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# MAHARSHI DAYANAND UNIVERSITY RESEARCH JOURNAL (ARTS)

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# **Thematic Analysis of Highly Cited Documents: A study of Maharshi Dayanand University, Rohtak (2020-24)**

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## **Abstract**

*The present study is conducted to analyze the top 100 highly cited publications of Maharshi Dayanand University, Rohtak, on quantitative and qualitative grounds. The study chose the 100 most cited publications published from 2020 to 2024 that were indexed in the Scopus database. Documenting basic profiles, document types, impact on the basis of their citations, and identification of major themes and focal areas through cluster analysis are the major objectives of the study. The analysis revealed that these 100 publications published in 78 sources gained 13427 citations, with an international collaboration of 33%. Of these 100, 51 are published in open access, while 49 are subscription-based, showing nearly no bias in choosing the source to publish the research between the two. The keyword cooccurrence analysis revealed that environmental science, nanotechnology, immunology, cell biology, gut microbiome, genomics, virology, and infectious diseases are the major themes that the institution has worked upon in recent years. Overlay visualization of country collaboration showed that in recent years, the institute has positively collaborated with nations like the US, South Korea, Saudi Arabia, Poland, and Finland.*

**Keywords:** Bibliometrics, thematic analysis, keyword co-occurrence, Maharshi Dayanand University, Scopus, publication analysis.

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## **Introduction**

The conduct of bibliometric studies is a general trend to analyze the research productivity of any topic or any entity like an institution, a geographical region, or any eminent personality. This study is a thematic analysis with some use of bibliometric indicators for the institute named “Maharshi Dayanand University (MDU)”. MDU is a state university established in 1976 in Rohtak city of Haryana. The motive behind the establishment of the university was to promote interdisciplinary higher education and research with a special emphasis on areas of life sciences, environmental and ecological science. The university has been awarded an “A+” grade from NAAC and is ranked among the top 100 universities according to the NIRF ranking issued by the Ministry of Education. The university is equipped with a best-in-class library system, which won the best university library award by the ILA in 2025.

Bibliometric studies implement the usage of different bibliometric indicators to analyze the research productivity of any entity. The thematic analysis provides valuable insights about the major themes that are being worked upon in any institution, which helps the researchers choose the best institution according to their research interest, and then the best research area too.

## **Literature Review**

Several bibliometric studies have been conducted from time to time to analyze the research productivity of different institutions situated in different geographical regions. Multiple studies have been conducted for Maharshi Dayanand University itself to evaluate the institute on different grounds at different times. Siwach and Kumar (2015) analyzed the research production of the university for the period from 2000 to 2013, while Kumari, Malik, and Parmar (2022) analyzed the research productivity for the years ranging from 2011 to 2020. Kumbar (2023) performed a scientometric analysis of the research contributions of Maharshi Dayanand University for the years 2011 to 2021. Several other studies, like one by Ohlan in 2018, were conducted for multiple universities and covered MDU too. Kaushik (2022) performed a combined analysis for MDU and Kurukshetra University.

All these studies have been done, but none of them focused on the thematic analysis of the research being published by the institute, and hence this study is designed and conducted to perform a qualitative thematic analysis of the top 100 highly cited documents published by Maharshi Dayanand University in the last five years, i.e., 2020 to 2024.

## **Objective of the study**

The current study is conducted to analyze the publications of Maharshi Dayanand University, Rohtak, Haryana, on the basis of different parameters, including both

quantitative and qualitative parameters. The following objectives were decided for the conduct of the study:

- To provide a brief summary of the affiliation's publications.
- To identify the major document types being published.
- To assess the impact of publications in terms of citation count.
- To thematically analyze the highly cited publication of the affiliation.
- To identify the broad themes that are actively being worked upon, along with the area of focus of these studies.

### **Methodology**

The analysis is based on the data extracted from Scopus database using the search string “AF-ID ( 60004880 ) AND ( LIMIT-TO ( PUBYEAR , 2020 ) OR LIMIT-TO ( PUBYEAR , 2021 ) OR LIMIT-TO ( PUBYEAR , 2022 ) OR LIMIT-TO ( PUBYEAR , 2023 ) OR LIMIT-TO ( PUBYEAR , 2024 ) ) AND ( LIMIT-TO ( LANGUAGE , "English" ) )” which gave a recall of 3679 documents, which were then sorted according to their citation count, and the data for the top 100 documents was extracted in CSV format. The data was then cleaned using Open Refine and analysed and visualized using MS Excel, Biblioshiny (Aria & Cuccurullo, 2017), and VOS viewer (Van Eck & Waltman, 2009) software. The analysis covered both qualitative and quantitative aspects, including a brief bibliometric analysis and a detailed thematic analysis, primarily using cluster analysis.

### **Data Interpretation and Discussion**

#### **Brief Summary**

Figure 1 highlights a brief summary of the 100 highly cited documents of Maharshi Dayanand University, published during the last 5 years, i.e., from 2020 to 2024. The data showed that these publications are published in 78 different sources, and a total of 1406 authors made their contributions to these documents. No single-authored document made its place in the highly cited documents. The institute has maintained an average citation per publication of 134.3, and an international co-authorship of 33% is recorded. The annual growth rate of the highly cited publications is -53.56%.



**Figure 1: Brief Summary**

### Document type

Table 1 categorizes the top 100 highly cited publications in different types of documents. These publications garnered a total of 13427 citations in total with a standard deviation of 123.17. Review is the most prevalent document type, with a count of 68, followed by articles with a count of 27. It is noted that among these two most preferred types of documents, the value of average citations per publication is nearly similar, but the value of standard deviation is highest for articles ( $n=201.321$ ), which is 120.571 more than the review papers, showing the publications with exceptional citation count in the category.

**Table 1: Type of Documents**

Document Type	TP	TC	ACPP	Standard Deviation
Review	68	9115	134.044	80.750
Article	27	3685	136.481	201.321
Note	1	206	206.000	-
Conference paper	2	236	118.000	45.255
Letter	1	100	100.000	-
Retracted	1	85	85.000	-
<b>Total</b>	<b>100</b>	<b>13427</b>	<b>134.270</b>	<b>123.17</b>
<i>TP-Total Publications, TC-Total Citations, ACPP- Average Citations per Publication</i>				

### Year-wise paper distribution and impact accessibility

Table 2 summarizes the year-wise publication along with their categorization in open-access and subscription-based documents. Out of the 100 publications, 51 are open

access and 49 are subscription-based, which gained 7804 and 5623 citations each. The value of average citations per publication for open-access documents is 38.26, more than that of subscription-based documents, highlighting relatively more impact of open-access publications. In 2024, no subscription-based document managed to be in the highly cited documents, while 2 of the open-access publications of 2024, with a total of 1213 citations, are in the list of highly cited publications.

**Table 2: Year-Wise Publications**

Year	Open Access Documents			Subscription-Based Documents			Total Documents		
	TP	TC	ACPP	TP	TC	ACPP	TP	TC	ACPP
2020	22	3077	139.86	21	2331	111	43	5408	125.77
2021	14	1842	131.57	12	1740	145	26	3582	137.77
2022	10	1142	114.20	12	1180	98.33	22	2322	105.55
2023	3	530	176.67	4	372	93	7	902	128.86
2024	2	1213	606.50	0	0	-	2	1213	606.50
<b>Total</b>	<b>51</b>	<b>7804</b>	<b>153.02</b>	<b>49</b>	<b>5623</b>	<b>114.76</b>	<b>100</b>	<b>13427</b>	<b>134.27</b>

*TP= Total Publications, TC= Total Citations, ACPP= Average Citations Per Publication*

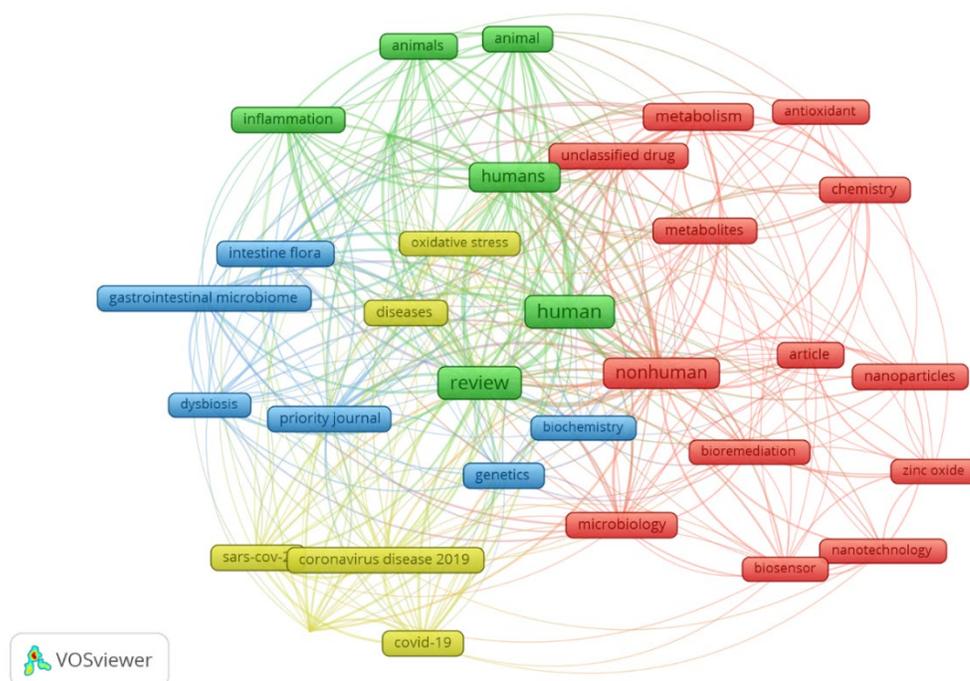
### Thematic Mapping using keyword co-occurrence

Table 3 shows the categorization of 32 out of 2231 keywords (author plus indexed keywords) selected on the basis of a minimum occurrence value of 6. These keywords consisted of 4 clusters that are visualized in Figure 2. Cluster 1 consists of 13 keywords having environmental science and nanotechnology as the main theme, and bioremediation and nanomaterial applications in microbiology as the focal area of the cluster. Cluster 2 consists of 7 keywords related to the theme of immunology and cell biology. The main focus of the cluster is comparative immune responses and cell signaling mechanisms. Cluster 3, having 6 keywords, focuses on microbial genetics and gut health/dysbiosis studies by working on broad themes like gut Microbiome, Genomics. Cluster 4, with 6 keywords, has Virology and Infectious Diseases as its major themes. The focus of cluster 4 is on microbial genetics and gut health/dysbiosis studies. “Nonhuman” with link strength of 201, “human” with link strength of 231, “intestine flora” with link strength of 78, and “coronavirus disease 2019” with a link strength of 64 are the keywords with the highest link strength from clusters one, two, three, and four, respectively. It is noted that all the major themes and the focus areas of all the clusters are related to the sciences domain, which might be attributed to the citational bias in the selection of the publications for this analysis. This finding also correlates with and justifies the objective with which the university was established,

i.e., to promote research with special emphasis on Life Sciences, Environmental and Ecological Sciences.

**Table 3: Cluster Analysis of Keywords Co-Occurrence**

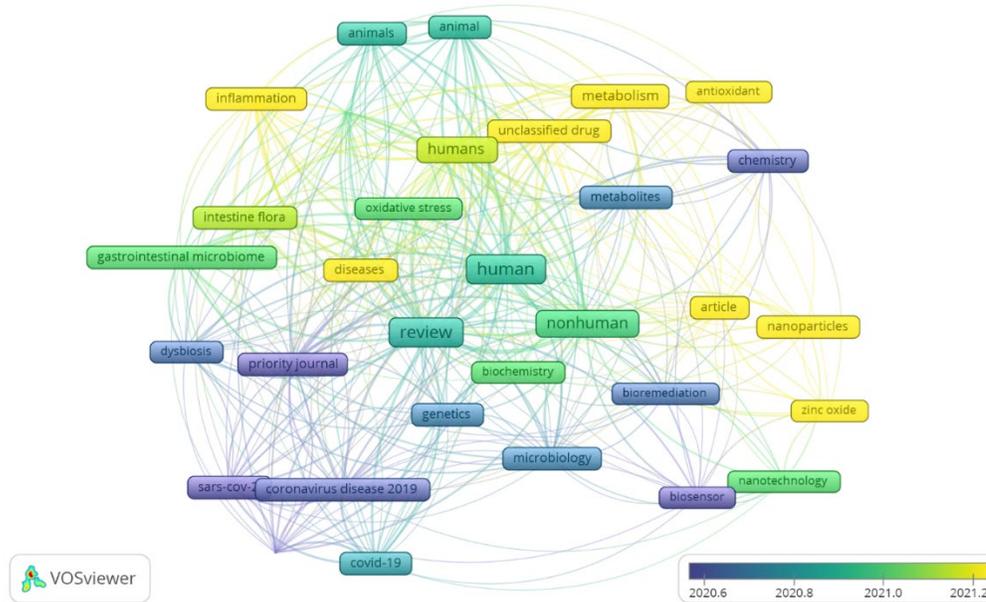
<b>Cluster #</b>	<b>Keywords</b>	<b>Keywords Count</b>	<b>Broad Themes</b>	<b>Cluster Focus</b>
1	antioxidant, article, bioremediation, biosensor, chemistry, metabolism, metabolites, microbiology, nanoparticles, nanotechnology, nonhuman, unclassified drug, zinc oxide	13	Environmental Science, Nanotechnology	Bioremediation and nanomaterial applications in microbiology
2	animal, animals, human, humans, inflammation, review, signal transduction	7	Immunology, Cell Biology	Comparative immune responses and cell signaling mechanisms
3	biochemistry, dysbiosis, gastrointestinal microbiome, genetics, intestine flora, priority journal	6	Gut Microbiome, Genomics	Microbial genetics and gut health/dysbiosis studies
4	coronavirus disease 2019, covid-19, diseases, oxidative stress, sars-cov-2, severe acute respiratory syndrome coronavirus 2	6	Virology, Infectious Diseases	Pathogenesis and molecular study of COVID-19



**Figure 2: Network visualization of Keyword Co-occurrence**

**Overlay visualization of keywords:**

Figure 3 visualizes the overlay of keywords' co-occurrence over these 5 years. The figure clearly highlights that Maharshi Dayanand University actively contributed to the research publication on COVID-19 during the pandemic period. Bioremediation and nanomaterial applications in microbiology, along with the cell signaling mechanisms, are the themes that are being worked upon in recent times and are the growing themes among highly cited publications. The statement is also supported by the fact that most of these keywords are from the largest cluster formed when the network visualization was done on the basis of keyword co-occurrence.



