

## **Understanding the Experiential Knowledge of Bullying Behavior among Unreserved and Reserved Category College Students by using Brain Electrical Oscillation Signature Profiling (BEOS)**

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## **Understanding the Experiential Knowledge of Bullying Behavior between Unreserved and Reserved Category College Students by using Brain Electrical Oscillation Signature Profiling (BEOS)**

Caste Based bullying is a very deeply rooted inhumane barbaric practice in India. Despite having several laws against bullying and discriminatory behaviors based on caste, religion, socioeconomic status, and gender, it persists all over the world. The aftermath of caste-based bullying sometimes takes an extreme form of severity that leads to serious crimes like murder, rape, suicide, and violations of human rights. The objectives of the study were to understand the experiential knowledge of bullying behavior between unreserved and reserved category college students by using Neuro-Signature System and to elicit the evidence for supporting atrocities-related cases by using Brain Electrical Oscillation Signature Profiling. The sample was selected through a purposive and convenient sampling method. 13 students from the unreserved category and 13 students from the reserved category participated in the study. The two standard scripts of probes that have been used in the study were based on standard bullying and atrocities-related bullying. The results also showed a significant difference between the mean of experiential knowledge of bullying on atrocities-related probes between unreserved and reserved category college students. The study contributed to the existing literature by explaining how BEOS can be used in bullying and atrocities-related cases all over the world.

***Key Words: bullying, atrocities, experiential knowledge, unreserved, reserved, neuro signature system, BEOS profiling.***

## Introduction

### *Bullying*

Bullying is the act of physical, psychological and emotional frustration and aggression which is done intentionally. The victim is considered as less powerful than the perpetrator in bullying behavior. A recent survey shows that 30% of the adolescents' population reported being victims of bullying in 79 countries with more than 300,000 participants (Elgar et. al, 2015).

Olweus(1978) defined bullying as “the systematic use of physical or mental violence by one boy or several boys against another boy”. The definition redefined by Olweus (1991) as “bully chronically harasses somebody else either physically or psychologically”. This means physically causing harm to another person, or making fun of one person, excluding one person from various groups and events, spreading various rumors about the person. The other major point related to bullying is that it is a repetitive behavior over time and the victim always is weaker than the person who bully. According to Arora (1987), “bullying is achieving or maintaining social dominance through overtly aggressive means which occur because the victims have no sufficient skills or capacity to integrate with their peer group”. According to Galloway (1991), “bullying occurs when one person or group deliberately causes distress to another person or group”. There are various operational definitions of bullying and it has various dimensions. Bullying can be distinguished in two forms, i.e. direct and indirect bullying. When the perpetrator directly attacks the victim like physical attacks, verbal attacks, it is considered as direct bullying and indirect bullying means when the attacker attacks the victim indirectly like social isolation, exclusion from the group etc. Bullying can be in different forms:

*Physical Bullying:* It involves hitting, pushing, kicking, harassing, molesting, tormenting or harming others' property, exerting physical power to the victim. When a bully causes physical harm to the victim it is considered physical bullying. The bullying not only causes short term damage but also long term damage to the victim.

*Verbal Bullying:* It involves name calling, insulting, mocking, intimidation, intentionally hurting the victims by taking the name of race, religion, caste, socio economic class and abusing verbally. The verbal bullying can start off with minimal intensity but the damage can be psychological with high intensity.*Social Bullying:* Social bullying is also known as secret bullying, but this is much more difficult to achieve. Social Bullying can be recognized and executed directly or indirectly. It also includes causing damage to someone's social reputation. It involves lying and spreading rumors about the target, making faces, menacing physical gestures, mimicking the target, making bad jokes or comments about the target to harass, pester, humiliate or provoking others to socially exclude the target from the group, damaging target's social reputation, embarrassing the target in all possible ways.

