडों को तो जानती हैं लेकिन उनके पालन के पीछे के विज्ञान को नहीं जानती हैं। नई पीढ़ी तकनीकी और बौद्धिक रूप से अन्य पीढ़ियों की तुलना में बेहतर है और एक ऐसी पीढ़ी जिसके पास इंटरनेट तक पूर्ण पहुंच है, तथ्यों और साक्ष्य-आधारित चीजों में विश्वास करना पसंद करती है। हमारे सभी अनुष्ठान तथ्य और विज्ञान पर आधारित हैं, जिसके बारे में बहुत से लोग नहीं जानते हैं और यह एक ऐसी चीज है जिसकी सार्वजनिक रूप से ज्यादा चर्चा नहीं होती है। अनुष्ठानों के वैज्ञानिक लाभों के बारे में ज्ञान बढ़ाने के लिए, विज्ञान पर अनिवार्य अध्याय और भारतीय रीति-रिवाजों के लाभों को स्कूली पाठ्यक्रम में जोड़ा जाना चाहिए। इसलिए, कम उम्र से ही बच्चे अपने लाभों को जान लेते हैं और स्वेच्छा से अनुष्ठानों का पालन करते हैं और उनका पालन करने के लिए मजबूर नहीं होते हैं। हमें अपने संस्कारों को संरक्षित रखने और उन्हें आने वाली पीढ़ियों तक पहुंचाने के लिए नए दृष्टिकोण से इसके वैज्ञानिक लाभों के बारे में अधिक खुला होना चाहिए। इसे तभी कायम रखा जा सकता है जब हम एक पीढ़ी की प्रत्यक्ष जरूरतों के आधार पर संस्कारों के ज्ञान के प्रसार पर ध्यान दें। यद्यपि सदियों से हमारे कर्मकांडों को नई पीढ़ी को धार्मिक और प्रथागत आधार पर पारित किया गया है, लेकिन ऐसा नहीं लगता है।

भारत एक विविध देश है, देश के हर हिस्से में अलग-अलग रीति-रिवाज हैं लेकिन अलग-अलग रीति-रिवाजों के बाद भी, यह एक साथ मिलकर सामान्य रीति-रिवाजों और रीति-रिवाजों को एक साथ मनाते हैं।

भारत में अधिकांश परिवार प्रतिदिन अनुष्ठान करते हैं। 70% सहमत हैं कि अनुष्ठानों के पीछे वैज्ञानिक लाभ हैं और 60.8 फीसदी ने कहा कि एक भारतीय घर में एक अनुष्ठान शुरू करने से पहले बच्चे को वैज्ञानिक लाभों पर चर्चा या सिखाया नहीं जाता है। बढ़ती पीढ़ी के लिए इसे शुरू करने से पहले एक अनुष्ठान पर चर्चा नहीं करना, जहां अनुष्ठानों का पालन करने और संरक्षित करने के बीच का अंतर आता है। बहुमत ने सहमति व्यक्त की कि वे किसी को 'नमस्ते' करने के बजाय पहली बार मिलने के दौरान 'नमस्ते' के साथ बधाई देना पसंद करेंगे।

कम उम्र के बच्चों को योग करने के लिए प्रोत्साहित करना चाहिए। यह न केवल आपको धैर्य रखने में मदद करता है बल्कि आपको अपनी संस्कृति के बारे में भी सिखाता है। योग एक बुनियादी और रोजमर्रा की आवश्यकता है जिसे सभी को जानना चाहिए। इस अवधारणा को विकसित करने के लिए 10 व्यक्तियों पर एक प्रयोग किया गया। उन्हें 21 दिनों के लिए 5 योग मुद्रा करने के लिए कहा गया ताकि यह देखा जा सके कि प्रयोग से पहले और बाद में उन्हें कोई अंतर महसूस हुआ या नहीं। प्रयोग के दौरान यह देखा गया कि व्यक्ति प्रयोग को लेकर उत्साहित थे और यह कहा जा सकता है कि वे अपने व्यस्त जीवन से बचने के लिए एक विश्राम तकनीक की खोज कर रहे थे। यह योग करने की आदत बनाने के लिए 21 दिनों के लिए किया गया था। भारत अब दुनिया की 5वीं सबसे बड़ी अर्थव्यवस्था है और काम का बोझ और रोजमर्रा की भीड़ केवल बढ़ रही है। इसलिए, स्वस्थ जीवन के लिए व्यस्त



दिनों में अपने मन को शांत करना बहुत महत्वपूर्ण है। इस विचार के साथ कि योग शांति के लिए वह आवश्यक विराम ला सकता है जिसकी हम सभी खोज कर रहे थे, यह प्रयोग किया गया।

21 दिनों का सिद्धांत कहता है कि आदत बनने में 21 दिन लगते हैं और 22वें दिन हम होशपूर्वक या अवचेतन रूप से उस दिनचर्या का पालन करेंगे जो हमने 21 दिनों तक की है। इस सिद्धांत पर पहले प्रतिभागियों के साथ चर्चा की गई और उनकी सहमति से ही यह किया गया।

योग मुद्रा विषयों में बेहतर मानसिक स्वास्थ्य स्वच्छता बनाने के लिए सिद्ध हुई। 10 में से 8 विषयों ने कहा कि योग मानसिक स्वास्थ्य के लिए फायदेमंद है और सभी प्रतिभागियों ने सहमति व्यक्त की कि स्कूली पाठ्यक्रम में किशोरों के लिए योग को अनिवार्य विषय के रूप में शामिल करना चाहिए।

संस्कृति और परंपरा को आगे बढ़ाना कठिन है, खासकर भारत जैसे उच्च जनसंख्या वाले देश में। सरकार द्वारा राष्ट्रीय और राज्य दोनों स्तरों पर अलग-अलग दिन मनाकर और स्कूल और विश्वविद्यालय के छात्रों के लिए सेमिनार आयोजित करके विभिन्न अनुष्ठानों को उजागर करने की पहल की जानी चाहिए।

## Introduction

“Rituals are the Formulas by which harmony is restored”

-Terry Tempest Williams

India, the world's one of the most diverse countries is the birthplace of Yoga and Ayurveda, is also the epic center of different rituals. A country that has always prioritized love and kindness as its core value has different rituals in different parts of the country. In the Northeast, the first menstruation of a girl child is celebrated just like a small wedding whereas in the West there is a festival known as Raksha Bandhan where sisters tie around a thread on the right hand of- their brothers. The concept of Raksha Bandhan emerged from the Hindu epic Mahabharata. In Mahabharata, Draupadi once tore a piece of cloth from her saree when Lord Krishna cut his finger. That piece of cloth was then considered sacred [9].

Those were just two different rituals of two different zones of India. India is divided into 6 zones out of which some rituals are common such as doing, 'NAMASKAR/NAMASTE' which is done by joining both hands. The science behind it is that when our fingers touch each other they slightly press each other as they are linked with our eyes, ears, and minds. Pressing them activates these points which in order help us to remember a person for a long time. Another common ritual is putting 'TILAK' on our forehead and the science behind it is that the gap between our eyebrows is considered a major nerve point of the human body. A tilak is believed to increase the level of concentration.

Even though we have so many rituals, the youngsters and Generation Z of the nation don't want to follow these rituals without knowing the reasons behind them. Generation Z according to *The Economist*, is more educated, well-behaved, and stressed in comparison to the previous generations [8]. This generation believes in facts and evidence and back in the early days when there was no google,

science, or doctors our saints were ahead of time and knew the scientific reason and importance behind our rituals. These rituals are losing their existence in daily life as people are not aware of the science behind them and the benefits of following them. Knowing the science behind our rituals will help us preserve them and pass them on to the next generation. People from all over the world come to India to learn Indian rituals now it's our duty as Indians to preserve and promote them.

Rituality and spirituality have a lot to do with mental health, when we follow something, we do it only after getting single from our brain. Accordingly, the writing from various disciplines (e.g., sociology, psychology, anthropology, education, etc.) contains a rising number of reviews looking at the role of religion and spirituality in physical as well as emotional well-being. Therefore, before following our rituals we do need to know the meaning and the science behind them so that whatever we are doing is right and benefits our mental wellness. As proved by early researchers, our rituals do have many benefits that help in benefiting our mental wellness such as calming, increase of concentration power, etc [4].