**Figure 3: Overlay visualization of Keyword co-occurrence**

### Country Collaboration

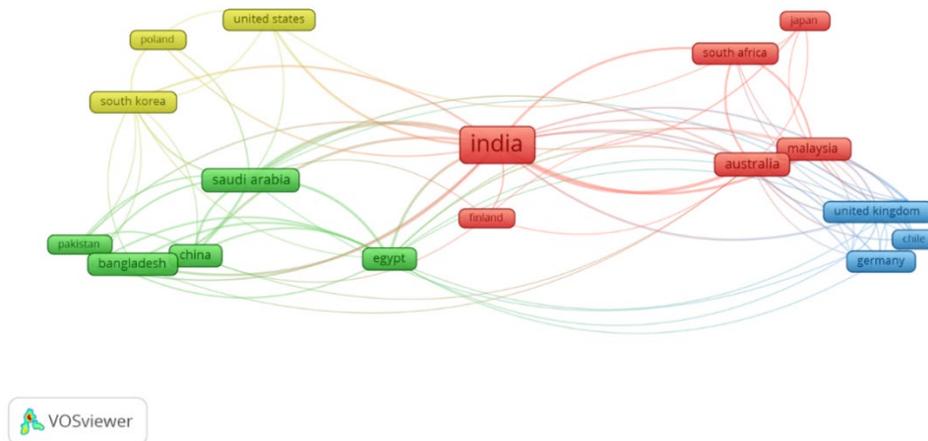
Table 4 shows the ten countries that are most active in collaboration among the documents that have Maharshi Dayanand University as an affiliation. The table also shows the link strength of each country, which highlights the strength of collaboration among the countries, as the threshold value for a country to be included in the visualization was 2. Out of 28 countries that have contributed, only 20 met the threshold, which is visualized in Figure 4. India is at the top, being the country of the institution under study. Nine other countries include India, Saudi Arabia, Australia, Egypt, Malaysia, Bangladesh, China, the United Kingdom, Jordan, and Sweden.

**Table 4: Most collaborating countries**

Country	Documents	Citations	Total Link Strength
<b>India</b>	99	12292	88
<b>Saudi Arabia</b>	13	1360	44
<b>Australia</b>	10	1283	39
<b>Egypt</b>	7	762	34
<b>Malaysia</b>	7	936	31
<b>Bangladesh</b>	6	840	26
<b>China</b>	6	717	25

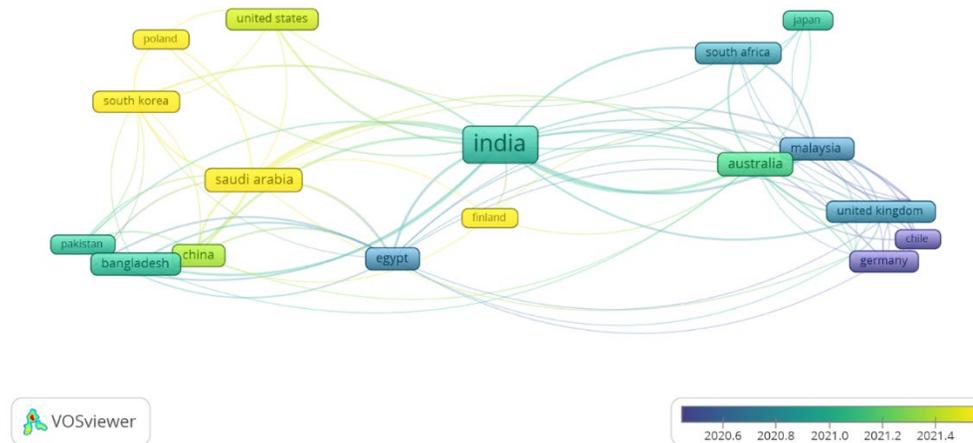
<b>United Kingdom</b>	4	588	21
<b>Jordan</b>	3	491	18
<b>Sweden</b>	3	366	18

All the twenty countries that met the threshold were clubbed into four clusters. Cluster 1 Australia, Finland, India, Japan, Malaysia, and South Africa, cluster 2 has Bangladesh, China, Egypt, Pakistan, Saudi Arabia, and Sweden, cluster 3 has Chile, Germany, Jordan, Oman, and the United Kingdom, and cluster 4 has Poland, South Korea, and the United States.



### Network visualization of country collaboration

Figure 5 highlights the overlay visualization of the country collaboration during the years under consideration. The figure shows that the institution (mainly represented by India here as India is the country where the institution is established) has collaborated with countries like Germany and Chile then the focus was shifted towards UK, Malaysia, South Africa, Egypt then to Australia, Bangladesh, Japan, Pakistan and the recent highly cited publication show the collaboration to be growing with nations like US, South Korea, Saudi Arabia, Poland and Finland.



**Figure 5: Overlay visualization of country collaboration**

### **Conclusion and Recommendations for further research:**

The present study of the top 100 highly cited publications of Maharshi Dayanand University, Rohtak, during the last 5 years presents a brief quantitative analysis accompanied by a qualitative analysis of the publication using cluster analysis of the authors and indexed keywords. The study can prove to be useful for academics related to the institution or seeking to be a part of the institution to get insights about the major research areas of the institution. The study will also prove beneficial for the policymakers of the institution and the related organizations, too, that share the same goals as Maharshi Dayanand University to identify the most impactful thematic areas that the institute is currently working upon.

Further research can also be conducted in this domain to analyze the publications more of quantitatively as well as by choosing more data to get rich insights of each faculty of the institute as the citation bias while choosing the 100 publications for the study majorly recalled publications from sciences and the faculties like social science and humanities that are not much of citation luster got excluded from the study.

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# Evaluating the Efficacy of a Psychological Intervention Program on Athletes' Quality of Performance and Functional Athletic Behavior: A Multidimensional Analysis of Sports

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## Abstract

Psychological Intervention Training Program (PITP) for sportspersons includes a comprehensive mental training regimen that caters to different aspects of mindfulness and psychological skills. The present study investigates the effectiveness of the PITP on different aspects of sports performance. The study employed a 2x4 factorial design; 96 sportspersons were stochastically assigned to two different groups: the Exp. group (n=48) and the Con. group (n=48). Sports Performance was measured at four different time points (Pre-Testing, Post-Testing 1 (1 Day after Intervention), Post-Testing 2 (15 Days after Intervention), and Post-Testing 3 (30 Days after Intervention)) using two different tools: Quality of Performance and Functional Athletic Behaviour (Ambulatory Assessment). The results suggest that the Sports Performance of the sportspersons increased significantly after the intervention and stayed at a higher level even after 15 days and 30 Days post-intervention in the exp. group. No improvements were seen in the con. group in all variables of sports performance. F value for the interaction of Time\*Group was significantly impactful for Quality of Performance (Athlete's Perception of the quality of Performance), and all dimensions of Functional Athletic Behavior (Quality of Movements, Focus on Task, and Overall Performance). The study highlights the importance of implementing a psychological intervention training program for sportspersons as early as possible in their sporting journey, which enhances their mindfulness and psychological skills, ultimately improving various aspects of their sports performance.

**Key Words:** Psychological Intervention Program (PIP), Quality of Performance, (QP) Functional Athletic Behavior (FAB), Sportspersons, Athletes, and Sports Performance.

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## **Introduction**

Psychological and Mindfulness Training, with its roots in ancient traditions such as Buddhism and the Yogic practices of India, has gained increasing relevance in modern psychological and performance domains. The current psychological intervention program for sportspersons is built upon these time-honored philosophies, integrating them into structured, evidence-based approaches to support the mental demands faced by contemporary sportspersons. The present Psychological Intervention Program has mainly two pillars: Mindfulness and Psychological Skills

### **Traditional Foundations of Mindfulness**

The concept of mindfulness, traditionally known as *Sati* in the Pali language, has been a fundamental element of Buddhist philosophy for over 2,500 years. This practice emphasizes maintaining an open, non-judgmental awareness of the present moment, often through attention to breathing, bodily sensations, and thought patterns, which helps cultivate inner calm and mental clarity (Kabat-Zinn, 2003). Similarly, the *Yog Sutras* of Patanjali, a seminal text within the Indian yogic framework, detail practices such as *Dhyana* (meditative absorption) and *Pratyahara* (sensory withdrawal), highlighting the value of sustained attention and disciplined mental focus (Witteveen, 2006). Both traditions advocate for consistent mindfulness training as a path toward reducing distractions and achieving psychological balance.

### **Psychological Skills for the Psychological Intervention Program**

Psychological skills are essential components of effective intervention programs designed to enhance athletic performance and mental resilience. These skills typically include self-talks, imagery training, setting goals, regulating emotions, relaxation techniques, and concentration-increasing strategies, all of which help athletes manage the psychological demands of sports (Weinberg & Gould, 2019). Developing these skills ensures that the athletes can maintain focus, deal with pressure, and recover from negative setbacks. For instance, goal setting helps athletes establish clear, measurable objectives, providing direction and motivation throughout their training and competition (Locke & Latham, 2002). Positive self-talk can replace unhelpful or negative thoughts, promoting a confident and task-focused mindset. Imagery and visualization techniques allow athletes to mentally rehearse skills and scenarios, improving motor execution and boosting confidence (Morris, Spittle, & Watt, 2005). Additionally, relaxation strategies such as deep breathing and progressive muscle relaxation can effectively reduce physiological arousal and anxiety, contributing to emotional balance during high-pressure situations. When integrated into a psychological intervention program, these psychological skills can significantly improve both mental well-being and sports performance, equipping athletes with

practical tools to navigate the challenges of their sport successfully.

### **Modern Applications in Sports Performance**

In recent years, both mindfulness practices and psychological skills training have become essential components of performance enhancement strategies in competitive sports. While mindfulness continues to emphasize present-moment awareness and non-judgmental attention, it has been adapted to specifically address psychological challenges such as managing stress, regulating emotions, and improving cognitive flexibility in performance-driven environments (Brown & Ryan, 2003). These mindfulness-based approaches are especially beneficial for athletes who must consistently sustain focus, manage high-pressure situations, and recover quickly from setbacks.

In parallel, psychological skills training has emerged as a structured method for developing mental competencies that directly support athletic success. Core PST, that includes setting-up of goals, imagery imagination, self-talks, techniques of relaxation, regulation of emotions, and improving control on attention, are now widely integrated into sports psychology programs (Weinberg & Gould, 2019). These skills equip athletes with practical tools to boost motivation, enhance concentration, manage competitive anxiety, and build resilience against performance fluctuations.

The psychological intervention program presented in this study uniquely combines mindfulness practices with targeted psychological skills training, offering athletes a comprehensive, dual-focused approach. Across 18 structured sessions delivered over six weeks, athletes engaged in mindfulness exercises, including mindful breathing, body scans, and present-moment awareness activities, alongside psychological skill-building strategies such as goal setting, positive self-talk, visualization, and relaxation techniques. This integrated intervention is specifically designed to equip athletes with the cognitive and emotional tools necessary to navigate the intense psychological demands of competitive sports. By simultaneously cultivating mindfulness and strengthening psychological skills, the program aims to promote sustained attention, emotional balance, stress management, and overall athletic performance.