*Cyber Bullying:* According to the Cyberbullying Research Centre (CBRC) “Cyber bullying is intentional and repeated harm inflicted through the use of computers, phones, and other electronic devices”. It involves bullying the target in the social media platform. Behaviors

like shameful or hurtful texts, emails, images or videos, posting some nasty comments about the target by using social media platforms, hacking their profile and framing the target as accused falsely. It also involves posting some bad hurtful comments about a particular race or religion repeatedly to bully the target. Structural factors of bullying arise from the ways in which societies are organized politically, economically and socially to create different strata in power, wealth status and access to resources and information (Viner et al, 2012). Individuals may be bullied because they are economically weaker than other groups or disadvantaged, or belonging from a specific community, religion, race or category. Caste and religion related bullying is most common in India. According to bullying survey data, children belonging from Hindu religion are experiencing bullying. The teaching of caste-based discrimination is mostly evolved from Hindu religion. Some theorists mention that bullying is linked to caste where others reported that bullying solely based on islamphobia and xenophobia. As per the reports by the New York Times, Hindu students reported bullying 4.2 times more than the other students. Caste Based discrimination is also contradictory to the mulmantra given into the Shruti where its mentioned that individuals are equal and their potential can be defined by their own efforts regardless of the caste. Cyber-bullying related to caste issues is prevalent and dominant in India.

### ***Caste System in India***

Caste system has existed for a long time, a very old process that is deep rooted in India. This construct is closely related to the concept of “ritual purity” where the persons belonging from reserved category always experience a severe level of ostracism. “Caste”, the word has been derived from Spanish and Portuguese language which means “race”, it is known as “jati ” in India. “Jati ” has its root from the word “Jana’ that indicates taking birth, so it is related to “birth”. According to Manu, there are four main categories of caste-system: Brahmins, Kshatriyas, Vaishya and Shudra. Brahmins are at the top of hierarchy and the Shudras are at the extreme end level of the hierarchy. There are several theories that explain about the caste system in India. The reasons for atrocities against the dalits are wage payments, hostility to reservations, having several disputes related to sowing and harvesting, crops removal from post-harvest granaries, debt, debt bondage, or forced labor at the workplaces. After doing a lot of good work and effort, sometimes they are not promoted. Even dalits are asked to perform activities such as removing dead cows and breaking slave bondage. The social stratification of caste is the arrangement of groups in a particular hierarchy, which explains also the occupation from the father to son and is governed by various rules regarding the acceptance of food, water from the members of the other caste.

The picture in India is little different based on the sociocultural factors such as socio-economic status, religion, caste, gender, varna etc. The practice of caste system and discriminatory behavior is still prevalent in India and it takes form of severe bullying sometimes which leads to suicide. The imbalances in the social stratification overpower the bullying behavior by the more powerful person to the victims. The effect of the caste system on mental health is too broad. The college students belonging from deprived caste families do not attribute their success to their efforts. Researchers report that they have the tendency to attribute their success to the external factors such as luck, kind nature of the teachers etc that

form a superstitious belief, ritualism etc. These students are also having a different standard of evaluating themselves that has a negative effect like ego-damaging and self-discouraged and demotivated internalized mechanisms. The survey shows that the deprived students have a low level of activity and cyclothymic temperament, depression and emotional instability. According to "Cognitive approach hypothesis" negative self-evaluation leads to social anxiety which is associated with other avoidance behavior. They do not even share their attention and decision making in certain situations where it is needed. Studies show that students belonging from reserved category have unrealistic motivation, self-criticism, anxiety, avoidant behavior, negative memories etc. (Jiloha, 2019). In the previous couple of years, there was a small however developing inflow of influencers from the social network who're vocal approximately caste., Anjali Rai, Ritesh Jyoti, Sankul Sonawane, Srishty Ranjan and lots of others influential people on social media platforms (such as Twitter, Facebook etc) have talked about the caste discrimination prevalent on social media, filling the gap denied for the caste related issue therefore long. In many cases, these outcomes are centered only in harassment. Indian social media areas want to be made extra congenial for the ones from marginalized castes. Social media coverage groups must come collectively to make protocols that make it less complicated for Adivasis, Dalits and others underprivileged categories to get admission to social media, and for the application to them without any constraints. They need to sell variety with the aid of using actively hiring humans from the Dalit and Adivasi communities. There needs to be extra mechanisms to record hate speech. Governments additionally must ensure that they recognize that detest speech on-line method hate speech offline.