Rituals play an important role in our day-to-day life. From waking up to early to pray to the sun lord to eating early for better food digestion. We do it all and none of it is done for superficial reasons instead it has scientific reasons such as Surya namaskar which is a yoga that is done to pay gratitude to the sun in the morning or evening. The scientific reason for it is that sunlight releases the serotonin hormone which is known as the feel-good hormone as it makes us feel happy, calm, focused, and emotionally stable. Waking up early not only makes our routine good but our mental and physical health also [1].

Yoga first originated in 2700 B.C in the Indus Saraswati Valley Civilization in Northern India. Yoga is a spiritual discipline based on science that focuses on creating harmony between our minds and soul [10]. The word Yoga is originally a Sanskrit word that translates to 'Yuj', meaning 'to join' or 'to unite'. According to Yogic sacred writings, the act of Yoga prompts the association of individual cognizance with that of Universal Consciousness, demonstrating an ideal congruence between the brain and body, Man and Nature. One who experiences this solidarity of presence should be in yoga and is named a yogi, having accomplished a state of chance implied as mukti, nirvana, or moksha. Consequently, the point of Yoga is Self-acknowledgement, to defeat a wide range of sufferings prompting 'the condition of freedom' (Moksha) or 'opportunity' (Kaivalya). Shiva is said to be the first Yogi. However, Yoga was being practiced in the pre-Vedic period, the supreme Sage Maharshi Patanjali arranged and systematized the then-existing acts of Yoga, its importance, and its connected information through his Yoga Sutras.

Yoga Mudras are a bunch of hand positions or they can envelop the whole body in a blend of Asana and Pranayama that change one's state of mind, mentality, or viewpoint. Which also helps to build fixation and readiness. There has been scientific evidence that mudras help in increasing physical functions in the body. Yoga has always gone side by side with therapy to cure mental health issues. There are different Yoga Mudras such as "Gyan Mudra" which help in increasing concentration, calmness, knowledge, and memory, "Kalesvara Mudra" which help in curing anxiety and feeling of nervousness, "Prana Mudra" which helps in increasing patience and also alleviates insomnia [7],[11].

We have become so engrossed with the growing globalization and modernity that we have forgotten to prioritize our health even if we are prioritizing, we are drawn to modern technologies for it whereas

we have so many scientific-based alternatives here in our own land which give better and fast results. The ongoing generation that will be the country runners in the coming decades is more or less aware of our own practices which are resulting in fatigue, impatience, irritability, sleeping disorders, etc. This generation which is born in the same decade as the internet refuses to believe anything without its facts and science. My interest in studying Generation Z and Indian rituals made me aware of a lot of things that I didn't know of before, I came to know the science behind our rituals, how this generation perceives these rituals, and lastly the benefits of Yoga Mudra.

To find a solution for preserving and keeping our traditions alive the initiative of writing this paper was taken for which two surveys were done in the Vadodara district, Gujarat. Where one survey and one experiment were done, the survey was done to find out how Gen-Z perceives Indian rituals and the experiment was done to find out if Yoga mudra has any benefits on mental and physical health. The experiment was done only with the consent of the subjects. The survey took an overall 21 days to complete with 1 interview taking place every week with the experimenter. The paper was written with the help of past written papers on the same topic. The data was analysed with the help of SPSS. The research has been done through the qualitative method.

## Background

This project is based on the findings of Indian rituals primarily and the science behind them. It puts an emphasis on Generation Z and the importance of Yoga mudra in our day-to-day life. All of us at some time or other have seen rituals being performed at our home or in other places and have the eagerness to find out the reason behind doing them but due to less study and awareness the rituals are only being followed but the science behind them has been lost. This was the case and it didn't cause any problems till the last generation but the generation that we have today only follows those things that are factual. This is something which I agree with cause when we have so many rituals, we should know the meaning behind them and they are not only religious-based but science-based too. Some of the important rituals that are done in India that people are not aware of the science behind are;

- 1. Sindoor:** Sindoor is a red or orange colored powder worn by married Hindu Indian women along the part of their hairline. Sindoor symbolizes the marital status of women. Sindoor is generally made with turmeric, lime, and mercury. The science behind using Sindoor apart from religion is that mercury helps in cooling down the body and makes women feel relaxed. The reason for applying Sindoor is that there is a gland in women's hairline which activates sexual drive.
- 2. Bangles:** Bangles are traditional bracelets worn by Indian women. Men also wear single bangles known as Kada. Bangles are made of plastic, glass, wood, metal, etc. The science behind wearing bangles is that friction between the bangles and the skin improves blood circulation.
- 3. Diya:** Every Hindu Indian household light Diya in the evening or morning after taking bath. Diya is a small earthen lamp that is lit by a cotton wick dipped in oil or ghee. Diya is considered auspicious as it believes to bring in positivity, luck, knowledge, wisdom, and prosperity. The science behind diya is that it illuminates and opens up the mind and activates the sensory areas of the brain which helps in focusing and calming down.

4. **Haldi:** Haldi is an essential item in every Indian household. Indian people use it as a medicine, cosmetic, skincare, and ingredient while cooking. Turmeric or Haldi kills bacteria and helps in glowing skin.
5. **Mehendi:** Mehendi is a temporary body art done using a paste created from the powdered dry leaves of the henna plant. From weddings to puja Mehendi is a must in every Indian hand. The science behind making Mehendi is that it protects from viral, and fungal infections and also helps in the growth of nails.
6. **Piercing:** Piercing has been a tool of cultural significance for many centuries. A significant justification behind ear piercing is that it improves memory. As they affect the soundness of the cerebrum, the memory level is additionally impacted. Stimulating the meridian focuses through piercings cultivates solid improvement of the cerebrum and in the end, upgrades the memory.
7. **Tulsi:** A normal day in an Indian household starts with taking a shower and watering the Tulsi plant. According to Hindu mythology, Tulsi is accepted to be an actual manifestation of Goddess Lakshmi on Earth. The scientific reason behind having the Tulsi plant is that the plant has restorative properties, and hence, is it used to battle the normal cold, cough, and different infections. Additionally, it helps in supporting the immune system.
8. **Fasting in Shravan Month:** During Shravan or monsoon, Hindu people fast for the long and good life of their spouses. According to Hinduism meat consumption is forbidden for Hindu people but as time passed people started to consume it, it was said to not eat it during the monsoon out of respect for the faith. With all that comes under religion now, the scientific reason behind it is that during monsoon our digestive systems are weak due to lack of sunlight. It is said to not consume non-veg food due to the best interest of our health. There are various water-borne diseases during the monsoon which can lead to the containment of animal flesh.[2]

These were just some of the examples that can be seen in our day-to-day life. There are dozens more that play an important role in our life that we are not aware of, nor the ritual or the benefits do they hold. If this keeps on continuing then slowly in a few decades we will lose our traditions.

Mind-body therapies, including yoga therapy, are proposed to benefit health and well-being through the integration of top-down and bottom-up processes facilitating bidirectional communication between the brain and body [12]. The mudras used for the 21 days experiment are based on science that has been used for ages at different stages to cure illnesses and strengthen positivity in lives. The mudras that have been used for the experiment in this paper are:

### 1. Ganesh Mudra

Ganesh mudra is a yoga mudra that is done by using both hands. In this mudra, when two hands are fastened at chest level, it shows the gathering point of the physical and heart strength. It helps in improving blood circulation and Alzheimer's disease. Patients with Alzheimer's disease are advised to do this mudra on an empty stomach. It should be performed in the early morning or evening.

#### How to do it

- Sit in a comfortable position and loosen up your body.
- Unite your palms to form Anjali Mudra.
- Hold your left hand before the chest with the palm looking out, and bend your fingers.
- Then hold the left hand with the right hand with the palm confronting inwards.
- Keep both the hands fastened with the fingers locked.
- Breathe in and breathe out, without separating the hands.
- Repeat it 6 times
- Once done do it in the opposite hand and again repeat it 6 times.