### **The Rationale of the Study**

The present study is grounded in the purposeful integration of ancient mindfulness practices and contemporary psychological skill training, forming a comprehensive intervention specifically designed to meet the psychological demands of modern athletes. The rationale for this approach lies in the growing recognition that optimal sports performance extends beyond physical ability and must also encompass mental and emotional resilience. Traditional mindfulness concepts, as reflected in Buddhist philosophy and the *Yog Sutras*, emphasize present-moment awareness, emotional

balance, and self-regulation as essential for cultivating inner stability (Kabat-Zinn, 2003). Modern empirical research continues to support these traditional teachings by demonstrating that mindfulness can effectively reduce anxiety, sharpen attentional control, and enhance psychological well-being (Hölzel, Lazar, Gard, Schuman-Olivier, Vago, & Ott, 2011).

This study's intervention program builds upon these ancient foundations by integrating psychological intervention skills training—such as imagery, goal setting, relaxation, self-talk, and emotional regulation—into its structure. These psychological skills have been shown to play a critical role in preparing athletes to manage competitive pressures, maintain concentration, and recover from setbacks (Weinberg & Gould, 2019). By combining mindfulness practices with psychological skills training, the intervention offers athletes a balanced and evidence-based approach to enhancing both cognitive control and emotional stability.

Athletes frequently encounter intense challenges, including the weight of competitive expectations, personal performance goals, and the need to deliver results under pressure consistently. The mindfulness and psychological skills-based intervention directly addresses these challenges by equipping athletes with strategies to stay grounded, manage pre-performance anxiety, and maintain focus during competition (Gardner & Moore, 2007). The program incorporates mindfulness activities, such as mindful breathing, body scan exercises, and focused awareness practices, alongside psychological skill-building techniques, including structured goal setting, positive self-talk, visualization, and progressive relaxation. Together, these components aim to promote flow experiences, enhance decision-making under stress, and improve overall mental readiness (Hogarth, 2018).

Additionally, the intervention emphasizes the development of non-judgmental awareness, allowing athletes to approach mistakes and setbacks with emotional flexibility and self-compassion. This capacity for emotional regulation is essential for sustaining long-term motivation, protecting against performance anxiety, and fostering a positive psychological climate within the athlete's training and competition environment.

In conclusion, this intervention represents a carefully designed fusion of time-honored mindfulness practices and modern psychological skill applications. Rooted in the philosophical traditions of the Indian Buddhist system and the *Yog Sutras*, and informed by current scientific evidence, the program offers a holistic pathway for enhancing mental resilience, emotional regulation, and athletic performance. The study reinforces the enduring relevance of mindfulness and psychological skills in the evolving landscape of sports performance and highlights their combined potential to empower athletes in high-pressure settings.

## **Objective**

Evaluating the effectiveness of the psychological intervention training program (PITP) by comparing the experimental and control groups on Sports Performance using Athletes' Quality of Performance and Functional Athletic Behavior.

## **Hypotheses**

- 1) Sportspersons in the experimental group would have a higher subjective perception of their quality of performance compared to the athletes in the control group.
- 2) Sportspersons in the experimental group would exhibit increased functional athletic behavior (quality of movements) compared to the athletes in the control group.
- 3) Sportspersons in the experimental group would exhibit increased functional athletic behavior (focus on task) compared to the athletes in the control group.
- 4) Sportspersons in the experimental group would exhibit increased functional athletic behavior (overall performance) compared to the athletes in the control group.

**Design:** The study employed a 2\*4 factorial design.

**Sample:** 96 sportspersons, both males and females, with age ranging from (18 Years to 25 Years) a mean of 18.15 years, and an SD of age of 1.951 years were selected from different training facilities in Haryana playing individual and team sports (Wrestling, Badminton, Athletics, and Football) were assigned randomly to the two groups (Exp. (n=48) and Con. (n=48)).

## **Tools:**

### **Quality of Performance**

To assess the subjective dimensions of athletic performance, Ebbeck and Weiss (1988) developed two sport-specific, process-oriented self-report tools designed to capture both the athlete's and the coach's perspectives. Questionnaire-A was developed for athletes to self-evaluate their performance using a Likert scale, focusing on elements such as rhythm, timing, concentration, and effort. This instrument emphasizes the athlete's internal perception of performance, which may not always align with objective performance metrics. In parallel, Questionnaire-C was designed to capture coaches' evaluations. This dual-instrument design offers a detailed overview of the quality of performance by incorporating both self-perception and external evaluation. The original instruments were validated by experienced athletic coaches, establishing better face validity. Furthermore, it also had a high Cronbach's ( $\alpha$ ) of .92, which

indicates strong reliability and cohesion in measuring the intended construct. For the present study, only Questionnaire-A, which assesses athletes' self-perceived quality of performance, was employed to evaluate the subjective impact of the intervention.

In addition to the above-mentioned tool for sports performance, the sportspersons were also evaluated on **Functional Athletic Behavior (FAB)** using Ambulatory Assessment (AA) (Röthlin, Birrer, Horvath, & Holtforth, 2016). The researchers posited that relying solely on objective performance indicators may not effectively measure the success of a sports psychology intervention. Therefore, they recommended assessing Functional Athletic Behavior (FAB)—encompassing movement quality, task focus, and overall performance—as a more dependable metric of an intervention's impact. FAB evaluation is less affected by external variables, providing a consistent measure of an athlete's capabilities even when physical conditioning is not optimal. Furthermore, it facilitates cross-sport comparisons and closely aligns with athletes' real-world behaviors in competitive scenarios, unlike measures specifically designed for research environments.

#### **Procedure:**

The selection of participants included both male and female athletes actively engaged in various sports disciplines across different training centers in Haryana. These athletes represented sports such as wrestling, badminton, athletics, and football. Before the commencement of the study, appropriate permissions were obtained from the relevant administrative authorities. In addition, the coaches and trainers were thoroughly briefed on the significance and potential impact of the psychological intervention program. The involvement of coaches played a pivotal role in facilitating the process, as their endorsement and explanation of the study's objectives significantly increased the athletes' willingness to participate. Throughout the recruitment phase, coaches and trainers acted as key intermediaries, bridging the gap between the researcher and the athletes.

A general orientation session was conducted, during which the athletes were introduced to the study. During this session, the purpose of the research, potential benefits, and the structure of the psychological intervention were clearly outlined. Athletes who expressed interest were asked to sign a written consent form and then underwent training to explore the mindfulness practices that would form the core of the intervention. This preparatory phase ensured that the participants had realistic expectations and were adequately prepared to engage with the program.

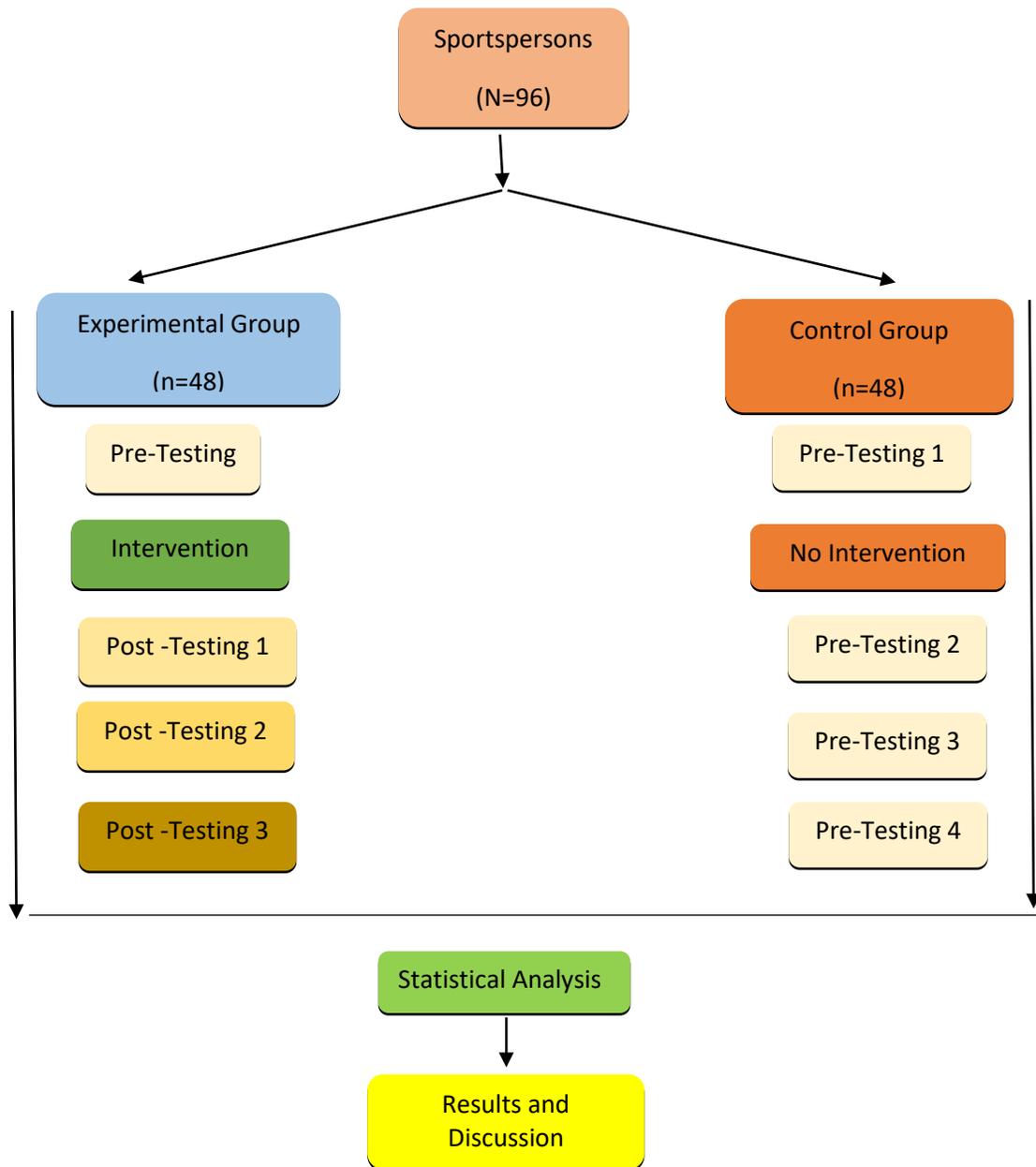
A total of 98 sportspersons consented to take part in the study. These athletes were randomly allotted to any one of the following: the exp. group ( $n = 48$ ) or the con. group ( $n = 48$ ), using stratified randomization to ensure balance across variables such as age

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and type of sport. Both groups underwent pre-intervention assessments. The experimental group participated in the psychological intervention program. At the same time, the control group served as a waitlist control, with the ethical provision that they would later receive the same intervention following the study's conclusion.

Post-intervention assessments were conducted at three intervals: one day after the program's completion, 15 days post-intervention, and again 30 days after the intervention. This allowed for the evaluation of both immediate and sustained effects of the psychological and mindfulness training. The collected data were analyzed using Repeated Measures ANOVA via SPSS software. The repeated measure was the time factor (pre-test, post-test 1, post-test 2, and post-test 3), while the independent variable was the group assignment (experimental vs. control). The five distinct measures of sports performance served as the dependent variables.

A flow chart provides a visual representation of the research design and procedural steps, offering a clear overview of the study's progression.

Figure 1: *Flow chart of Research Study.*

## Results

To evaluate the efficacy of the psychological intervention program, comparisons have been made between the exp. and con. groups on the following dependent variables:

1. Athletes' Quality of Performance

2. Functional Athletic Behavior
  - i. Quality of Movements
  - ii. Focus on the Task
  - iii. Overall Performance

To meet the study's objective, "Evaluating the effectiveness of the psychological intervention program by comparing the experimental and control groups on sports performance using athletes' quality of performance and functional athletic behavior."

We will proceed by taking the First dependent variable, Athletes' Quality of Performance.

### 1.1 Athletes' Quality of Performance - Group Comparison.

Prior to conducting the main analyses, the dataset was thoroughly examined to ensure that key statistical assumptions were met. Tests for sphericity, homogeneity of variances, and normality of distribution using the Shapiro-Wilk Test were performed across all groups. In the context of RM-ANOVA, Mauchly's (Sphericity Test) is further used to verify whether the assumption of sphericity was satisfied—that is, whether the variance of the differences between each pair of time points was approximately equal. For example, the mean difference between post-intervention 1 and pre-intervention should be roughly equivalent to the mean differences between subsequent time intervals (post-int. 2) – (post-int. 1) and (post-int. 3) – (post-int. 2).

In instances where assumptions of sphericity were not met, adjustments to the degrees of freedom were made using the Greenhouse-Geisser correction, while the original F-ratio remained unchanged. This correction is appropriate when the epsilon ( $\epsilon$ ) value is less than 0.75. In cases where the epsilon exceeded 0.75, the Huynh-Feldt correction was used instead. It is essential to note that, regardless of the correction applied, the F-value remains constant; only the degrees of freedom are adjusted to account for the violation. These preliminary statistical checks were systematically conducted for each of the dependent variables included in the study to ensure the robustness and validity of the subsequent analyses.