### ***Concept of BEOS***

Brain Electrical Oscillation Signature Profiling (BEOS) is a forensic investigative technique developed by Dr. C.R. Mukundan with a great degree of sensitivity after a lot of intensive research. It is the neuro-psychological method to measure the experiential knowledge of the individual in particular activity. It is one of the great forensic investigative techniques used in the forensic settings and the forensic labs of India. Although BEOS may sound similar to Brain Fingerprinting (BFT) but it is very much important to know the differences between the two.

### ***Difference between the Brain Fingerprinting (BFT) and BEOS***

Brain Fingerprinting (BFT) measures P300 that indicates positive event related potential which occurs during brain activation at low levels of latency and frequency. It works on the concept of "recognition". It could only occur if the individual has had an earlier exposure of the familiar event. BEOS measures the "remembrance" of a particular event when the brain activation shows higher latency and frequency. An individual can only elicit experiential knowledge if he/she has witnessed or participated in any activity or event. BEOS help to find out the experiential knowledge where Brain Fingerprinting (BFT) works on the "Guilty Knowledge". Investigation can be done without any physical evidence through BEOS where the physical evidence is required for the preparation stimulus in Brain Fingerprinting (BFT). BEOS provide results in the form of Experiential Knowledge (EK), Encoding Level 1 &

Level 2 (Encoding & Encoding ++), Inattention (IA), Primary Processing of the information (PP), Activation Suppression (AS) where Brain Fingerprinting (BFT) provides results on P300. BFT can be used for the screening purpose where BEOS helps for in depth forensic investigation by differentiating the Eye-Witness, Perpetrator and the Victim.

### ***The Way BEOS works***

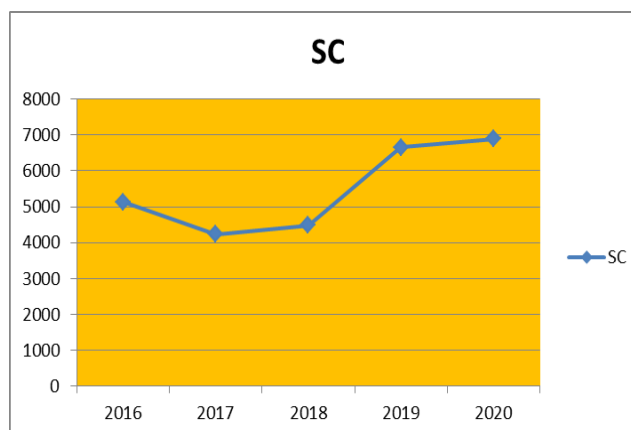
BEOS basically works on the principle of remembrance. “Knowing” involves the process of acquisition or sharing knowledge to others where “remembering” means retrieval of the information. The dorso-frontal cortex is only engaged in the process of “knowing” where the anterior cingulate cortex, orbitofrontal cortex, medial temporal cortex are also activated in the process of remembrance. Brain Electrical Oscillation activity means the electrical charges in the brain produced by the synchronization of the neurons during cognitive process. The signature refers to the specific pattern in the electrical charges and marker of the remembrance when specific codes are presented to the participant. The signature can only be identified as an observable change in electroencephalographic patterns when presented by the probes. It can be measured in comparison with pre-probes baseline activity. Probes are statements referring to the alleged involvement and direct participation in an activity by a subject (Kacker, 2018). The probes are used to trigger the remembrance of specific autobiographical episodes. It also helps to measure the generated neural activation by using the electrophysiological changes through BEOS profiling program. There are three different types of probes: neutral probes, control probes, target A probes and target B probes.

Neutral probes are basically formed to measure the baseline of the individual. It also helps to see the effects of impersonal mental imageries on the individual due to the semantic interpretation. Control probes are the statements that refer to the significant events associated with the personal events of the individual. It basically helps for the self-validation of the technique. Target A probes can be defined as the alternate version(s) of events, which are opposed to the subject's involvement as stipulated in the suspect's probes. Target B probes are the statements reported by the suspect. There are specific event markers based on which the probes are made. It has been discussed in the following table. The information is stored in the form of signals in different modalities in the brain. BEOS indicates the experiential knowledge (EK) of an individual in particular activity. The experiential knowledge can only be elicited if the individual participates or witnesses an activity (Mukundan et al, 2007; Kacker 2018).