## 2. Dhyana Mudra

Dhyana mudra is otherwise called Samadhi mudra. As per Hinduism, the godhead sits in a meditation position and places the right hand inside the left hand in the lap with the palms turned upwards. Dhyana mudra helps in lowering the stress level, increases confidence, and also in increasing knowledge as meditation also helps in increasing memory power.

### How to do it

- Sit in any comfortable seating posture and place the hands with palms pointing upwards on the thighs or the knees.
- Your back should be straight. The seating posture should not be discomfoting or distract the mind.
- Close your eyes and take a few full breaths with the consciousness of your breathing system.
- After that put together your hands on your lap. Place your right hand inside of your left hand with your palms facing up. Both thumbs should make a triangle by touching each other.
- Lastly try to minimize all your thoughts and focus on a particular chant-like, like OM .
- Try to breathe in the same rhythm.

## 3. Prana Mudra

Prana mudra is done by joining the tip of the little, ring, and thumb fingers together. Of the five fingers our thumb represents *Agni* (fire), the little finger represents *Jala* (water), and the ring finger represents *Prithvi* (earth). It is said that the best time to do Prana mudra is in the morning on an empty stomach. Prana mudra helps in reducing fatigue, increasing focus, improving blood circulation, improving vision, improving insomnia, etc.

### How to do it

- Sit comfortably
- Join the little, ring, and thumb fingers together leaving the other two fingers.
- While doing try to observe your breathing pattern.

## 4. Garuda Mudra

Garuda mudra is also known as the eagle gesture. Garuda mudra helps in improving digestion, releases stress and anxiety, regulates blood circulation, and also helps in relieving mensuration cramps. It is said that the best of its result is seen if done in the morning.

#### **How to do it**

- Place your hands with palms confronting upwards on the thighs or knees
- Close your eyes and take full breaths
- Now, cross over the right wrist over the left expanding the fingers of two hands
- Interlock both the thumbs by hooking the right thumb on the knuckle of the left
- Place your hands with interlocked thumbs at the lower piece of the mid-region.
- Remain this way and take 10 full breaths
- Increase the level, place your hands nearer to the navel (Solar Plexus) and again take 10 full breaths.

### **5. Vayu Mudra**

Vayu Mudra is done to free the body of unwanted gas. It can be done by bringing the index finger near the thumb and then folding the thumb over it. The five fingers of our hand represent the five elements of the world, and the index finger is believed to represent the wind. Vayu mudra helps in curing arthritis, reducing daytime fatigue, sleeping pattern, improving blood circulation, and regulating stress. Vayu mudra is more beneficial if done in the morning.

#### **How to do it**

- Sit comfortably
- Place your hands with the palm pointing upwards on your thighs or knees.
- Gradually twist your forefinger to contact the base of the thumb. Fold the thumb over the forefinger to solidly hold it. The other fingers should be extended straight.
- Begin by doing it for 4-5 minutes, 2-3 times a day.

#### **The objectives of the project are**

1. The aim of this study is to highlight the scientific reasons behind Indian rituals.
2. This study aims to show how rituals help us in our day-to-day life.
3. This study aims to promote Indian rituals among Generation Z so that our roots can be preserved and pass it on to the next generation.

The scope of the project is to create a better understanding of Indian rituals so that they can be preserved and passed on to the next generation. I also plan to emphasize the use of Yoga mudra as a healing technique that can be used for better and faster results by the youth today and even the older generation. This project will also help us not to only blindly follow the rituals we do but also to know the meaning behind them.

## **Description of Project**

The project was done in the district of Vadodara in Gujarat, India. The project was divided into two parts, one was done through the questionnaire method in which the sample size was 50 and the other part was done through the observation and interview method where the sample size was 10 which were randomly chosen.

The questionnaire method was done online with the help of Google forms. The observation and interview method will be done offline where the samples are being observed for 21 days and on the 22nd day the interview will be taken.

## **Methodology/Procedure**

### **1. Review of Literature**

The study of rituals should not only be restricted to that of clarifying their contents, with a view of making out their distribution in geography and history, but the motive as well, by which they are characterized, is to be detected, and thus it is expected to reveal the actual set up in which they were evolved originally [3]. To understand the science behind rituals we first need to know their origination of them only then we can trace back the science and meaning behind them. In Hinduism in India rituals for the first time were discussed in the Vedas which were composed between the 15th to 10th centuries BC. It was in Archaic Sanskrit that the composition of Vedas was done. Archaic Sanskrit is tougher than that of modern-day Sanskrit and it was the Rishi who translated the Vedas.

Earlier people did not use to ask many questions and rather follow whatever customs that have been passed on from one generation to the other but as time is passing by it can be said that people are more curious to know the reason behind the rituals. Rituals, difficult to define, are necessarily physical acts that always involve some 'doing' [5].

India is a country with many religions because of which the entire year is filled with different festivals and when it comes to festivals, rituals come hand in hand. During Hindu festivals, we go to temples to seek blessings and the scientific reason behind this is that festivals bring happiness, lowers anxiety and gloominess, it brings a sense of hope and positivity which in order makes us content. Holi is one such festival that is celebrated with colors and as Holi is celebrated in spring it helps in adjusting our body temperature with the upcoming summer and fighting bacterial infection by playing with organic colors. Past studies have also shown that festival rituals help relax pent-up emotions and anxiety [6].

### **2. Area of Study**

The study was carried out in the Vadodara district of Gujarat. The reason behind this choice is that Vadodara is a cosmopolitan city where a lot of students from all over India come for their higher education. Hence, there is a possibility of obtaining a much wider variety of data.

### 3. Research Approach

The research has been done through a qualitative approach. To analyze the data both, a quantitative and qualitative approach has been combined.

### 4. Population of the Study

The population of this study was 60 respondents in total, 50 in the first part of the survey and 10 in the second part of the survey.

India has the highest population of Generation Z in the world with a population of 472 million. Therefore, getting all of them to participate in this study is not possible so randomly 50 people were chosen.

### 5. Data collection

The data were collected through questionnaire and interview methods.

- **Questionnaire Method:** Based on the nature of the study, the questionnaires were distributed to 50 people aged between 16-26. This helped us in getting a better view of how generation Z views Indian rituals as. The questionnaires were distributed online through google forms.
- **Interview Method:** The interview will be taken on 10 people who will be randomly chosen and will be asked to perform Yoga mudra for 21 days. During the 21 days of the experiment, the observer will observe the experiment every once in a while. The interview will be based on structured questions.

### 6. Experiment process

The experiment was done for 21 days on 10 individuals who were asked to do 5 Yoga mudras every day for 8 minutes each. The mudras were introduced to the individuals a day prior to the experiment day. Throughout the experiment process, the individuals were asked from time to time if they are seeing or felt any differences.

The experiment was done for 21 days because there is a theory by Dr. Maxwell Maltz which says that it takes 21 days to form a habit. Therefore, the experimenter had the intention of making the individuals habitual of doing yoga even after the end of the experiment. The individuals were informed beforehand about the 21 days theory and only with their consent, it was done.

a) **Experiment materials:** Yoga mat

b) **Participants:** The participants were randomly chosen from the first survey and were given proper instructions before starting the experiment. The participants were aged between 17-24 years. The yoga mudras were taught before the start of the experiment.

### 7. Data analysis



To analyze the data SPSS computer software was used.

## Results

This section summarizes the findings of the two experiments done in order to find a solution.

### Survey: How generation-Z perceives Indian rituals?

The research was done on 50 people under the age group of 18-26 out of which 33 participants were female and 17 participants were male. The questionnaire had 17 questions in total out of which 3 questions were demographic questions (name, age, and sex). The questionnaire was multiple choice based where for 8 questions the options were, 'YES', 'NO', and 'MAYBE', and for 5 questions the options were, 'YES' and 'NO', and for 1 question the options were, 'HI' and 'NAMASTE'. Descriptive statistics were used to analyze data with bar graphs.