The first hypothesis states that "Sportspersons in the experimental group would have a higher subjective perception of their quality of performance compared to the athletes in the control group."

To evaluate the stated hypotheses, a 2-way RM-ANOVA) was performed. The independent variables in this analysis were Group (experimental and control) and Time. The dependent variable was the Quality of Performance, as measured by the athletes' self-perception of their performance.

The variable Time included four measurement points for each participant: pre-testing (before the intervention), post-testing 1 (one day after the intervention), post-testing 2 (15 days after the intervention), and post-testing 3 (30 days post-intervention). This design makes way for the assessment of changes in performance perceptions through time and the comparison of trends between the exp. and con. groups.

The descriptive statistics, including means and standard deviations for athletes' self-reported quality of performance at all four time intervals, are presented in Table 1.1 and Figure 1.1 for both the experimental and control groups.

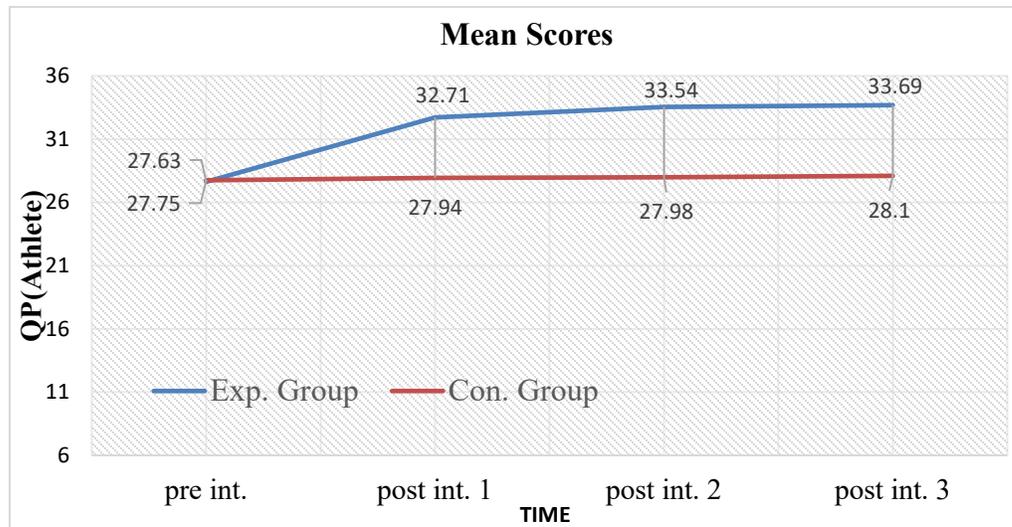
**Table 1.1**

*Mean Scores of Athletes' Perceived Quality of Performance Across Pre- and Post-Intervention Phases for Exp. and Con. Groups*

	Exp. Group		Con. Group	
	( $\bar{X}$ ) Mean	Std. Dev.	( $\bar{X}$ ) Mean	Std. Dev.
Pre-Testing	27.63	3.535	27.75	2.892
Post-Testing 1	32.71	2.163	27.94	2.763
Post-Testing 2	33.54	1.810	27.98	2.763
Post-Testing 3	33.69	2.012	28.10	2.882

**Figure 1.1**

*Mean Scores of Athletes' Perceived Quality of Performance Across Four Assessment Points: Pre-Test, Post-Test 1 (1 Day After Intervention), Post-Test 2 (15 Days After Intervention), and Post-Test 3 (30 Days After Intervention)*



The graphical representation illustrates a clear upward trend in the mean scores of perceived performance quality among athletes in the experimental group following the intervention.

The means remained at a similar level in the con. group, with negligible gains in their (QP) quality of performance.

To assess the effectiveness of the psychological intervention on athletes' self-perceived quality of performance, a comparative analysis was conducted between the two groups: the exp. and the con. groups. A two-way RM-ANOVA was employed, incorporating Group (exp. vs. con.) as between-subjects factor; Time taken within subjects factor. The analysis adhered to the previously described procedures for testing the assumption of sphericity.

In the experimental group, results from Mauchly's Test of Sphericity revealed a violation of the sphericity assumption,  $\chi^2(5) = 54.98, p < .05$ , with a W value of .553.

To address this violation, the Greenhouse-Geisser correction was applied, as the epsilon value ( $\epsilon = .725$ ) fell within the appropriate range for this adjustment. The detailed criteria and correction procedures for sphericity violations were discussed earlier in the analysis framework.

**Table 1.2**

*Summary of Two-Way RM-ANOVA: Within-Subjects and Between-Subjects Effects of Group and Time on Athletes' Perceived Quality of Performance*

Source	df	Mean Square	F
Group (BS)	1	1496.260	67.423**
Time (WS)	2.175	653.271	86.661**
<i>Time* Group (WS)</i>	<i>2.175</i>	<i>541.135</i>	<i>71.785**</i>

\*\* Significance at the 0.01 level.

The results presented in Table 1.2 indicates main effects were significant for the athletes' perceived quality of performance concerning both Gps.,  $F(1, 96) = 23.24, p < .01$ , and Time,  $F(2.17, 208.67) = 86.66, p < .01$ . Although these findings reached statistical significance, they fall beyond the primary scope of this study and will not be examined in detail.

The key outcome of interest in this research is the interaction effect amongst (Time and Group), which was found to be statistically significant,  $F(2.17, 208.67) = 71.79, p < .01$ . This interaction provides critical insight into how the psychological intervention influenced athletes' perceived quality of performance over time in comparison to the control group. The following sections will focus specifically on the interpretation and implications of this interaction effect.

Now, taking the second dependent variable, Functional Athletic Behavior (Quality of Movements).

## 2. Functional Athletic Behavior (Quality of Movements)

To further address the study's objectives, the effectiveness of the psychological intervention program was assessed in relation to functional athletic behavior, specifically focusing on the quality of athletes' movements. This analysis aimed to determine whether sportspersons in the experimental group demonstrated improvements in their movement quality in comparison with those in the control group, thereby evaluating the impact of the intervention across different groups.

Before conducting the primary analysis, preliminary statistical tests were performed to verify that the assumptions of sphericity, homogeneity of variance, and normality—evaluated using the Shapiro-Wilk test—were met for both the experimental and control groups.

The second hypothesis states that “Sportspersons in the experimental group would exhibit increased functional athletic behavior (quality of movements) compared to the athletes in the control group.”

To test this hypothesis, a two-way RM-ANOVA was performed. Independent variables in this analysis were Group (experimental and control) and Time. The dependent variable was functional athletic behavior, specifically the quality of athletes' movements. The Time variable was assessed at four intervals: pre-testing (before the intervention), post-testing 1 (one day after the intervention), post-testing 2 (15 days after the intervention), and post-testing 3 (30 days after the intervention). This design allowed for the evaluation of changes in movement quality over time within and between groups.

Table 2.1 and Figure 2.1 below present the mean and standard deviations of Functional Athletic Behavior (Quality of Movements) for the four readings of 'Time' among the Groups (experimental and control).

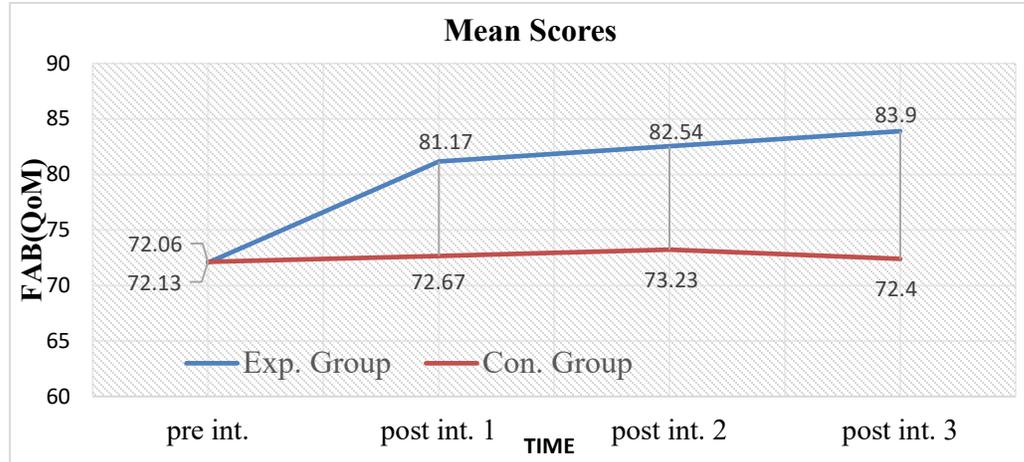
**Table 2.1**

*Mean Scores of Functional Athletic Behavior (Quality of Movements) Across Pre- and Post-Intervention Assessments for Exp. and Con. Groups.*

	Exp. Group		Con. Group	
	( $\bar{X}$ ) Mean	Std. Dev.	( $\bar{X}$ ) Mean	Std. Dev.
Pre-Testing	72.06	7.087	72.13	6.884
Post-Testing 1	81.17	5.617	72.67	5.829
Post-Testing 2	82.54	5.411	73.23	5.301
Post-Testing 3	83.90	5.850	72.40	5.492

**Figure 2.1**

*Mean Scores of Functional Athletic Behavior (Quality of Movements) at Pre-Test, Post-Test 1 (1 Day After Intervention), Post-Test 2 (15 Days After Intervention), and Post-Test 3 (30 Days After Intervention).*



The graph illustrates that the mean scores for functional athletic behavior (quality of movements) increased noticeably in the experimental group following the intervention. In contrast, the control group displayed relatively stable mean scores across all assessment points, indicating no meaningful improvement in their functional athletic behavior (quality of movements).

To assess the psychological intervention program's effectiveness on functional athletic behavior, specifically the quality of movements, a comparison was made between the experimental and control groups. A two-way RM-ANOVA was conducted, with Group (exp. vs. con.) taken as a between-subjects factor and Time taken as a within-subjects factor. The same procedures for testing the assumption of sphericity, as described earlier, were applied in this analysis.

For the experimental group, Mauchly's (Sphericity Test) indicated that there is a violation in the assumption,  $\chi^2(5) = 62.50, p < .05, W = .510$ . To address this violation, the Greenhouse-Geisser correction was applied, as the epsilon value ( $\epsilon = .700$ ) met the criteria for this adjustment. The relevant assumptions and correction methods were discussed in the preliminary analysis section.

**Table 2.2**

*Summary of Two-Way RM-ANOVA: Within-Subjects and Between-Subjects Effects of Group and Time on Functional Athletic Behavior (Quality of Movements).*

Source	df	Mean Square	F
Group (BS)	1	1496.260	67.423**
Time (WS)	2.100	1096.522	76.564**
<i>Time* Group (WS)</i>	<i>2.100</i>	<i>854.541</i>	<i>61.712**</i>

\*\* Significant at 0.01 level.

The results presented in Table 2.2 indicate that functional athletic behavior (quality of movements) showing significance for main effects for both Group,  $F(1, 96) = 67.42$ ,  $p < .01$ , and Time,  $F(2.10, 201.44) = 76.56$ ,  $p < .01$ . Although these main effects are statistically significant, they do not directly align with the primary research objectives and will not be discussed in detail.

The central focus of this analysis is the interactions between (Time and Group), were also found to be highly significant,  $F(2.10, 201.44) = 61.71$ ,  $p < .01$ . This interaction provides critical insight into how functional athletic behavior (quality of movements) changed over time in relation to the psychological intervention and will be discussed in the following sections.

Now, taking the third dependent variable, Functional Athletic Behavior (Focus on Task).

### 3. Functional Athletic Behavior (Focus on Task): Group Comparison

To further address the study's objectives, the impact of the psychological intervention program was evaluated with a specific focus on functional athletic behavior related to task engagement. This analysis aimed to determine whether athletes in the experimental group demonstrated improvements in task-focused behavior compared to those in the control group.

Preliminary statistical diagnostics were conducted prior to the main analysis to ensure that the homogeneity of the variance, assumptions of sphericity, and distribution normality—as assessed using the Shapiro-Wilk test—were met in both the exp. and con. groups.

The third hypothesis states that “Sportspersons in the experimental group would exhibit increased functional athletic behavior (focus on task) compared to the athletes in the control group.”

To test this hypothesis, a two-way (RM-ANOVA) was done. The independent variables were Group (exp. and con.) and Time. The dependent variable was functional athletic behavior, specifically focused on task engagement. Measurements were taken at four time points: pre-testing (prior to the intervention), post-testing 1 (one day after the intervention), post-testing 2 (15 days after the intervention), and post-testing 3 (30 days after the intervention). This structure allowed for the analysis of both within-group and between-group differences over time.