Axxonet system manufactured and developed Brain Electrical Oscillation Signature Profiling System. In this process, auditory probes related to the participation or witnessing any particular event are presented to the subject. The subject should not respond verbally in this process. But the responses are recorded through the gel electrodes placed on the scalp of the subject. This process explains how the recognition of the external signals and proprioceptive sensations happen which is followed by later recognition of the same signal. Knowledge refers to the conceptualization which actually also means the familiarity and it also build base in the brain where experience actually happens when an individual experiences, witnesses and participates in an activity or event, it is known as Experiential Knowledge(Kacker,

2018). Remembering is always triggered by the probes presented to the subject that involves the electro physiological changes. The physiological changes can be measured through multiple channels (32) that are placed in the head. The changes transduced into electrical oscillations are measured by the 32 different channels of electrical oscillations in the brain. Several channels of electrical oscillation of the brain are interpreted to find out the significant changes occurring in the brain after listening to the probes. There are 30 cephalic channels and 2 eye movement channels to measure the significant changes.

According to the NCRB record, 42,793 cases of atrocities were registered in 2019 and the number has increased from 45,961 to 50,291 in 2020. The highest number of cases happened in Uttar Pradesh was 12, 714. Bihar (20, 973 cases), Rajasthan (18, 418) and Madhya Pradesh (16, 952) were in the second, third and fourth positions respectively. The most cases registered in South India were Andhra Pradesh (5,857), Telangana (5,156), Karnataka (4,277), Tamil Nadu (3, 831) and Kerala (2,591) respectively. According to NCRB (2021), crimes against Dalits rose by 9.3% to 8,272 cases. Simultaneously, the laws also are misused for blackmailing, charging huge amounts of money, targeting the person, showing vengeance towards other members of the community for personal gain. Bullying behavior in colleges and universities are very common. Students from institutions like IITs, IIMs and other colleges also report about the micro-aggression faced by them by the higher caste by definition. There are several researches that had been done on bullying behavior and victimization in workplace, school settings on caste based discrimination but no such researches has been done by using BEOS and comparing the responses of both groups. According to several articles and journals, the reserved category are still perceived as the “quota students”, this toxic belief among people not giving those students chances to represent their potentiality. This study will find out the experiential knowledge of bullying behavior through neural response using BEOS among reserved and non-reserved categories of college students. Experience Knowledge can only occur if one had either participated or witnessed any activity. As it is the neuro-cognitive indicator of the presence of any activity, there is a very low chance of faking responses about the particular event. Similarly, it can be used in atrocities related cases where BEOS will be used as the forensic investigative tool. But According to Rajasthan police, 40% of the cases registered under Prevention of atrocities act, 1989 were fake. So it is very much important to find out the genuineness of the cases. The traditional tool of detection of deception was polygraph, where the perpetrators are asked to answer several questions related to the event. But cases related to atrocities are very sensitive when the genuineness comes first because of the compensation and the punishment and it can create high catastrophic outcomes if undetected. As BEOS works on the experiential knowledge of a particular event, so the chances of getting fake responses are very low. This study will throw light on how BEOS can be used in atrocities related cases. The study aims to bridge the gap by taking the behavioral aspect as well as neuro-cognitive aspect of bully behavior with the help of NSS. The comprehensive understanding the nature of the responses will also help to explore the factors leading to bullying, which will be helpful for the law and justice system to make strict guidelines to prevent bullying.



1.1 represents the cases registered under atrocities act (SCs) from the year of 2016 to 2020 respectively.

## Review of Literature

Review of the Literature has been done and organized to get a clearer picture for the existing research of the variables.

### *Bullying Behavior*

Noronha (2021) conducted a study titled, “Caste and Workplace Bullying: A persistent and Pervasive Phenomenon” where he mentioned a broad review of Dalit’s experiences of getting bullied in workplaces by pinpointing some of the main features of social ostracism. This study spotlights the influence of caste based discrimination in workplace and also its effect on the modernization, globalization and regulatory or policy initiatives. This study also comprehends human rights violations, the bystander effect in the matter of race and religion.