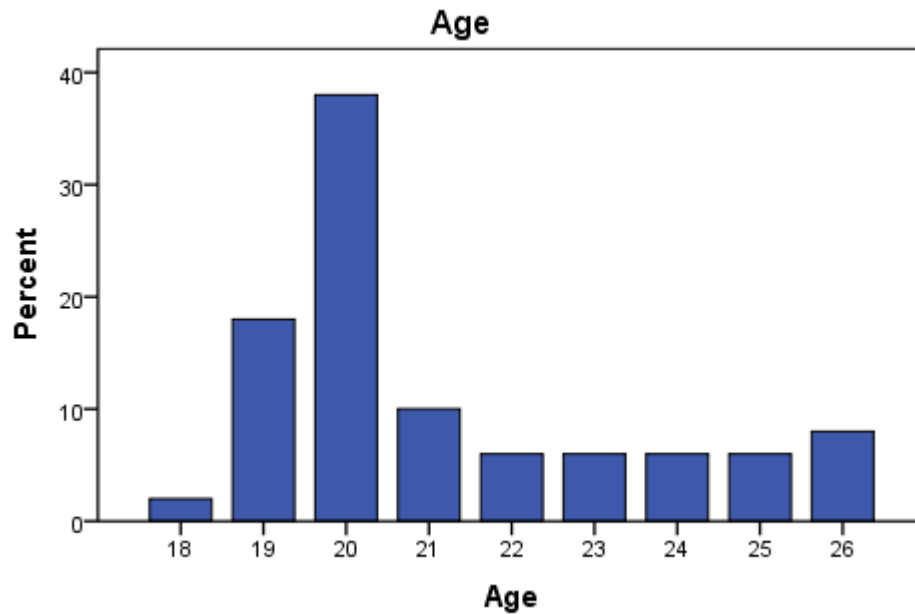
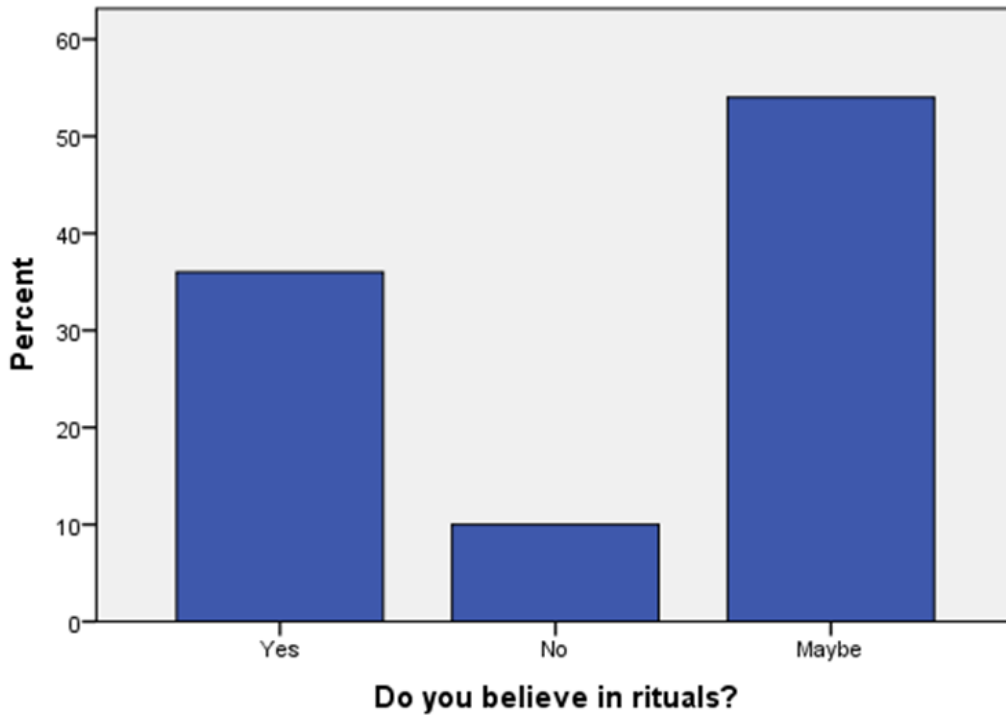
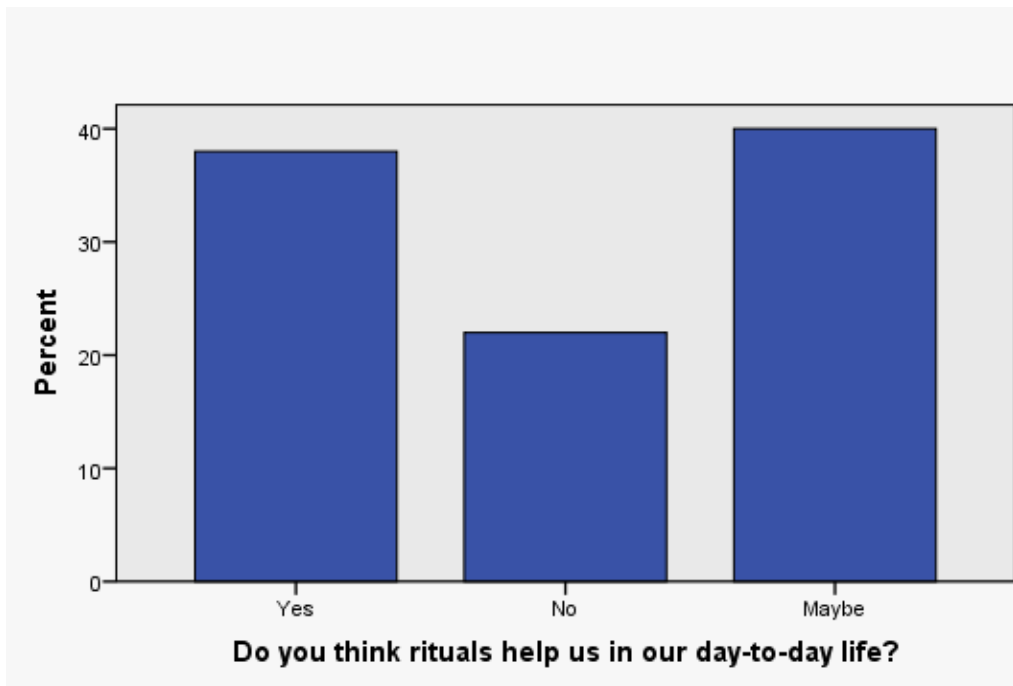