Table 3.1 and Figure 3.1 present the mean scores and standard deviations for Functional Athletic Behavior (Focus on Task) across the four time points, separately for the exp. and con. groups.

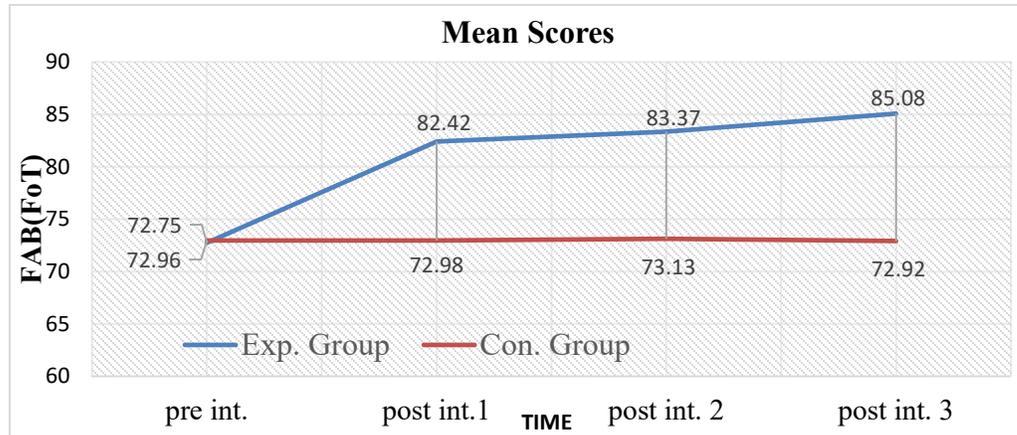
**Table 3.1**

*Means of Functional Athletic Behavior (Focus on Task) Across Pre- and Post-Intervention Assessments for Exp. and Con. Groups.*

	Exp. Group		Con. Group	
	( $\bar{X}$ ) Mean	Std. Dev.	( $\bar{X}$ ) Mean	Std. Dev.
Pre-Testing	72.75	7.298	72.96	6.931
Post-Testing 1	82.42	5.449	72.98	6.803
Post-Testing 2	83.37	5.760	73.13	6.571
Post-Testing 3	85.08	6.143	72.92	6.185

**Figure 3.1**

*Mean Scores of Functional Athletic Behavior (Focus on Task) at Pre-Test, Post-Test 1 (1 Day After Intervention), Post-Test 2 (15 Days After Intervention), and Post-Test 3 (30 Days After Intervention).*



Graphical representation indicates a marked increase in mean scores for functional athletic behavior related to task focus within the exp. group after intervention. Conversely, the con. group exhibited minimal variation across all assessment intervals, suggesting no meaningful improvement in task-related engagement.

To examine the effectiveness of the psychological intervention program on functional athletic behavior, specifically focusing on task engagement, a comparative analysis was conducted between the experimental and control groups. A two-way RM-ANOVA was conducted, using Group (exp. versus con.) as the factor of between-subjects and Time as the factors of within-subjects.

The assumption testing procedures regarding sphericity, as outlined earlier, were applied in this analysis.

In the experimental group, Mauchly's (Sphericity Test) revealed a significant violation of the assumption of sphericity,  $\chi^2(5) = 107.11$ ,  $p < .05$ , with a W value of .315. Accordingly, the Greenhouse-Geisser correction was applied to adjust the degrees of freedom, as the epsilon estimate ( $\epsilon = .577$ ) warranted this modification.

The assumptions and correction guidelines for sphericity were addressed in the preliminary analysis section.

**Table 3.2**

*Summary of Two-Way RM-ANOVA: Within-Subjects and Between-Subjects Effects of Group and Time on Functional Athletic Behavior (Focus on Task).*

Source	df	Mean Square	F
Group (BS)	1	1496.260	67.423**
Time (WS)	1.730	1289.041	68.069**
<i>Time* Group (WS)</i>	<i>1.730</i>	<i>1274.119</i>	<i>67.281**</i>

\*\* Significant at 0.01 level.

The results presented in Table 3.2 indicate that there were statistically significant main effects for the quality of performance (athlete-perceived performance) with respect to Group,  $F(1, 96) = 1496.26$ ,  $p < .01$ , similarly the significance of within-subjects effect for Time,  $F(2.10, 201.44) = 68.07$ ,  $p < .01$ . Although both effects reached statistical significance, they are not the primary focus of this study and, therefore, will not be discussed in detail.

The most pertinent findings concerning the present study are discussed in greater depth below. A significant Time  $\times$  Group interaction was identified,  $F(2.10, 201.44) = 67.28$ ,  $p < .01$ , suggesting that the psychological intervention exerted a distinct influence on functional athletic behavior over time between the exp. and con. groups. The primary emphasis of this analysis remains on understanding the implications of this Time  $\times$  Group interaction in relation to functional athletic behavior, specifically focusing on task engagement.

Now, taking the Fourth dependent variable, Functional Athletic Behavior (Overall Performance).

#### 4. Functional Athletic Behavior (Overall Performance): Group Comparison

To address the study's objective, the effectiveness of the psychological intervention program was evaluated with respect to functional athletic behavior, specifically focusing on overall performance. This comparison was made between the exp. group and con. group to determine whether psychological intervention produced measurable improvements in the comprehensive performance behaviors of athletes.

Before initiating the primary analysis, preliminary assessments were conducted to verify that the assumptions of sphericity, homogeneity of variance, and normality of distribution, as determined by the Shapiro-Wilk test, were met for both the experimental and control groups.

The fourth hypothesis states that “Sportspersons in the experimental group would exhibit increased functional athletic behavior (overall performance) compared to the athletes in the control group.”

To test this hypothesis, a two-way RM-ANOVA was conducted. Group (experimental and control) and Time were treated as independent variables, while functional athletic behavior (overall performance) served as the dependent variable. The Time factor included four assessment points: pre-testing (before the intervention), post-testing 1 (one day after the intervention), post-testing 2 (15 days after the intervention), and post-testing 3 (30 days after the intervention). This design enabled the analysis of changes in overall athletic performance, both within and between groups, over time.

Table 4.1 and Figure 4.1 display the mean scores and standard deviations of functional athletic behavior (overall performance) across the four time points for both the experimental and control groups.

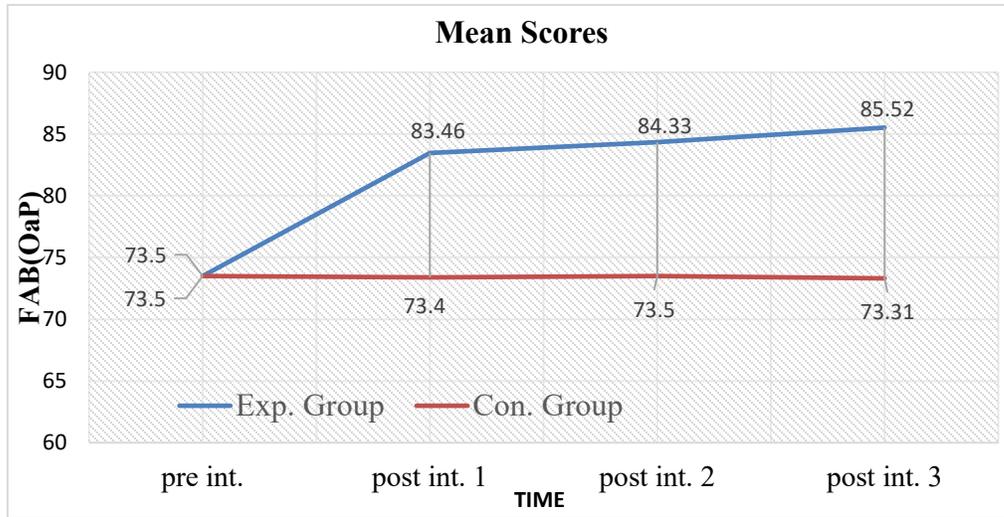
**Table 4.1**

*Mean Scores of Functional Athletic Behavior (Overall Performance) Across Pre- and Post-Intervention Assessments for Exp. and Con. Groups.*

	Exp. Group		Con. Group	
	( $\bar{X}$ ) Mean	Std. Dev.	( $\bar{X}$ ) Mean	Std. Dev.
Pre-Testing	73.50	7.122	73.50	6.585
Post-Testing 1	83.46	5.813	73.40	6.718
Post-Testing 2	84.33	5.482	73.50	6.513
Post-Testing 3	85.52	5.524	73.31	6.550

**Figure 4.1**

*Mean Scores of Functional Athletic Behavior (Overall Performance) at Pre-Test, Post-Test 1 (1 Day After Intervention), Post-Test 2 (15 Days After Intervention), and Post-Test 3 (30 Days After Intervention).*



Graphs illustrate that the mean scores for quality of performance, based on athletes' self-perceptions, showed a marked improvement in the exp. group following the psychological intervention. Whereas, the con. group's mean scores remained relatively unchanged across all time points, indicating no noticeable enhancement in their functional athletic behavior (overall performance).

To evaluate the effectiveness of the psychological intervention program on functional athletic behavior—specifically overall performance—a comparison was conducted between the experimental and control groups. A two-way RM-ANOVA was employed, with Group (exp. versus con.) serving as the between-subjects factor and Time as the within-subjects factor. The assumption of sphericity was tested following the same procedures outlined earlier.

For the experimental group, Mauchly's (Sphericity Test) indicated that the sphericity assumption was violated,  $\chi^2(5) = 98.864, p < .05, W = .344$ . To address this violation, the Greenhouse-Geisser correction was applied, as the epsilon value ( $\epsilon = .589$ ) met the criteria for this adjustment. The required conditions and correction procedures were outlined in the preliminary analysis section.

**Table 4.2**

*Summary of Two-Way RM-ANOVA: Within-Subjects and Between-Subjects Effects of Group and Time on Functional Athletic Behavior (Overall Performance)*

Source	df	Mean Square	F
Group (BS)	1	6575.315	51.080**
Time (WS)	1.767	1223.916	70.376**
<i>Time* Group (WS)</i>	<i>1.767</i>	<i>1272.749</i>	<i>73.184**</i>

\*\* Significant at 0.01 level.

The results summarized in Table 4.2 indicate that functional athletic behavior (overall performance) demonstrated statistical significance of the main effects of Group,  $F(1, 96) = 51.08, p < .01$ , and for Time,  $F(2.00, 192.12) = 70.38, p < .01$ . Although these findings are significant, they are not the primary focus of this research and will not be discussed in detail.

The primary emphasis of this analysis is the effect of Time and Group, which found a significant interaction,  $F(2.00, 192.12) = 73.18, p < .01$ . This interaction provides meaningful insight into the influence of the psychological intervention on functional athletic behavior (overall performance) over time. It will be explored further in the subsequent discussion.

## Discussion

Psychological intervention training programs have gained considerable attention as effective tools for enhancing performance in athletics by reshaping athletes' both emotional and cognitive responses to stress and competition. These practices support athletes in maintaining present-moment awareness, regulating emotions, reducing anxiety, and achieving the flow state, all of which contribute to improved performance outcomes (Anderson, Haraldsdottir, & Watson, 2021). The current investigation contributes to the growing body of literature that highlights mindfulness as a valuable psychological resource for athletes. The tables above offer valuable evidence of the value of mindfulness-based training for sportspersons. For all the variables under the current study, i.e., Athletes' Quality of Performance and all dimensions of Functional Athletic Behavior - Quality of Movements, Focus on the Task, and Overall Performance, a significant improvement was observed in the intervention group.

Other researchers have also reported similar improvements in performance consequent to psychological interventions over the years. Reinebo, Alfonsson, Jansson-Fröjmark,

Rozental, and Lundgren (2023) conducted a systematic review and meta-analysis, and concluded that psychological skills training, mindfulness, acceptance-based practices, and imagery provide moderate benefits to performance. However, they stressed the ongoing need for studies with improved methodological precision and transparent reporting. Echoing this, Wang, Lei, and Fan (2023) provided meta-analytic evidence supporting the effectiveness of mindfulness-based interventions for enhancing sports performance, while emphasizing that high-quality, longitudinal studies are crucial for advancing the field.

Other evidence from sport-specific interventions has further solidified the practical value of mindfulness. Bernier, Thienot, Codron, and Fournier (2009) demonstrated that elite swimmers and golfers who engaged in mindfulness training experienced measurable improvements in their performance, particularly in maintaining focus and composure under pressure. In a similar vein, Wong, How, and Cheong (2022) reported that the Mindfulness-Acceptance-Commitment (MAC) program significantly improved both mindfulness skills and competitive performance among sub-elite Malaysian squash players.

John, Verma, and Khanna (2011) contributed to this body of research by exploring Mindfulness Meditation Therapy (MMT) among elite shooters. Their findings indicated notable reductions in physiological stress markers, such as salivary cortisol, alongside improvements in shooting accuracy. Moghadam, Sayadi, Samimifar, and Moharer (2013) further highlighted the effectiveness of psychological training in reducing competitive anxiety, finding that mass consciousness training significantly enhanced performance and lowered anxiety levels among badminton players.