Thakkar et al. (2021) conducted a systematic review of literature based on the earlier form of bullying and victimization among adolescents in India. The results indicated some specific harmful factors for bullying and victimization in the context of India and the consequences are harmful for both perpetrator and victim. The study suggested for comparisons of prevalence estimates for cross cultural comparison and the longitudinal studies also should highlight on the direction of possible influencing factors of bullying and other variables to the large adolescent of India.

Hidalgo et al (2019) conducted a study titled, “Ethnic-Cultural bullying versus Personal bullying: Specificity and Measurement of Discriminatory Aggression and Victimization among adolescents”. The results of the study showed that ethnic cultural bullying has a different certain dimension from personal bullying. The study also recommended EBIPQ-ECD, which can also be used as a tool for the evaluation and detection of different dimensions of ethnic-cultural aggressions and victimization.

Skrzypiec et al. (2015) conducted another study in Patiala Punjab where 33 students were taken out of which 57.6 % were females. Students in the age range of 12 years to 15 years

participated and the mean age was 13.7 years. The main variable was the nature of bullying. The study has used a photo story method for the collection of responses. The reports also suggested that caste-based bullying was common for students and “eve-teasing” was the most common type of bullying for females.

### ***BEOS Profiling***

Isai C.P & Kacker P. (2021) conducted a study titled “Effect of repeated probes on creating Experiential Knowledge” to provide support for the detection of experiential knowledge during the remembrance of the particular scenario. It can be measured by the neuro signature system (NSS) used in forensic settings of India. The result also shows the significant distinguishable characteristic of episodic memory and the repetitive memory. The results of the study suggested that BEOS helped to correctly elicit the maximum number of EKs in an episodic script in comparison to other standard script which was repetitive, presented to the subject in representation of two different scenarios using the probes related to the scenario to facilitate the remembrance.

Isai P.C. & Vijayan V.(2021) conducted a study titled, “Experiential Knowledge of Event Based vs Learning through Repetition of Information based memory”. Brain Electrical Oscillations Signature Profiling was used to measure the difference between the Experiential Knowledge produced because of repetition of information as compared to event related memory. The results indicated that the individual can have experiential knowledge only if the individual has experienced himself/herself. The incident should always be an event based memory. The study concluded that BEOS profiling can be used intensively for more reliable support for any to find out whether any individual committed the crime or not in the context with the forensic psychological investigation approach.

Roy S.G. & Kacker P. (2020) conducted a study titled, “Cyber Crime Investigation through BEOS Profiling” to see whether BEOS can be used in finding the cyber offender by using the actions and techniques applied in Hacking for designing the probes. The findings suggested that the standard process of attack for designing the probes can be done through BEOS profiling of the suspects and the standard set can be used related to hacking cases even if no electronic evidence is collected or available to determine specific traces.

### ***Scope of the Work:***

- Understanding the experience of bullying victimization can help in making guidelines, laws and interventions.
- The standardized script probe of bullying behavior can be used related to all bullying cases.
- This study will help to understand how BEOS can be used in atrocities related cases.

### ***Methodology***

***Aim:*** The aim of the study was to understand the experiential knowledge of bullying behavior between reserved and unreserved category college students.

***Objectives:***

- To understand the experiential knowledge of bullying behavior between reserved and unreserved category college students by using Neuro-Signature System;
- To elicit the evidence for supporting atrocities related cases by using Brain Electrical Oscillation Signature Profiling that can be used in forensic investigation cases;

***Hypotheses:***

The following hypotheses were proposed as the review shows a paucity of research with regard to the variables and the forensic investigative tools on college students.

- There is no significant difference in experiential knowledge of bullying on standard probes among reserved and unreserved category college students by using BEOS profiling;
- There is no significant difference in experiential knowledge of bullying on atrocities related specific probes among reserved and unreserved category college students by using BEOS profiling;

***Research Design:***

The research design is an experimental design and the research adopted a quantitative method of research which will help to generalize a finding because it is more reliable and objective.

***Sample:***

The participants for the study were chosen through Purposive and Convenient Sampling Technique. Initially the sample size was 30 out of which 4 people have withdrawn their consent from the study. The total sample size was 26. The participants were divided into two groups. Each group consisted of 13 participants. 13 participants from the reserved category and 13 participants from the unreserved category had taken part in the study. A Google form was sent to the participants who want to take part in this study voluntarily to find out different types of bullying and the most prevalent one for making probes for the general standard script. The standard script was made based on the initial responses from the survey. The other script was made based on the caste based discrimination (scheduled caste and scheduled tribe, prevention of atrocities act, 1989) of bullying for all the participants. The responses for both the script had been taken two times. The number of probes was constant for both the scripts (140 for each script). Purposive and Convenient sampling was done for the sampling method.