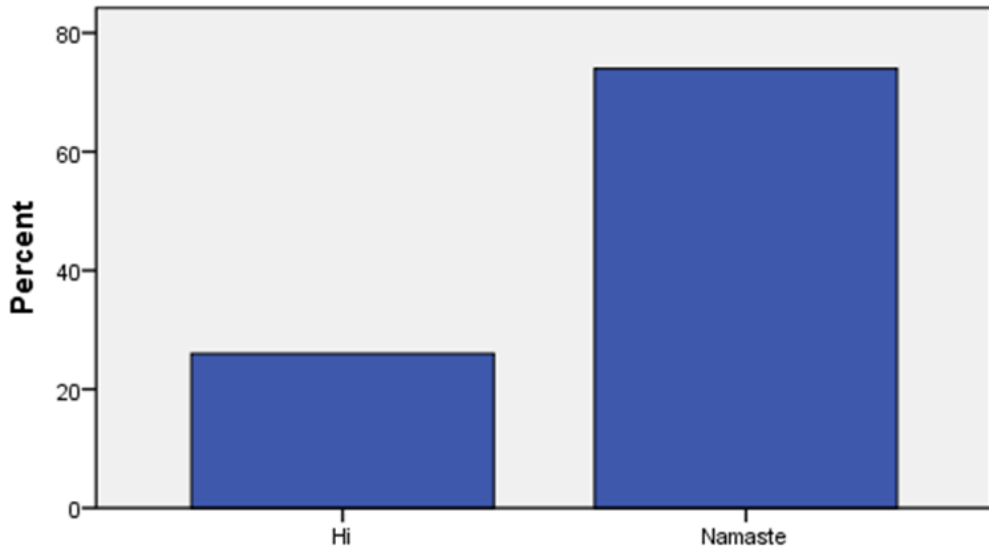
Figure: 1



**Figure: 2**

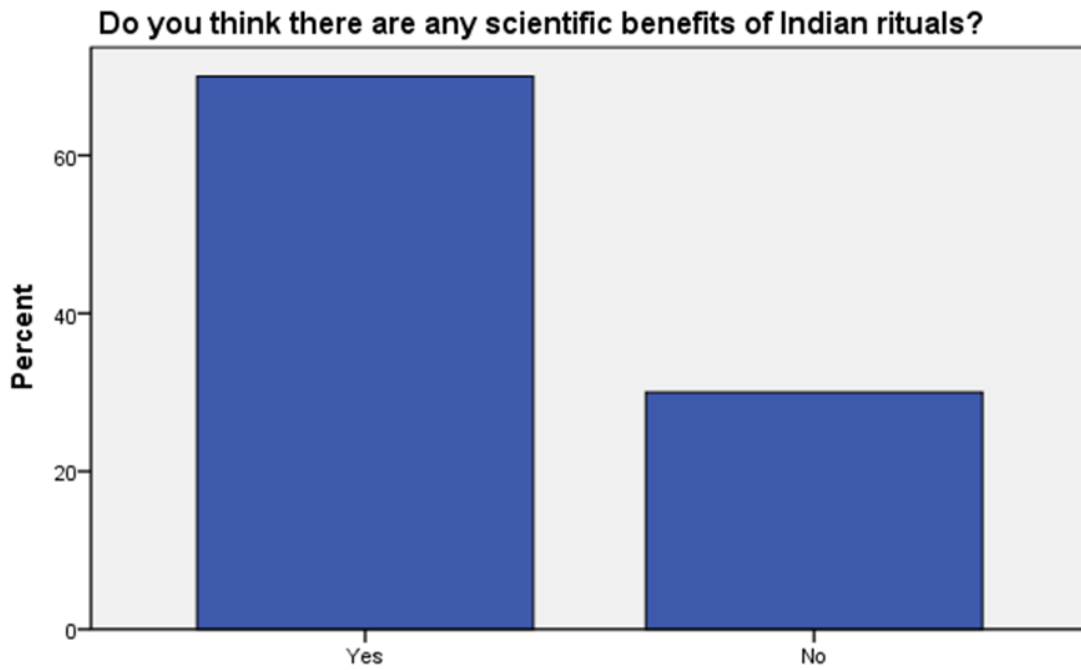


**Figure: 3**



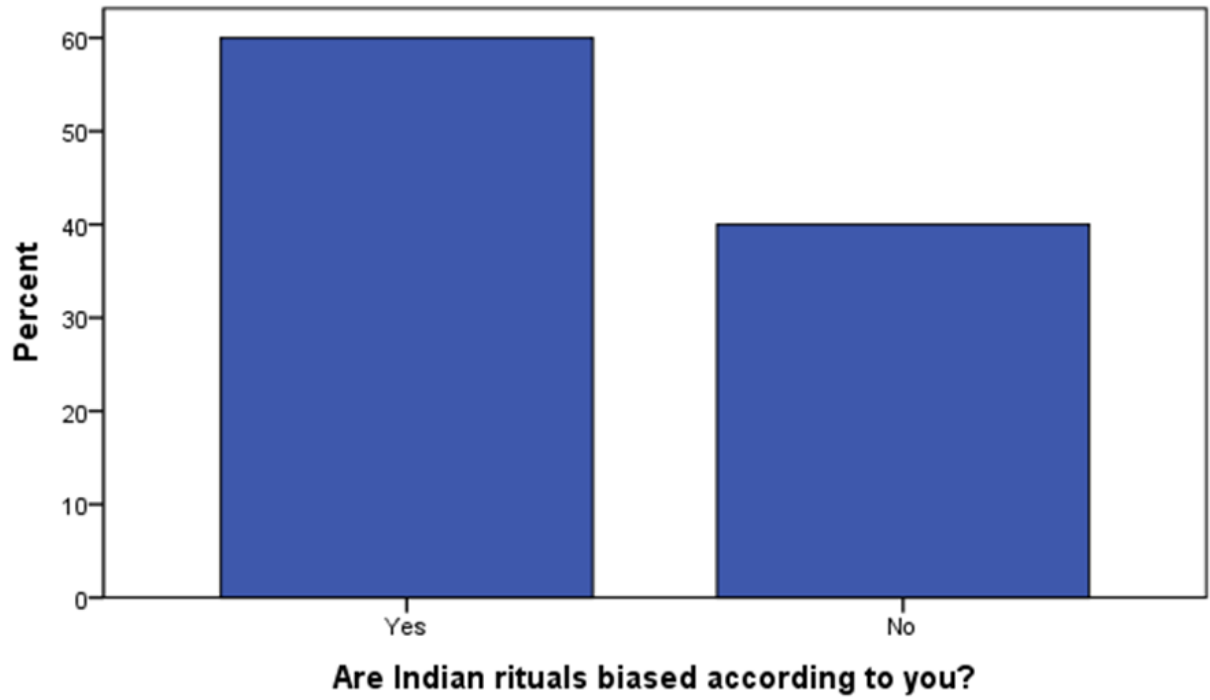
**When meeting someone for the first time, would you like to introduce yourself by saying 'Hi' or doing 'Namaste'?**