Cortez-Saldarriaga, Quiroz-Villarán, Caycho-Rodriguez, Hernandez-Mendo, Brandão, and Reyes-Bossio (2022) synthesized a decade of research on psychological interventions in high-performance sports, demonstrating their consistent success in improving psychological skills, enhancing mental resilience, and reducing stress among elite athletes.

Collectively, these studies illustrate the importance of research employing rigorous methodologies to enhance the validity and applicability of mindfulness interventions across various sporting disciplines.

### **Implications of the study**

As supported in the present study, integrating mindfulness-based interventions into athletic training programs can yield substantial gains in performance. Regular practices such as controlled breathing, focused-attention meditation, and attentional drills will sharpen athletes' concentration, enhance decision-making, and refine technical execution under pressure. Mindfulness practices will cultivate biomechanical insight

that will improve technique, lower injury risk, and optimize efficiency. Simultaneously, it can also equip athletes with strategies to manage competitive anxiety and regulate intense emotions, thereby sustaining composure, confidence, and resilience during high-stakes events.

Complementing these benefits, structured psychological skills training advances performance through clear goal-setting, positive self-talk, and imagery techniques. Purposeful self-talk enables reframing of negative thoughts, bolstering focus and mental toughness in challenging moments. Guided imagery and visualization mentally rehearse success, reinforcing motor patterns and psychological readiness. Together, mindfulness and psychological skills training have the power to promote sharper, more consistent athletic performance while fostering long-term emotional balance and well-being.

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**Nation and its Narration in  
Suryakant Tripathi Nirala's  
“*Ram ki Shakti Pooja*”**

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**Abstract**

In the early twentieth-century India, literary figures like Suryakant Tripathi Nirala engaged deeply with the evolving concepts of nation, cultural identity and colonial resistance. This paper explores how Nirala's poetry challenges rhetoric conventions and reflects a philosophical enquiry into the socio-political turmoil of the time. Through poems like *Ram ki Shakti Pooja*, Nirala moves beyond traditional mythological glorification by employing language that shifts from formal to everyday registers reflecting the internal conflict of a nation under colonial subjugation. His reinterpretation of Hindu myths and humanisation of the sacred figures, presenting them as flawed and relatable, promotes a secular and inclusive understanding of nationhood. Moreover, the study argues that Nirala's poetic intervention contributes significantly to the literary canon of anti-colonial resistance. By blending classical elements with modern sensibilities, Nirala's work manifests how national literature functioned as a site of ideological contestation and cultural synthesis during India's struggle for independence.

**Keywords:** Nation, nationalism, cultural identity, colonial resistance, mythology.

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## Introduction

The idea of nation and nationalism is a complex and multifaceted phenomenon, encompassing socio-political, cultural, and historical dimensions. A nation embodies a collective identity shared by people who are bound together by common roots of history, culture, language, and territorial belonging. As Homi K. Bhabha argues, nations—like narratives—lose their origins in the myths of time and encounter their horizons only in the imagination of their people. Similarly, Benedict Anderson conceptualizes nations as “*imagined communities*,” suggesting that they are not defined by biological or physical attributes but are socially constructed entities that exist in the minds of those who imagine themselves as part of a national whole. Expanding this perspective, Frantz Fanon in *The Wretched of the Earth* (1961) underscores that cultural resistance, particularly the reworking of indigenous traditions, is central to the narration of a decolonized nation. Earlier, Ernest Renan (1882) had described the nation as a “*daily plebiscite*,” emphasizing that national identity is an ongoing process rooted in shared memory, sacrifice, and collective will.

In the Indian context, particularly in the early twentieth century, poets often explored the idea of the nation by intertwining themes of nationalism, spirituality, and mysticism. Their works articulated a literary canon charged with national consciousness and a yearning for independence, transforming poetry into a powerful medium for narrating the nation and envisioning its future.

Suryakant Tripathi Nirala stands as a profound literary figure in Indian literature whose idea of the nation is deeply rooted in a sense of cultural heritage, spirituality, and a yearning for a harmonious society. His poems convey a vision of a nation that transcends political boundaries and is grounded in the shared ethos of its people. Nirala was known for his exploration of India's rich cultural and historical legacy, drawing inspiration from its ancient scriptures, myths, and traditions. His poetry reflects a deep engagement with the socio-cultural milieu of his time, marked by the struggle for independence and the challenges of a rapidly changing society. His verses are imbued with a profound sense of introspection, blending traditional themes with modern sensibilities. Nirala's ability to weave together the classical and the contemporary earned him a distinctive place in the Indian literary landscape. Namwar Singh (1971) emphasizes that *Ram ki Shakti Pooja* represents Nirala's bold experiment in diction, where the fusion of *tatsam* (Sanskritized) and colloquial Hindi reflects both the grandeur and vulnerability of the nationalist moment.

During the Romantic era, poetry played a crucial role in shaping a realistic portrayal of nation and nationalism. Instead of employing poems as instruments of patriotic persuasion, the Romantics sought to forge national consciousness by re-examining and reshaping cultural identities. Their approach differed from merely glorifying epics and

classical materials; instead, they used these elements as a foundation or structure to convey their deeply personal, intense, and impassioned emotions. The thematic focus of poetry shifted towards the autobiographical, marking the emergence of a sense of self and identity within Indian literature. This transformation effectively brought poetic expression from the elevated realms of the divine and the mythic to the harsh realities and intricacies of modern life.

When Suryakant Tripathi 'Nirala' emerged as a poet, Hindi nationalism reached a unique level of self-awareness. It started to look at its own nationalist heroes in a new way, acknowledging their weaknesses and moments of doubt. During the late 1930s, the leaders of the nationalist movement faced the challenge of creating a form of nationalism that included people from all backgrounds, not just one religion. In response to this challenge, they revisited traditional myths and cultural stories, presenting them with a more humanistic approach.

Nirala, situated within a unique linguistic tradition and literary framework, plays a vital role in what we now define as national literature in India. The term national literature holds a twofold significance, particularly in the initial three decades of the twentieth century when India lacked sovereignty as a geopolitical entity. Paradoxically, this very absence of political autonomy fueled the anti-colonial struggle, and the pursuit of an independent India became a defining aspiration, shaping contemporary practices and influencing the diverse struggles of the time. The varied nature of these struggles, involving people of different faiths, beliefs, and practices, naturally led to a multiplicity of visions for India. Despite this diversity, there were key points of convergence, where disparate visions met to form a loosely unified consensus on India's historical narrative and its envisioned future. This convergence marked a significant phase in the interconnected histories of diverse language-worlds and their cultural contexts, collectively recognized as the history of India. This era was notable for being the first instance in the histories of these varied linguistic and cultural worlds when they actively sought common ground, propelled by a shared goal of a free nation.

Meenakshi Mukherjee underscores that nationalist allegories in Indian writing frequently deploy myth to "narrate the nation," where personal crisis and political struggle are intertwined in symbolic form. Nirala uses elements from mainstream Hindu beliefs to express his ideas about freedom, both on a personal level and for the nation as a whole. However, even though he draws from these traditional beliefs, he looks at them with a reflective and critical perspective. As he explores Hindu mythologies, metaphysics as well as moral principles, he reinterprets them in a critical manner. This process leads to the humanization of sacred and iconic figures from these myths. In other words, he portrays them as more relatable and human-like. As a result, the boundaries between mythical and humanistic ideas start to blend together, giving

rise to a more moderate and possibly even somewhat secular version of nationalism. In this new form of nationalism, traditional beliefs are revisited and reshaped to be more inclusive and suitable for a diverse society.

Nirala's poem *'Ram ki Shakti Pooja'* aims to redefine 'shakti,' which means the power of the self, in the context of India's struggle against a powerful Empire. The poem's language starts with a more formal and scholarly version of Hindi. However, as the poem progresses, it gradually shifts towards using everyday language. This change in language mirrors the declining confidence and determination of the character Ram as he faces his formidable enemy, Ravana.

The poem is quite experimental, using complex structures like compound words and avoiding the use of verbs to convey its message: "*pratipal-privartit-vyoooh, bhed-kaushal-smooh, vicchuritvahni-rajeevnayan-hut-lakshay-baa... lohitlochan-ravan-madmochan-mahiyaan . . .*" (Tripathi, 1988a, pp. 97–98).

("changing every moment the stratagem, skill-secrecy combine...going astray the arrows of fire-filled lotus-eyes".)

The poet changes linguistic registers when it comes to conveying the final message without any ornamentation, to admit: "*dhik jeevan ko jo pata hi aaya virodh! dhik sadhan jiske liye sada hi kiya sodh!*" (Tripathi, 1988a, p. 106).

("O how cursed is this life that always found opposition! cursed are the means which were always researched! Blood-shot eyes of Ravana, frenzied on high trip . . .")

The poet uses the classic Hindu tale of Rama fighting against Ravana to symbolize the struggle against colonial rule. But unlike the traditional versions of this story, the poet adds a touch of humanism to the characters, making them more relatable and human-like. The particular episode portrayed in the poem is not drawn from the widely recognized *Ramcharitmanas* by Tulsidas, but rather from the Bengali *Ramayana* composed by Krittibas. This departure from the dominant narrative indicates that nationalist leaders were keen to look beyond the familiar stories of the Hindi heartland in order to grasp the deeper complexities of a colonized nation.

In this scene, Rama is uncertain about his ability to defeat Ravana and turns to the divine Shakti for assistance. He resolves to offer a specific number of lotus flowers to appease her, but mysteriously, some of the flowers vanish. This incident reminds Rama of his own lotus-like eyes. Moved by his determination, he prepares to offer one of his eyes to fulfill the required number of flowers. However, the goddess, touched by his devotion, intervenes and prevents him from making such a sacrifice.

In the poem, Rama is depicted as a highly hesitant warrior, unsure of the outcome of his battle against Ravana. "Stable Rama is repeatedly rocked by doubt, Ravana's hailed

dread keeps haunting life. A heart that never was foe-tamed, exhausted that remained unconquered in thousand trials is disconcerted at taking on the enemy/In the weak heart, a sense of defeat comes . . ." (Tripathi, 1988a, p. 99).

Rama is presented beyond the image of Maryada Purushottam that successive cultural nationalists have consistently imposed on him. He appears at his most vulnerable and human, as he nostalgically recalls, in a poignant flashback, his wife Sita held captive by Ravana in Ashok Vatika. Eyes meet eyes in secretive communion; "eyelids on new eyelids, their maiden rise-fall, trembling shoots of foliage, undulating pollen singing birds heralding new life, Malabar-trees all around heavenly light-fall as though the image of my first love Janaki's desirous-eyes first quivering trance . . ." (Tripathi, 1988a, p. 99).

The poem shows Rama's inner turmoils, moving back and forth between scenes of war and moments of cherished love. It portrays a mixture of hope and fear, as Rama experiences these emotions simultaneously.

The poem reflects the conventional nationalist ideology of distinguishing between the "*ghar*" (home) and "*bahir*" (outside or battlefield). However, the memory of Sita in the middle of the battle implies that the home and battlefield can influence each other, and they cannot be completely separated. In the traditional version of Rama from Tulsi's *Ramcharitmanas*, he is seen as an invincible and unwavering figure. But in this poem, Rama experiences existential anxieties and sheds tears when he hears Ravana's laughter. Vibhishana encourages Rama to stay strong and not lose his morale. "Pride of raghukul, you are becoming small in this moment; you are turning your back when it is a moment of victory. How much effort has gone waste! When you are all set to meet / Sita, you are mercilessly withdrawing your hand from her!" (Tripathi, 1988a, p. 102).

The 'small Rama' of Nirala later becomes a forerunner in post-independence Hindi poetry for the emergence of the 'small man' (*laghu manav*) as the central protagonist. In language that resonates with ordinary individuals, Rama conveys his deep sense of despair. "Spake Raghmani—friend, war we shall not win, for it is not just a war between devils and men-monkeys. Mahashakti itself has descended on the scene on Ravana's calling. Where there is injustice, shakti is on that side!" (Tripathi, 1988a, p. 102).

Rama's decreasing confidence reflects the uncertain feelings of the nationalist leaders in the late 1930s. When things seem hopeless, Rama is encouraged by his followers to reimagine the power of *Shakti* (the divine energy) so that it doesn't support the imperial forces. This change is significant and brought about by Jambvan's intervention "Answer devotion with firm devotion. Win over your own body with restraint. If Ravana by being impure can cause distress/ then, surely you by attainment will destroy

him. Worship, imagine Shakti all over afresh.” (Tripathi, 1988a, pp. 103–104).

In Nirala's poetry, the redefinition of *Shakti* (the divine power) can be seen as similar to Gandhi's efforts to redefine *swaraj* (self-rule) in politics. Both involve gaining control over oneself as a crucial step to achieve their respective goals. By the end of the poem, Shakti is appeased, transforming the initial despair into a sense of hope and optimism.