***Operational Definitions:***

Bullying: "Bullying is achieving or maintaining social dominance through overtly aggressive means which occur because the victims have no sufficient skills or capacity to integrate with their peer group" (Arora, 1987)

**Experiential Knowledge:** The experiential knowledge can only be elicited if the individual participates or witnesses an activity (Mukundan et al, 2007; Kacker 2018). Brain Electrical Oscillation Signature is a tool which detects activity or witnessing a particular action.

### ***Instrument:***

Brain Electrical Oscillation Signature Profiling (BEOSP) is an investigative technique which was developed by Dr. C.R. Mukundan for the detection of deception. This technique helps to analyze the electrophysiological responses with the help of the electrodes, which provides information about the presence of “experiential knowledge” of taking part in an action or witnessing any event or activity. It actually focuses on the principle of “knowing” and “remembering”, where “knowing” indicates the familiarity of any phenomenon and “remembering” means recalling of a particular event with all associated details like time, place, persons etc.

***Procedure:*** The aim of the study was to understand the experiential knowledge of bullying behavior among reserved and unreserved category college students by using Brain Electrical Oscillation Signature Profiling (BEOS). The initial stage requires providing brief information about the study and taking necessary permission and collecting details from the participants through a survey questionnaire. Based on the responses from the question, two scripts were made.

### ***Phase I: Gathering the information from the participants***

A survey questionnaire was given to the participants for obtaining necessary information about the study to prepare two different scripts. Script 1 was based on the different forms of bullying and Script 2 was based on bullying related to caste discrimination. Both the scripts were given to the participants by giving a 15 minutes break in between two sessions.

### ***Phase II: Designing of the Probes***

The probes have been designed based on the responses from the initial interview. The probes were entered in the Visual Auditory Stimulus Program notepad. The probes were made sequentially for one scenario. There were a total 140 probes and 7 scenarios for script 1. Script 2 also had 140 probes in total and 9 scenarios. Script 1 was made based on the general forms of bullying and Script 2 was made based on the caste based discrimination followed by the (scheduled caste and scheduled tribe, prevention of atrocities act, 1989). The event markers were also given to each probe. The probes were also recorded based on gender after being imported in the VASP. The recorded probes had been saved. A file had also been created with the initials of the participant for exporting the recorded file in the Neuro-Signature System. It is needed for the presentation of probes during the BEOS testing.

### ***Phase III: BEOS Administration***

The participants were requested to be present to the BEOS lab for recording as per their convenience. The participant was asked to sit comfortably and remove all the metal things. He/she was asked to keep aside the other electronic devices that might affect the BEOS

recording. The temperature of the room was comfortable and optimal enough and it was kept the same throughout the recording. The subject was asked to sit comfortably in the chair, keeping the arms on the arm set. He/ she was asked to sit straight in the chair, because movements of the head or the body hamper the recording, and there might be a chance of getting artifacts. If there are excessive numbers of artifacts in the report, the test should be done again. Keeping all this relevant information in mind, the participant was given instructions. The harness had been tied around the participant's chest. The head cap was placed on the participant's head for the recording. It has 32 channels. The Proper placement of the electrodes is very much significant for the recording. The 10-20 system of Electrode Placement is used for the placement of the electrodes. It is used for the recording of the electroencephalogram (EEG) which helps to record the electrical synchronization activity of thousands of neurons in the brain. The pattern of the activity changes with the person's level of arousal. It basically focuses on the location of the EEG, EOG and EMG.