**Figure: 4**

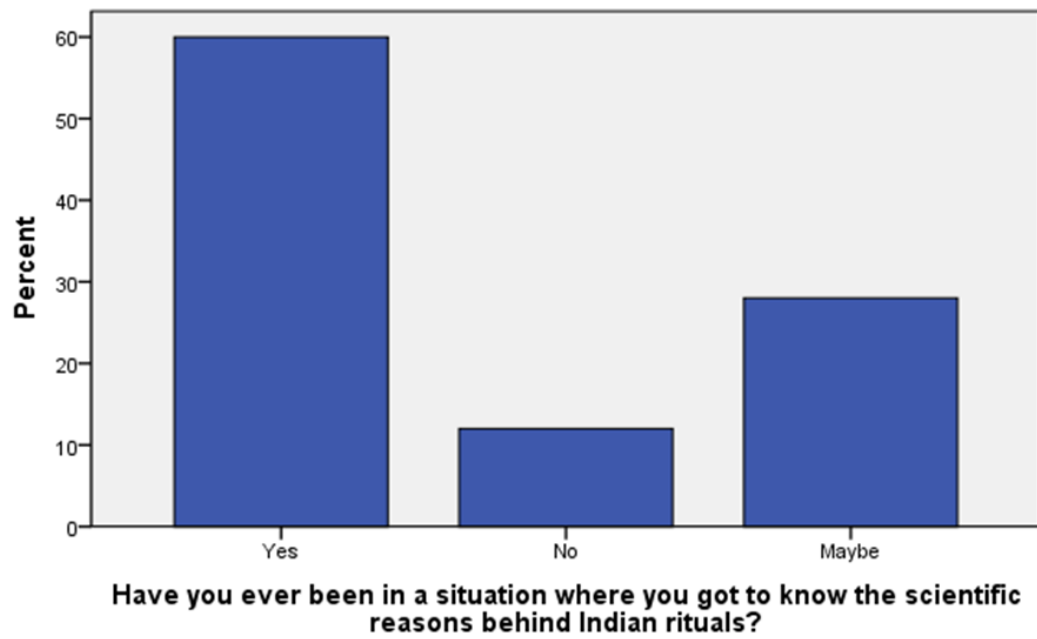


**Do you think there are any scientific benefits of Indian rituals?**

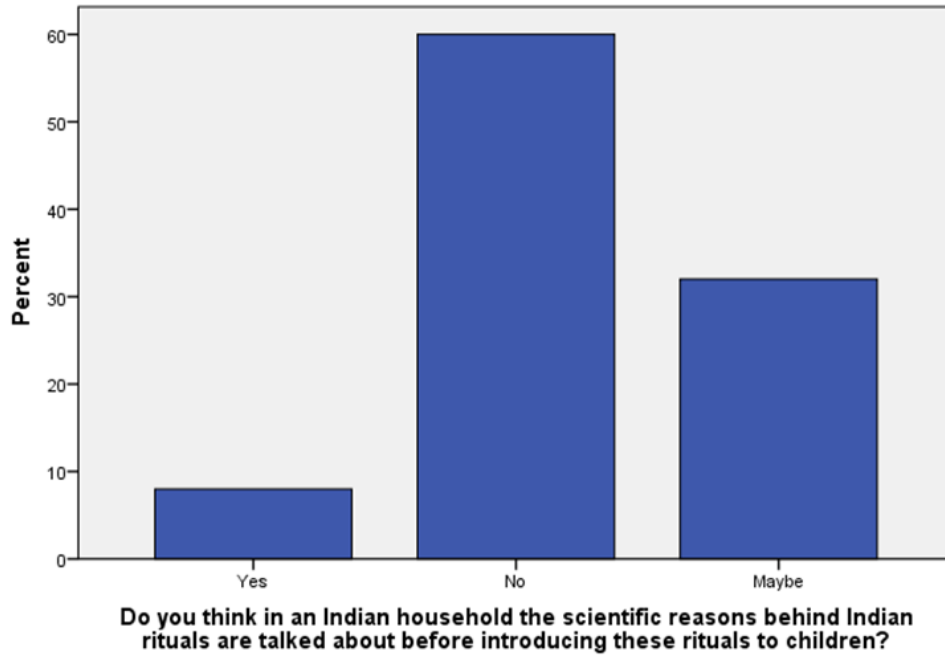
**Figure: 5**



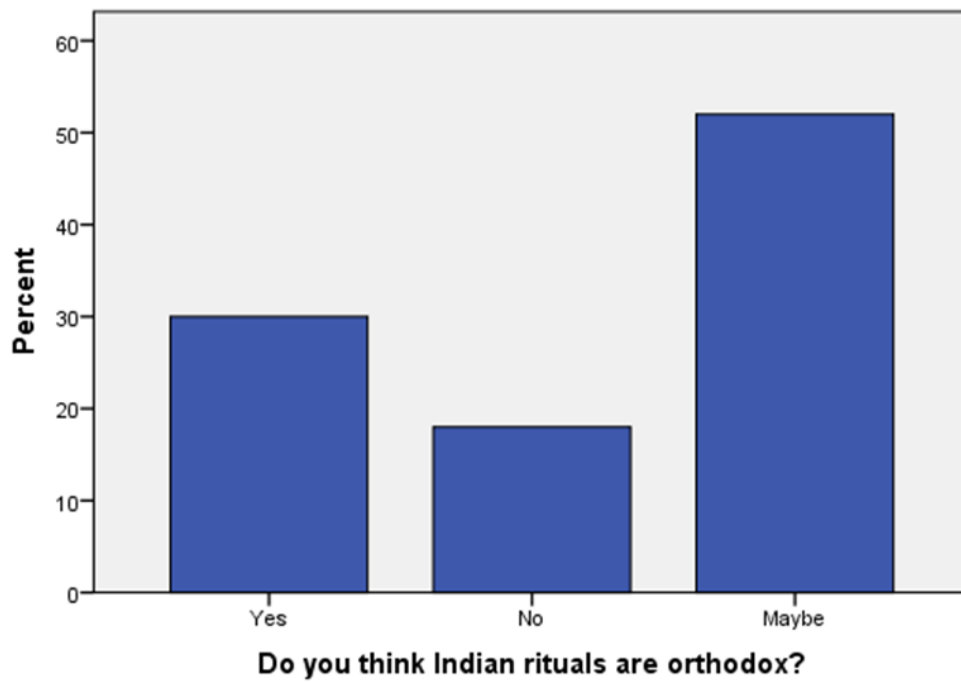
**Figure: 6**



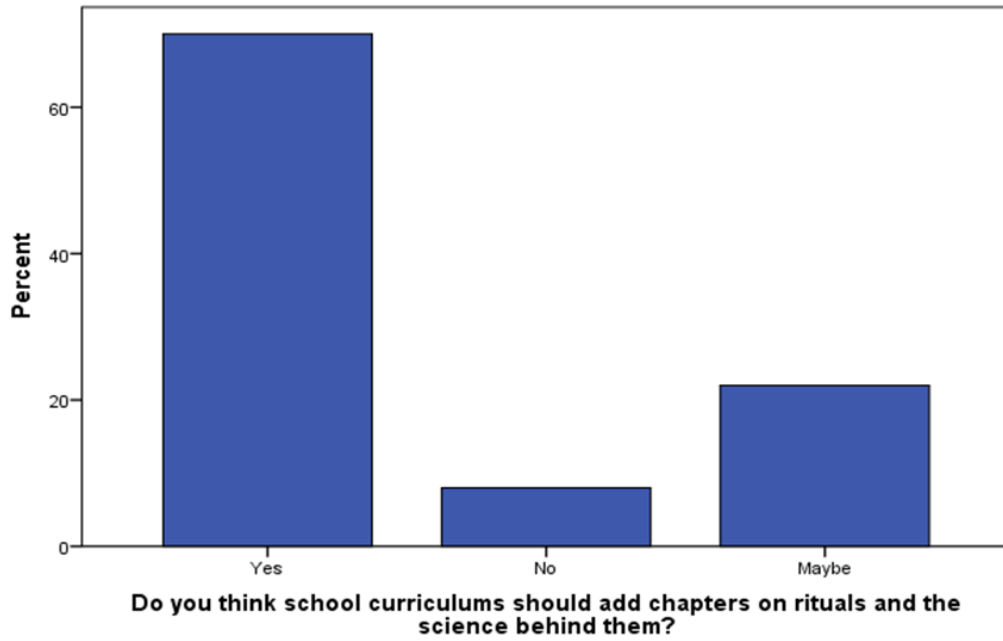
**Figure: 7**



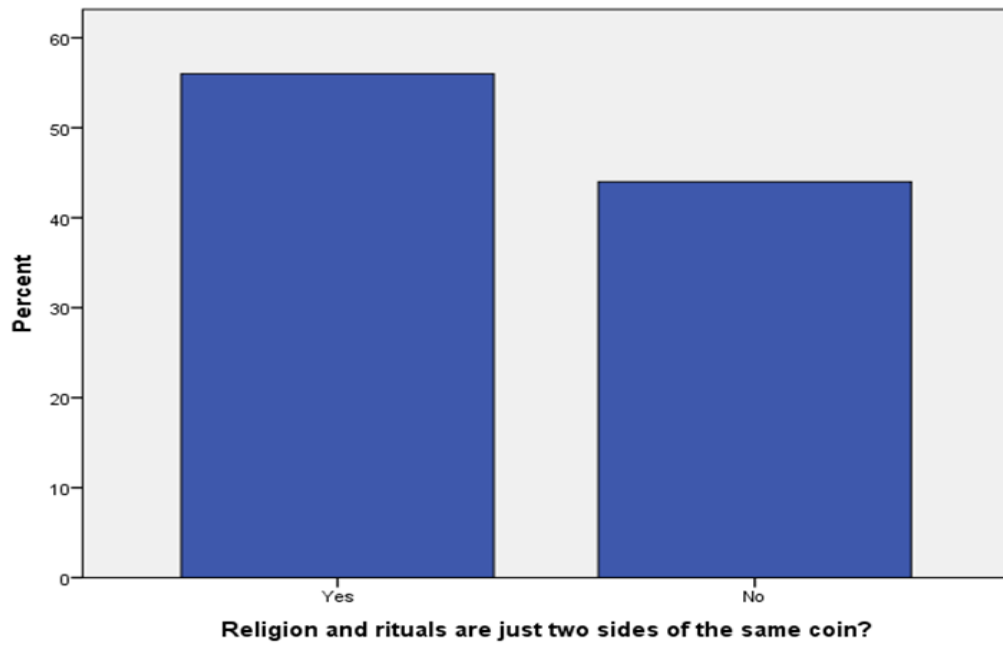
**Figure: 8**



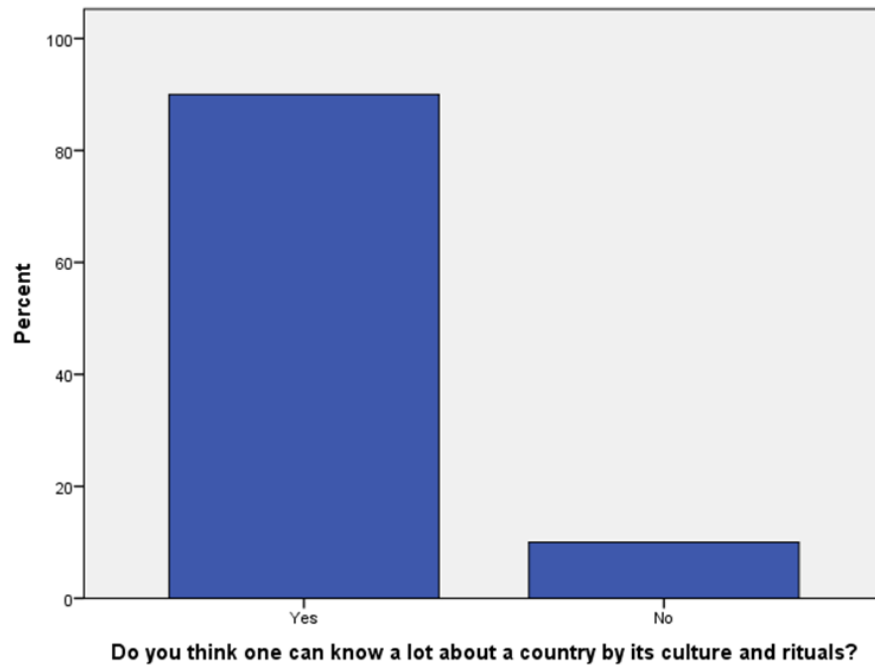
**Figure: 9**



**Figure: 10**



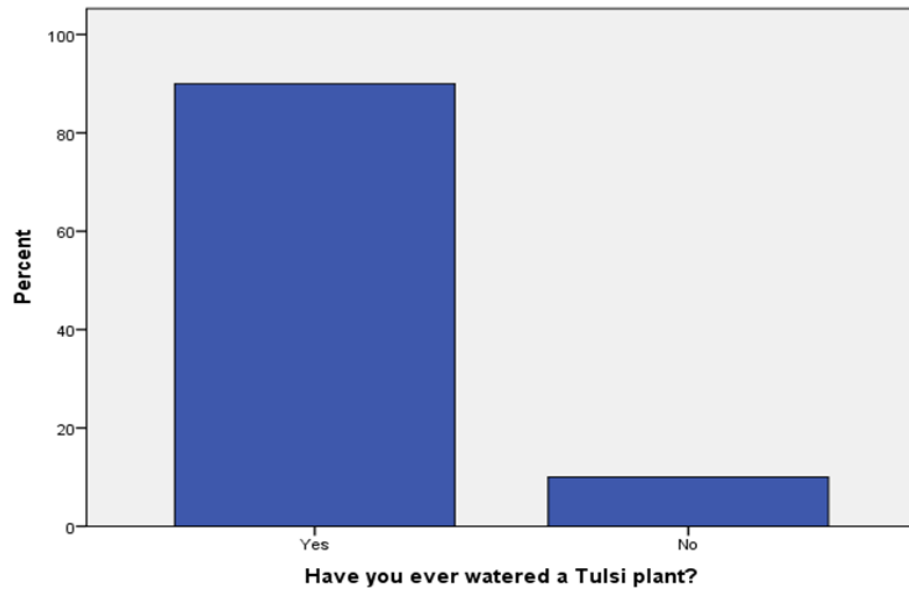
**Figure: 11**



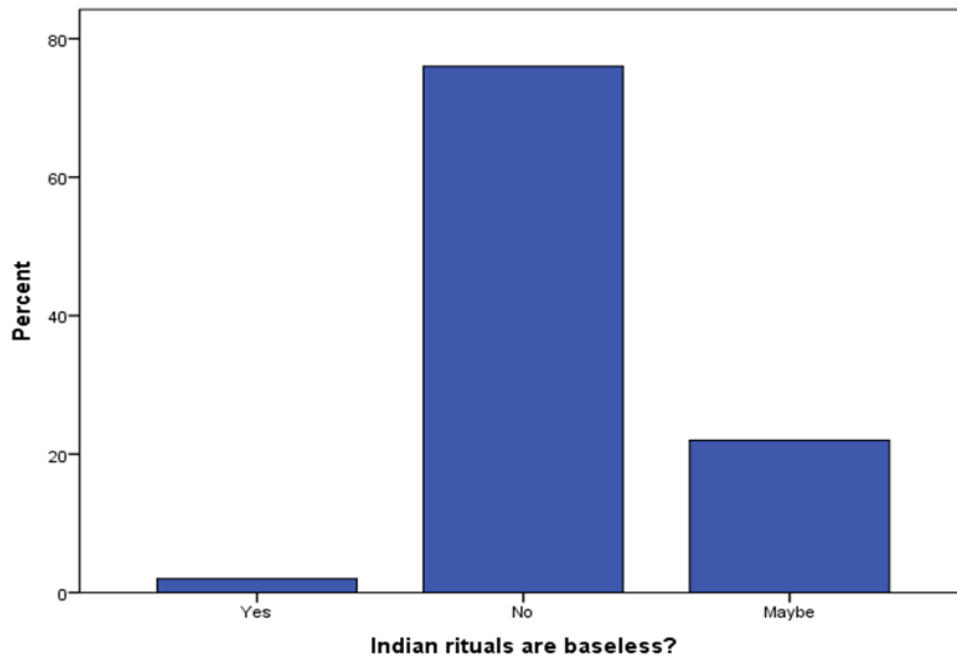
**Figure: 12**



**Figure: 13**



**Figure: 14**



**Figure: 15**



**Experiment: Effect of yoga mudra on our mental and physical health; an experiment of 21 days.**

In this experiment, 10 Subjects were asked to do 5 Yoga Mudras for 8 minutes each for 21 days ( 3 weeks). The subjects were randomly chosen from the first survey. The experimenter was present during the experiment period for all 21 days. Throughout the experiment, the subjects and the experimenter met every week to talk about whether any of the subjects were feeling or seeing any change even though at the end of the experiment one to one interview was taken.

Significant improvement was seen in the subjects when compared before and after the experiment. It was seen that out of 10 subjects 8 subjects admitted at the end of the experiment that they were feeling changes within themselves and were feeling relaxed, 1 subject said he/ she need more time to conclude, and 1 subject said that he/ she weren't feeling or seeing any change before and after the experiment. When asked if they saw any