The poem suggests that by dedicating himself to Shakti, Rama attains her favour and power.

The poem *Ram ki Shakti Pooja* culminates in the restoration of Shakti, achieved by Rama's steadfast devotion and determination. This mirrors the path of Indian nationalism, which, rather than simply imitating the West, harnessed Western knowledge through hard work and dedication. The poem suggests that Indian nationalism was not a mere replication of Western ideas, but a reinvention—a revival of its own latent strength. In simple terms, it draws a parallel between Rama's devotion leading to the revival of Shakti and Indian nationalism using Western knowledge with commitment to build a unique, independent identity. Aijaz Ahmad situates works like Nirala's within the discourse of “Indian nationalism's narrative strategies,” where literature serves to allegorize the contradictions of colonial modernity.

In conclusion, Suryakant Tripathi Nirala's *Ram ki Shakti Pooja* emerges not merely as a retelling of a mythological episode but as a layered allegory of the nation in crisis. By weaving together Sanskritized idioms and everyday diction, Nirala dramatizes the shifting moral and political consciousness of 1930s India. The oscillation in Rama's strength and doubt mirrors the ambivalence of the nationalist elite, while the re-imagining of *Shakti* signifies the necessity of regenerating indigenous power to counter imperial domination. Thus, Nirala's poem narrates the nation as an unfinished, self-reflexive project, where myth becomes a vehicle of modern political imagination and cultural self-assertion.

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## **Impact of Living Arrangements on Self-Esteem and Mental Health among Female Students**

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### **Abstract**

The environment plays an important role in shaping one's life and overall personality development. Many factors influence a person's mental health, but the environment has the biggest impact. Environment refers to the living arrangement of a person means where and how individual reside. In educational settings, two most common type of living arrangements are hostellers and day scholars. Living arrangement provides a sense of belonging, social interaction, and emotional support, all of which are crucial during the formative college years. Students who live in supportive and secure environments, whether with family or in hostels experiences higher levels of well-being and confidence. Living arrangements significantly influence the daily experiences and social interactions, which in turn can impact their self-esteem and mental health. Understanding these effects is crucial for identifying the unique challenges associated with each setting. In view of this, an attempt is made to study the impact of living arrangement on self esteem and mental health among female students. For this purpose a two group design was adopted for the present study. A purposive sample of 120 female students (60 hostellers and 60 day scholars) in the age range of 22-25 years was taken. Rosenberg self esteem scale (1965) and Mental Health Inventory developed by Davies, Sherbourne, Peterson, and Ware (1998) were administered. The t-test was employed. The results indicated significant difference between the two groups on self esteem and mental health. The hostellers were found to be high self esteem than the day scholars, however the mental health was better in day scholars as compared to hostellers. The results imply that there is a great need to develop a positive and interactive environment to nurture self-esteem among female students. There is also a strong need to develop the personal empowerment skills which helps them to manage their lives by themselves.

**Key words:** Self-esteem, Mental health, Living arrangement

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## **Introduction**

### **Impact of Living Arrangements on Self-Esteem and Mental Health among Female Students**

The environment plays an important role in one's life. It plays a huge role in the personal growth, independence and development of their personality. Many factors influence a person's mental health, but the environment has the biggest impact. Environment refers to the living arrangement of a person, encompassing their physical surroundings, social setting, and daily living conditions. Living arrangements refer to where and how individual reside. In educational settings, students enrolled in higher education institutions generally fall into two categories based on their living arrangements: hostellers and day scholars. Hostellers are students who live in the hostel or dormitory provided by the school, college, or university and Day scholars are students who live at home and commute to the institution daily. Both groups encounter distinct challenges that can affect their mental health and academic growth. Hostellers, who reside in campus accommodations, are exposed to an environment that fosters independence and peer interaction but may also experience homesickness, lack of personal space, and irregular habits, potentially leading to stress and lower self-esteem. The hostel environment differs from the home environment because they have to live according to the rules set by the authorities. They have to leave their home's comfort and make adjustments with others. Students living away from home must deal with a variety of challenges, such as learning the basics of studying for the best results, sharing facilities and living with students from different socioeconomic backgrounds, adjusting to peers, and so forth (Wadder & Aminabhavi, 2010). Conversely, day scholars benefit from the emotional support of their families and the comfort of a familiar home environment, which can enhance mental well-being and stability. However, they may face challenges such as long travel and limited campus engagement, which could affect their social confidence and sense of belonging. Thus, the environment plays a crucial role in shaping a student's life, significantly influencing their self-esteem and mental health through social interactions, living conditions, and emotional support systems.

Self-esteem is an asset of beliefs and values that a one carries with himself when facing the world. According to Sedikides and Gress (2003) "self-esteem refers to an individual's perception or subjective appraisal of one's own self-worth, one's feelings of self-respect and self-confidence, and the extent to which the individual holds positive or negative views about self." In the same way, Murphy, Stosny and Morrel, 2005 also define "self-esteem as a global barometer of self-evaluation involving cognitive appraisals about general self-worth and affective experiences of the self that are linked to these global appraisals." The environment plays a vital role in influencing self-esteem among students, as it shapes their daily experiences, interactions, and

emotional well-being. A positive and supportive environment—whether at home, in school, or among peers—can help students develop confidence, a sense of belonging, and a healthy self-image. Encouragement, recognition, and constructive feedback from teachers and family members contribute significantly to building self-worth. Kapoor and Sethi (2024) found that family environment was strongly positively associated with self-esteem. In contrast, environments marked by neglect, criticism, or social isolation can lead to low self-esteem, anxiety, and feelings of inadequacy. A study by Bassi, Sharma, and Kaur (2014) found that female hostellers had higher anxiety scores than female day scholars and male hostellers. Factors such as living conditions, peer relationships, academic pressure, and emotional support all interact to shape how students perceive themselves and their capabilities. Some research indicates that boarding experiences can enhance certain aspects of self-development. Students in boarding schools may develop greater resilience, leadership qualities, and social competence. These factors can contribute positively to self-esteem in specific domains, even if overall self-esteem measures favour day scholars (Iftikhar & Ajmal, 2015). Self-esteem and mental health are deeply interconnected, as a positive self-image contributes to overall well-being while low self-esteem can lead to increased vulnerability to stress, anxiety, and depression. In recent years, there has been widespread recognition of the significance of mental health in maintaining overall well-being. An individual's mental health is an essential component of their overall well-being. Students' mental health is a major concern globally. Life is not always easy as it has many ups and downs. Students face academic, social, and personal pressures that can affect their emotional and psychological well-being. A student's mental health is influenced by various factors, with living arrangements playing a significant role.

The environment of living arrangements, such as residing in a hostel or at home, each uniquely shapes an individual's personal growth, independence, and social development. The environment of a hostel and home significantly influence the daily experiences, social interactions, and support systems of students, which in turn can impact their self-esteem and mental health. Understanding these effects is crucial for identifying the unique challenges associated with each setting. It is apparently relevant to study the impact of the living arrangement on self-esteem and mental health. Therefore, the present study was designed to study the following problem.

### **Problem**

To study the impact of the living arrangement on the self-esteem and mental health of female students.

### **Objectives**

1. To assess and compare the self-esteem of hostellers and day scholar female

students.

2. To assess and compare the mental health of hostellers and day scholar female students.

### **Hypotheses**

1. There would be a significant difference in self-esteem between hostellers and day scholar female students.
2. There would be a significant difference in mental health between hostellers and day scholar female students.

### **Method**

#### **Design**

In the current study, two-group design was used. Group I had the female subjects living in hostels i.e. hostellers and Group II comprised the females living with their families i.e. day scholars.

#### **Sample**

A purposive sample of 120 female students (60 hostellers and 60 day scholars) studying at post-graduation level in the age range of 22-25 years was taken for the present study. The mean age of subjects was 23.70 years. The subjects were equated on socio-demographic variables such as education level, socio-economic status, type of family, background, occupation of parents etc.

#### **Tools**

The following tools were administered:

**Rosenberg Self-Esteem Scale (1965):** It has ten items that assess one's overall sense of value. The scale measures one's feelings about oneself, both positive and negative. The subject has to answer on 4-point Likert scale. Self esteem increases with higher score. Internal consistency reliability ranging from .85 to .88.

**Mental Health Inventory (1998):** It is a self-administered inventory developed by Davies, Sherbourne, Peterson, and Ware in 1998. It has six subscales i.e., "Anxiety, Depression, Loss of Behavioral/Emotional Control, General Positive Affect, Emotional Ties, and Life Satisfaction". The scale has 38 items on a 6-point Likert scale, except for two items. These two items are scored on a 5-point Likert scale. Additionally, to reflect a complementary summary, the MHI can be combined into two global scales namely, "Psychological Distress and Psychological Well-being" and one global Mental Health Index score. Higher Mental Health Index scores are indicative of better psychological well-being and comparatively lower psychological distress. Reliability of the test was

0.85.

### Procedure

The present study was designed to study the self-esteem and mental health of female students who are staying in hostels and those who are staying at home. After rapport establishment, appropriate instructions were given individually for both tests. After the administration of both the tools, scoring was done in accordance with the manuals and data was collected. The data was tabulated and subjected to statistical analyses by computing the mean, S.D. and t-ratio.

### Results and Discussion

The present study aimed at comparing the self-esteem and mental health of female hostellers and day scholars. For statistically testing the significance of the difference between the two groups, the t-test was employed.

**Table 1**  
**Mean, S.D. and t-value of of self-esteem among hostellers and day scholars female students.**

Variable	Hostellers	Day scholars	t-value
Self-esteem	20.77±4.60	19.02±4.63	2.08*

Values expressed as Mean ± 1SD

\*Significant at 0.05 level.

Table 1 shows the significant difference between the female hostellers and day scholars on self-esteem. The mean value of female hostellers on self esteem is 20.77 and the mean value of female day scholars on self esteem is 19.02. The t-value is 2.08 which shows the significant difference between hostellers and day scholars. It indicates that female hostellers have high self-esteem as compare to female day scholars. This might be due to the hostel environment in which they live independently. Moreover, they feel more responsible and more mature. Self-esteem is the belief in one's own value, skills, and dignity. It encompasses beliefs about oneself as well as emotional states, such as triumph, despair, pride, and shame. It means one thinks that their ideas, feelings, and opinions have worth. People with healthy self-esteem like themselves and value their achievements. An individual with high self-esteem is able to feel good about themselves and their life, as well as celebrate their strengths, difficulties, and limitations. The hostel environment makes them more capable and develops the capacity to make decisions. Results are supported by Mishra (2017), as the findings suggested that hostellers have better self-esteem as compared to non-hostellers. Hostel residents have a more positive outlook than non-resident students and are more self-

assured, self-efficient, and determined (Kumar & Shastry, 2019). Similarly, Shehzadi, Farwa, and Yousaf (2019) reported that hosteller students are talkative, gregarious, self-confident, energetic, determined, and communicative as compared to day scholar students. The result is also in line with Kapoor and Sethi (2024), they found that hostellers have a high level of self-esteem as compared to day scholars. Thus, the first hypothesis i.e., “There would be a significant difference among hostellers and day scholars female students on Self-Esteem” has been accepted. The scores of mental health female hostellers and day scholars are represented in the given tables.

**Table 2**  
**Mean, S.D. and t-value of various sub-scales of mental health among hostellers and day scholars female students.**

Variable	Hostellers	Day scholars	t-value
Anxiety	30.33±6.55	32.08±6.51	1.46
Depression	13.92±4.50	14.48±6.14	0.58
Loss of behaviour/ emotion control	25.37±5.97	24.87±8.45	0.37
General positive affect	37.33±5.86	30.87±7.63	3.64**
Emotional ties	7.97±2.88	7.42±2.89	1.04
Life satisfaction	3.47±1.44	3.07±1.46	1.51

Values expressed as Mean ± 1SD

\*\*Significant at 0.01 level.

Table no. 2 shows the difference between the female hostellers and female day scholars on six sub-scales of mental health. There is a non-significant difference on the five sub-scales of mental health namely “anxiety, depression, loss of behavioral/emotional control, emotional ties, and life satisfaction”. except one, i.e., general positive affect. The t-value shows that (3.64) there is a significant difference between hostellers and day scholars female students in general positive affect. The mean value of female hostellers on general positive affect is 37.33 and the mean value of female day scholars is 30.87. High mean value among hosteller female students indicates the general positive mental health among them. This may be attributed that female hostellers enjoyed their lives more as compared to day scholars. They manage their lives much better, feel relaxed, calm and feel free from tension and able to develop strong social connections. They also have more opportunities for collaborative learning and peer support as well as they adapt quickly to diverse social situations family members take all the responsibility. They generally enjoy the things as they want. Kawachi and

Berkman (2001) also found a strong association between social connectedness and positive mental health outcomes.