### ***Data Analysis:***

- The number of EKs was scored for each participant in both scripts (Script A and Script B);
- The percentage of EKs also was scored for each participant in both the scripts. (Script A and Script B);
- The normality distribution has been checked of the scores by using SPSS software for using the inferential statistics;
- The scores are not distributed normally so nonparametric statistics was done. Furthermore, the Mann-Whitney test was done to find out the significance difference between the two independent groups;

### ***Statistical Analysis:***

#### ***Descriptive Statistics***

Mean- Mean helped to understand the proximity of the minimum and maximum score, in each dimension of the variable in this study. Standard Deviation- Standard deviation helped in depicting that how each participant's score was deviating from the mean from the other. *Inferential Statistics*, Mann-Whitney U test has been done to find out the significance difference between the mean of two groups;

### ***Summary Analysis:***

**Table 4.1 represents the percentage of EK in Standard Probes and atrocities related probes of bullying among unreserved category college students**

<b>Probes</b>	<b>Mean</b>	<b>Percentage</b>
Standard Probes	13.15	9.28
Atrocities Related	5.23	3.73

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**Probes**


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**Table 4.2 represents the percentage of EK in Standard Probes and atrocities related probes of bullying among reserved category college students**

<b>Probes</b>	<b>Mean</b>	<b>Percentage</b>
Standard Probes	12	9.9
Atrocities Related Probes	20.07	13.10

**Table 4.3 represents the test statistic scores on standard probes between unreserved and reserved category college students**

<b>Category</b>	<b>SP</b>
Mann Whitney U	69.00
Sig (2 tailed)	.425

**Table 4.4 represents the test statistic score on atrocities related probes between unreserved and reserved category college students**

<b>Category</b>	<b>AP</b>
Mann Whitney U	16.50
Sig ( 2 tailed)	.000

### **Results and Discussion:**

The objectives of the study were to understand the experiential knowledge of bullying behavior between reserved and unreserved category college students by using Neuro-Signature System and to elicit the evidence for supporting atrocities related cases by using Brain Electrical Oscillation Signature Profiling that can be used in forensic investigation cases. As the review shows a smaller number of studies with regard to the variables and the forensic investigative tools on college students, the hypotheses were formed. The sample size was comparatively small (N=26). Non-parametric statistic was chosen for the inferential statistics. The homogeneity of variance has also been checked to fulfill the assumptions for the implication of non-parametric statistics. Inferential Statistics that is, Mann Whitney U was used to find out the difference between the EKs on standard probes and atrocities related p It can be concluded from Table 4.1 which represents the percentage of EKs in Standard Probes of bullying among unreserved category that the mean of the standard probes was 13.15% and the mean of the percentage of EKs was 9.28%, whereas the total number of probes was 140. Table 4.1 represents the percentage of EKs in atrocities related probes of bullying among unreserved categories which indicates the mean of atrocities probe was 5.23

and the percentage of EKs was 3.73%, whereas the total number of probes was 140. Table 4.2 represents the mean and percentage of EKs on standard probes among reserved category college students are 12 and 9.9 respectively. The percentage of EKs and the mean scores on atrocities related probes are 13.10 and 20.07 respectively. Therefore, it can be said that the percentage of EKs in unreserved category was more in the standard probes of bullying than the probes related to atrocities related bullying. Similarly, the percentage of EKs in reserved category was more in atrocities related bullying rather than in general bullying related scenario of bullying. Thus, it can be stated that the EK can be elicited on bullying related general and atrocities cases using the BEOS technique.

The first hypothesis was, "There is no significant difference in experiential knowledge of bullying on standard probes between reserved and unreserved category college students by using BEOS profiling". The Mann Whitney U score is 69.00 and the Z value is -.798 (table 4.3). The p value to the corresponding statistic is .425 that is greater than 0.05 ( $p > 0.05$ ), so the null hypothesis is accepted. This indicated that there is no significant difference in experiential knowledge of bullying on standard probes between reserved and unreserved category college students by BEOS profiling. Therefore, it can be said that there is no significant difference in experiential knowledge of bullying on standard probes regardless of two different categories. So, it can be used as the standard script of bullying for all bullying related cases. Another scope of the study was also to make a standard script which can be used for all types of bullying related cases, was fulfilled by this study.

Another hypothesis was that, "There is no significant difference in experiential knowledge of bullying on atrocities related specific probes among reserved and unreserved category college students by using BEOS profiling". The Mann Whitney U score is 16.50 and the Z value is -3.496 (table 4.4). The p value to the corresponding statistic is .000 that is lesser than 0.05 ( $p > 0.05$ ), so the null hypothesis is rejected. This indicated that there is significant difference in experiential knowledge on bullying related to atrocities probes between reserved and unreserved category college students by BEOS profiling.