change in their behaviour 8 out 10 participants said that their mental health was doing better than before. They were feeling calmer, and less anxious, and their thoughts were more organized than before. It not only led to the well-being of their mental health but 6 out of 10 subjects said that due to the experiment they got in the habit of waking up early in the morning which ultimately led to lifestyle wellbeing. When asked about physical health all the subjects said that throughout the 21 days of the experiment, they didn't feel any change but if done for more days maybe they can feel some positive change. When asked if they have done yoga mudra before in life only 1 subject said yes. Vayu Mudra was said to work the best among the mudras by 4 subjects and Dhyana and Prana Mudra by 2 subjects.

QUESTIONS	SUBJECT ANSWERS
1) Have you tried doing Yoga before?	<b>Subject 1: YES</b> <b>Subject 2: YES</b> <b>Subject 3: YES</b> <b>Subject 4: YES</b> <b>Subject 5: YES</b> <b>Subject 6: NO</b> <b>Subject 7: YES</b> <b>Subject 8: YES</b> <b>Subject 9: NO</b> <b>Subject 10: NO</b>
2) Do you think the experiment was beneficial?	<b>Subject 1:</b> "Yes, it was as I feel more thoughts are more aligned now than before." <b>Subject 2:</b> "Well I can't really say that I am feeling any difference but I do feel calmer." <b>Subject 3:</b> " Yes, it was beneficial." <b>Subject 4:</b> "Yes, I feel more energized and confident." <b>Subject 5:</b> "Yes, I wasn't doing well before ( feeling low) but after doing Yoga for these many days I am now in a much better space." <b>Subject 6:</b> " Maybe, it was."