So, it can be observed through the results and analysis of BEOS reports that the EKs can be elicited on bullying related to caste based discrimination when it is designed more specifically. The probes like, "I have undergone discrimination", "Because I belong to reserved category", "I have been facing psychological bullying", "Because I belong to reserved category", "I am always told bad jokes", "about my caste", "I was not allowed to complain", "to higher authority", "I have undergone similar derogatory acts", "Due to my reserved category", "I blame myself", "because of my category", "My friends used to post humiliating and shameful comments", "related to reserved caste", "I am afraid", "Discussing any caste related issues online", "I was forced to do bonded labor". This indicates that specific probes related to caste based discrimination can be used as the cues for triggering the specific event for atrocities related cases by using BEOS profiling. The results showed that mean of atrocities related probes are higher for the reserved category student in the atrocities related probes (refer table 4.1 and table 4.2) which means that they have more scores on experiential knowledge. This study only analyzed the number of EKs. It also gives indication that individuals belonging from reserved category undergo bullying based on their caste.

Pandey & Pandey (2018) in an article discussed about the experiences faced by the reserved category students in IIT BHU. It was reported that students belonging from reserved category report hostile attitudes from teachers and fellow mates. It was also reported in the article that students from reserved category face several reminders about their identity by their classmates in the campus life which affect their perceptions about their competency. Students were good in performance when they were not asked about the caste identity but it affects when their identity was reminded.

The importance of specifying and sequencing is very much needed when BEOS results of probes in individual cases are to be analyzed and used in investigation. Bullying can be of different types and in different magnitude which is also associated with various actions and sequences that should be described properly before designing the probes. The major limitation of this study was the absence of the fine details of the context or the event like the date, the time etc while BEOS profiling are being used for atrocities related cases. It basically depends on the efficiency of the investigator and the scientific officer who is in charge of the case while conducting the BEOS.

Caste system is so prevalent in India and it is very much difficult for millions of people who belong from the lowest layer of the caste system to protest online. Especially, the adolescents who have started understanding the concept of caste system and going to school, but listening to caste slurs like, “dhobi ka bachcha”, “quota student”, “Untouchables”, “Lower caste communities” are very much frustrating and it directly affect their self-concept. They become so conditioned with the caste slurs, the statements by the society or the community that gradually they start to behave like the subservient person. Even if they have the competency equal to other persons but their negative self-belief makes them weaker. During adolescence, teenagers get bullied by fellow classmates due to various reasons. This trauma, apparently, one can overcome with time. However, the trauma apparently, one can overcome with time. However, the trauma that one faces in school or in cases during entire life, for being a representative of a minority (lower caste) by definition can-not be overthrown.

Caste System is an extremely difficult concept to explain, to make other people understand but obviously it affects in every dimension of life. It is really pathetic when a person from lower caste (by definition) realizes that caste based discrimination will remain forever in the society. Thus, this study also helped in investigating the prevalence of different types of bullying in colleges. These micro-aggressions sometimes take violent picture in form of torture, threat and cases related to murder.

### **Conclusion:**

It was found that Experiential Knowledge about bullying can be elicited using BEOS profiling by designing the probes. Even EKs were elicited when the probes were related to caste based bullying, which indicates the relevance of using BEOS in atrocities related cases. Sometimes it is extremely difficult to find out the perpetrator in atrocities related cases because there are various fake cases happening which are charging a huge amount of money, targeting innocent persons and framing them in the case falsely. As BEOS only elicit the

Experiential Knowledge if the person participates or witnesses in certain activity, it can be used for atrocities related cases. Thus, this study humbly attempts to add to the existing body of knowledge. However, it has certain limitations, as discussed in the next chapter, also highlighting the recommendations and implications of the study.

### **Future Directions:**

- The sample size can be increased for more robust results;
- Equal size of samples can be taken from different states to understand the prevalence of bullying behavior based on caste;
- Specific probes related to personal bullying incidents based on caste based discrimination can also be included in further study;
- The differences in experiential knowledge of bullying behavior between males and females can also be included in further study

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