	<p><b>Subject 7:</b> “Yes, I feel more relaxed than before.”  <b>Subject 8:</b> “Yes, because of this experiment I have a fix routine of getting up in the morning and have some time for myself now.”  <b>Subject 9:</b> “I don’t know maybe I need more time.”  <b>Subject 10:</b> “ Yes, it was an amazing experiment that helped in becoming more organized.”</p>
<p>3) Which Yoga mudra do you think worked the best for you?</p>	<p><b>Subject 1:</b> Dhyana Mudra  <b>Subject 2:</b> Vayu Mudra  <b>Subject 3:</b> Vayu Mudra  <b>Subject 4:</b> Prana Mudra  <b>Subject 5:</b> Vayu Mudra  <b>Subject 6:</b> Garuda Mudra  <b>Subject 7:</b> Ganesh Mudra  <b>Subject 8:</b> Prana Mudra  <b>Subject 9:</b> Vayu Mudra  <b>Subject 10:</b> Dhyana Mudra</p>
<p>4) Do you think doing Yoga helped in the well-being of your mental health?</p>	<p><b>Subject 1:</b> “Yes, before the experiment I was finding it hard to keep track of my thoughts. Now even though it is still the same but I am finding a way to organize them.”  <b>Subject 2:</b> “Yes”  <b>Subject 3:</b> “Yes. I have always had anxiety and now after doing yoga I feel much better.”  <b>Subject 4:</b> “Yes, I feel much calmer after starting to do yoga.”  <b>Subject 5:</b> “Yes”  <b>Subject 6:</b> “ Yes”  <b>Subject 7:</b> “I do feel good both mentally and physically after this experiment.”  <b>Subject 8:</b> “Yes, I feel more confident,”  <b>Subject 9:</b> “Yes”  <b>Subject 10:</b> “Due to the experiment and reintroduction of Yoga in my life I think mentally I am doing far better nowadays.”</p>
<p>5) Will you continue doing Yoga now that the experiment has ended?</p>	<p><b>Subject 1:</b> Yes  <b>Subject 2:</b> It depends on my college schedule.  <b>Subject 3:</b> Yes  <b>Subject 4:</b> Yes  <b>Subject 5:</b> Yes  <b>Subject 6:</b> Maybe  <b>Subject 7:</b>Yes</p>

	<p><b>Subject 8:</b>Yes  <b>Subject 9:</b>Yes  <b>Subject 10:</b>Yes</p>
<p>6) Will you recommend doing Yoga mudra to your family and friends?</p>	<p><b>Subject 1:</b> Yes.  <b>Subject 2:</b> Definitely.  <b>Subject 3:</b> Yes, I would recommend it to all my friends and family.  <b>Subject 4:</b> Yes.  <b>Subject 5:</b> Yes.  <b>Subject 6:</b> I will.  <b>Subject 7:</b> Yes.  <b>Subject 8:</b> Yes.  <b>Subject 9:</b> Yes.  <b>Subject 10:</b> Yes.</p>
<p>7) Do you think school curriculums should add compulsory Yoga education for adolescents?</p>	<p><b>Subject 1:</b> “ Yes, it should be compulsory to add Yoga as a subject in schools.”  <b>Subject 2:</b> “Yes, it should be made mandatory.”  <b>Subject 3:</b> “Yes”  <b>Subject 4:</b> “Yes, it will help in the overall development of a child.”  <b>Subject 5:</b> “Yes, Yoga is a medicine that can be taken as both precaution and cure.”  <b>Subject 6:</b> “Yes.”  <b>Subject 7:</b> “ Yes”  <b>Subject 8:</b> Yes  <b>Subject 9:</b> Yoga should be accessible to everyone and introducing it to children at the school level will help in creating a healthy habit from childhood.  <b>Subject 10:</b> “ Yes.”</p>

**Figure 16: Interview Questions**

**Discussion**

This study was conducted in order to understand how generation Z perceives Indian rituals as. The previous study was been done on the scientific reason behind Indian rituals (Jayalakshmi, 2020). From the results, it can be concluded that 54.9% said they don’t believe in all the rituals but rather selectively believe in some and 37.3% agree that rituals help in our day-to-day life whereas 70.6% believe that there are scientific benefits behind Indian rituals. 60.8% said that before introducing a ritual in an Indian household the scientific benefits are not discussed or taught to the child therefore 68.6% agree that school curriculums should add chapters on Indian rituals. 90.2% agree that one can know a lot about a country by its rituals and customs but when asked if they would pass on the rituals that they

follow in their house to the next generation only 45.1% choose the 'yes' option so in contrast to this question it was asked if they think Indian rituals are baseless 76.5 % said that it is not.

It can be concluded that Generation Z doesn't know the scientific benefits of Indian rituals but wants to know them and in fact want school books to add chapters on it so that the next generation can study it. It can also be said that Generation Z doesn't blindly believe in rituals and rather believes in factual rituals. If we put emphasis on including chapters on our rituals then I think that it can be passed on from one generation to the other as when we get factual information and benefits of something then it gets easy to add to our routine. It was also seen that around 60% of the participants follow rituals and would gladly promote them.

The concept of Yoga is not new it is something that's been practiced in the last 5000 years ago. With the emergence of days like International Yoga Day, it has attracted more followers. During the experiment, it was seen that the subjects were very focused and determined to find a solution for their mental health wellbeing. It was a 21-day experiment where subjects were aged between 18-24 years. It can be said that the experiment created a positive environment of waking up early for the participants and helped them to dedicate a few hours to themselves which they were finding hard to find early due to their hectic college schedule.

With the help of the above experiment, it can be said that Yoga mudra was found effective for mental health as it helped 70% of the subjects to organize their thoughts, lower anxiety, feel confident and etc. As for physical health, it requires more trials.

## **Conclusion and Recommendations**

It can be concluded that rituals are a basic everyday necessity and not something that comes occasionally with festivals. Rituals help us knowingly or unknowingly every day, from tulsi plants to married women putting on sindoor to wearing bangles every day, rituals have a scientific reason and belief behind them. While doing the survey it came to light that generation Z likes to believe only in facts and evidence-based things. Even though they have always seen rituals happening around them 80% of the participants said that the reason behind a particular ritual has never been discussed in their household before introducing a particular ritual to them. To spread the knowledge of rituals school curriculums should add chapters on rituals and elders should make it a point to talk about the reason behind a ritual and why it is followed. There should be more extensive research to find the science behind rituals. It would be much more effective if monthly magazines, soap operas, and newspapers write about various scientific benefits of rituals so that it becomes accessible to every class, age, and gender of society. It can also be concluded that generation Z is very much aware of its roots and wants to preserve and pass them on to the next generation. Even though not many are aware of the scientific benefits of rituals but when asked the individuals in the survey if they believe there is any science behind rituals 70% said yes. Therefore, it can be said most people agree that our rituals are not only concept based but science-based too. It was also agreed by most of the individuals that Indian rituals are biased and that it discriminates against people and the majority also agreed that they are orthodox. Such concepts are formed because in earlier days certain rituals were reserved only for a class of people and others were prohibited from practicing them. So, to make a more homogenous society such ideas should be abolished.

From the above experiment, it can be concluded that though it needs more extensive research on this topic that doing Yoga helps in the well-being of our mental health. Schools should add compulsory Yoga mudra classes for the mental well-being of children and aware students of the long-term effects of it. Yoga not only helps in the well-being of mental health but also helps in living a balanced life. Yoga also has a lot of physical benefits like curing obesity and keeping blood sugar levels in control, slowing Alzheimer's, etc. India being the birth land of yoga has its roots deep downed in every individual's heart of the country. Yoga is famous for having long-term effects, such as curing arthritis and heart problems to curing sleeping patterns, and improving flexibility.

Schools for disabled students should encourage disabled students to do Yoga mudra for their mental health wellbeing. People with disabilities have to face many mental and physical health problems due to which they have to cope with more problems. Introducing alternative techniques such as Yoga would help them to cope with their problems better. Yoga should not only be limited to anyone it should be accessible to everyone.

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