**Table 3**

**Mean, S.D. and t-value of psychological distress and psychological well-being of hostellers and day scholars female students.**

Variable	Hostellers	Day scholars	t-value
Psychological-distress	83.62±6.09	36.80±18.27	18.83**
Psychological-well-being	51.60±14.40	86.28±16.45	12.28**

Values expressed as Mean ± 1SD

\*\*Significant at 0.01 level.

Further from table 3, it has been clear that on psychological distress, day scholar female students scored 36.80 mean and hosteller female students scored 83.62, the t-value (18.83) shows a significant difference among them. It clearly indicates that female students who lives in hostel have more psychological distress as compared to the day scholars. This may be due to that they are not able to get a reliable person to share their problems and not able to get genuine suggestion or help. They have to take responsibility for everything, manage their life independently which creates more stress among them specially when they have to take any important decision. Sometimes they do not do those things as they want to do and they also feel pressure to prove themselves. So, they feel more psychological stress as compared to female day scholars. Kadam and Dobhal (2024) found that mental health of female students living in hostel is affected. The results also revealed that out of 151 individuals, 33% of the population experienced stress, 54% experienced anxiety, and 47% experienced depression. Ahad, Chahar, Haque, Bey, Jain, and Raja (2021) found that students staying in hostels have high prevalence of stress, anxiety and depression than those living with family. Further, day scholars also score high on psychological well-being with a mean score of 86.28, and hostellers score 51.60, which shows a significant difference between them. High mean value among day scholar female students indicates that they have better psychological well-being than female hostellers. It clearly indicates that female day scholar students are happier and more satisfied in their lives. This may be due to that they feel unconditional support from their family members. They have much liberty and independence in a secure environment. They enjoy their life with friends along with family members. They get the genuine opinion and support in the hour of need which help them to take the right decision. The present findings is in accordance with Kaur (2025) that day scholars experienced more stable routines and better social ties which results better well-being whereas hostel students

experienced more emotional pain due to homesickness, loneliness, and a lack of family support. Shakeel, Shakeel and Fatima (2015) which concluded that the day scholar students are more satisfied with life (Psychological well-being) and had improved quality of life as compared to hostel students.

**Table 4**

**Mean, S.D., and t-value of the mental health index of hostellers and day scholar female students.**

Variable	Hostellers	Day scholars	t-value
Mental health index	144.70±37.863	164.80±26.991	3.35**

Values expressed as Mean ± 1SD

\*\*Significant at 0.01 level.

It is evident from table 4 that there is a significant difference between hostellers and day scholars as the t value is 3.35. Result shows that day scholar female students obtained a high mean value which indicates that day scholar female students have a better mental health than female hostel students. This may be due to the fact that they have someone to share their stresses and they can discuss the conflicting situation at any time with their family members. That could be attributed to love, support, secured environment and care they get on time from family members. The present result is in accordance with Thoits (2011) that when comparing day scholar students to hostel students, the day scholar students have greater mental health and perceived social support. Result is also synchronized with Preetkamal and Bhat (2023) which revealed that Day scholar students tend to have higher levels of social support and better mental health than hostellers, while hostellers students tend to have higher levels of stress, anxiety, depression, and low levels of social support. Thus the present findings proved the second hypothesis.

To sumup, female hostellers have high self-esteem; however, they have experienced psychological distress. On the other side day scholar female students have better mental health than female hostellers. The study highlights that while both groups encounter unique environmental stressors, the availability of emotional support, quality of living conditions, and opportunities for social interaction play critical role in shaping their mental health and self-esteem.

The results have important implications for educational institutions, mental health professionals, and policymakers, as many students in educational institutions live in hostels or commute as day scholars, each facing distinct challenges due to their living arrangements. These challenges can affect their academic performance, self-esteem, and overall mental well-being. So there is a need to identify the unique psychological

and emotional needs of female students residing in hostels, as the findings can be implicated in designing targeted mental health programs, enhancing student support services, and informing institutional policies to foster a more supportive academic environment. The results also imply that there is a great need to develop a positive and interactive environment to nurture self-esteem among female day scholar students. There is also a strong need to develop the personal empowerment skills which helps them to manage their lives by themselves. It would help female students to make more mature and responsible. This would also help them to take the appropriate decision which give a right direction to their lives. By providing counseling services and peer support programs can also help in addressing emotional and social challenges they face. These all would definitely enhances their self esteem and mental health.

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## **Void and Voidable Marriages under Hindu Law: A Contemporary Legal Analysis**

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### **Abstract**

Prior to the enactment of the Hindu Marriage Act in 1955, the legal framework governing Hindu law permitted males to partake in polygamous unions. The legal status of marriage within the Hindu community experienced a significant transformation following the enactment of this legislation. In accordance with Section 5 of the Act, it is stipulated that there exist five fundamental criteria that must be satisfied for a marriage to be deemed legitimate. Any marriage occurring subsequent to the enactment of the Act that fails to adhere to the stipulations outlined in paragraphs (i), (iv), or (v) of Section 5 shall be deemed invalid and nullified. This entire matter is in accordance with the stipulations outlined in Section 11. In order to formally establish the nullification of the marriage, either party may seek a declaration of nullity. A Hindu marriage may be deemed null and void based on four distinct conditions as stipulated in the Act. This provision is applicable to matrimonial ceremonies that occurred both prior to and subsequent to the enactment of the legislation. In the absence of a court order that explicitly nullifies a marriage deemed legally voidable, such a marriage retains its legal validity. It is imperative to underscore that, in accordance with established legal standards, offspring resulting from void or voidable marriages are deemed legitimate. Both categories of marriages are recognised as lawful from their inception; however, a voidable marriage may be declared void upon challenge and subsequent dissolution by a court of competent jurisdiction. In contrast, an invalid ab initio marriage is deemed to lack any legal existence whatsoever.<sup>1</sup>

**Keywords:** Void Marriage, Voidable Marriage, Bigamy, Annulment Customary Practice, Consanguinity, nullity.

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<sup>1</sup> A. Ghosh, Marriage in Hindu Law: From Sacrament to Contract, Calcutta Law Journal, Vol. 76, 2003, pp. 95-109

## Introduction

In accordance with legal stipulations, a Hindu marriage is characterised as a consensual union exclusively between one man and one woman, thereby precluding the involvement of additional parties. According to traditional Hindu scriptures, it is posited that a man's corporeal existence is deemed incomplete in the absence of a woman. In the perspective of the Vedic society, marriage transcended mere social or physical agreements; it constituted an essential and revered obligation. From an individual's religious standpoint, there exists significant value in the institution of marriage and the procreation of a male offspring. According to the stipulations of Vedic law, the marriages categorised as Brahma, Prajapatya, Arsha, and Daiva represent the sole types that are permissible for legal finalisation. The Brihadaranyaka Upanishad delineates that the institution of marriage constitutes a revered connection between two individuals, transcending the temporal realm and extending into subsequent existences.<sup>2</sup>

The Allahabad High Court underscored in the matter of *Gopal Kishan v. Mithilesh Kumar* that the institution of Hindu marriage is primarily characterised as a sacrament, rather than being classified as a social or legal transaction. The framework of Hindu marriage is characterised by three fundamental principles: the inherent inseparability of the spouses, the execution of sacred rituals, and the enduring nature of the marital union.

The traditional perspective underwent significant alteration as a result of the enactment of the Hindu Marriage Act in the year 1955. The emphasis transitioned from sacramental considerations to legal matters upon the establishment of five fundamental elements requisite for a legitimate Hindu marriage. The amendment enacted in 1976, which was critical in formally instituting the requirement for permission, further reinforced this modification. The court, in the case of *Muthusami v. Masilamani*, acknowledged marriage as a revered institution, characterised as a contract that entails mutual rights and obligations, as well as a legally binding agreement. Notwithstanding its origins in religious tradition, Hindu law acknowledges marriage as a dual entity, encompassing both a sacred ceremony and a legally enforceable agreement. Furthermore, it represents the sole Sanskar within Hinduism that is exclusively designated for women, underscoring its significant relevance in the life of a woman. The elements of the contract as delineated within the existing legal framework are duly recognised.<sup>3</sup>

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<sup>2</sup> Ratna Kapur and Brenda Cossman, *Subversive Sites: Feminist Engagements with Law in India*, Sage Publications, 1996, p. 105.

<sup>3</sup> R. Dhanda, *Legal Framework of Marital Breakdown*, *Journal of Law and Society*, Vol. 17, 2004, pp. 25-40.

**CONDITION FOR VALID HINDU MARRIAGE:**

Section 5 of the Hindu Marriage Act, 1955 delineates the five requisite conditions that must be satisfied for a marriage among Hindus to be deemed valid. The aforementioned conditions carry considerable legal ramifications.

In accordance with the stipulations outlined in Section 5(i), it is imperative that neither party be in a state of existence at the time the marriage ceremony is conducted. This section of the Hindu marriage code underscores the principle of monogamy and explicitly prohibits the practice of bigamy. The second marriage is considered null and void pursuant to Section 11 in the event that one of the parties is currently in a marital union.

Section 5(ii) pertains to the second prerequisite, specifically concerning the mental health and consent of the individuals involved. At the time of the marriage ceremony, it is imperative that both parties exhibit mental soundness and possess the requisite competence to furnish their lawful consent.<sup>4</sup>

Individuals should not be precluded from entering into marriage or procreating due to mental health conditions, irrespective of their capacity to provide informed consent.

Individuals should not exhibit a consistent history of epilepsy or mental instability.

This guarantees that both parties possess the requisite mental capacity to comprehend and fulfil their responsibilities as spouses.

Marriage is deemed valid solely upon the fulfilment of the third criterion enumerated in Section 5(iii). It is required that the bride attains the minimum age of 18 years, while the groom must reach the age of 21 years, in order to fulfil the legal criteria for marriage. While the marriage retains its legitimacy, the wife may have the opportunity to pursue a divorce contingent upon specific circumstances should this condition be breached, potentially resulting in the penalties delineated in Section 18.<sup>5</sup>

In accordance with the stipulations outlined in the fourth criterion (Section 5(iv)), marriage is expressly prohibited between individuals who fall within the degrees of forbidden relationships, unless there exists a recognised tradition or usage that permits such unions. All partnerships established through full, half, or uterine blood relations, irrespective of their legal status, in addition to those arising from adoption or blood connections, are hereby classified as prohibited.

The stipulations for a practice to attain approval as authentic are delineated in Section 3

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<sup>4</sup> Satyajeet A. Desai, *Mulla's Principles of Hindu Law*, LexisNexis, 2020, p. 487.

<sup>5</sup> P. Narayan, *Validity of Hindu Marriages: Legal Interpretation and Social Reality*, *Indian Law Journal*, Vol. 42, 2000, pp. 120-138.

of the Act. The Punjab High Court has delivered a ruling in the case of Smt. Shakuntala Devi v. Amar Nath, indicating that established customary procedures may serve to validate a marriage that is otherwise prohibited due to consanguinity restrictions.

Clause 5(v) delineates restrictions pertaining to the capacity of sapindas to consolidate, absent any exemptions as stipulated by customary law. In accordance with the provisions outlined in Section 3(f), it is established that the maximum duration of sapinda connections is limited to the third and fifth generations of both maternal and paternal lineages.<sup>6</sup>

The marriage shall be deemed invalid in the absence of an established custom that permits the union of individuals possessing sapinda connections. In instances where a practice has demonstrated longevity, has become firmly established, and possesses a rational basis, it is classified as legitimate. One cannot arrive at a conclusion through mere assumptions or comparative analysis; it is imperative to demonstrate the concept through consistent application over a designated period.<sup>7</sup>

The execution of wedding ceremonies holds significant importance, alongside the five aforementioned conditions. The Hindu Marriage Act, while not imposing specific ceremonial requirements, does permit the adaptation of ceremonies in accordance with local customs and traditions. The Saptapadi ceremony includes a significant component wherein the couple engages in a seven-step procession encircling the sacred fire. In accordance with certain established traditions, it is stipulated that the marriage shall not be deemed legally binding until the completion of the seventh step has been duly accomplished. It is important to note that Saptapadi is not mandated by the Act unless there exists a standard practice among the involved parties.<sup>8</sup>

## **VOID MARRIAGE**

Should any of the three conditions specified below fail to be satisfied, any marriage conducted subsequent to the enactment of the Hindu Marriage Act shall be considered null and void from the inception, as delineated in Section 11 of the aforementioned Act:

The marriage shall take place in the absence of any surviving spouses on both sides of the aisle.

The pair ought to be categorised as possessing an unauthorised level of association

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<sup>6</sup> Jaya Sagade, *Child Marriage in India: Socio-Legal and Human Rights Dimensions*, Oxford University Press, 2005, p. 144.

<sup>7</sup> Anuradha Saibaba, *Void Marriages and Children's Rights under Indian Law*, *Journal of Family Law and Policy*, Vol. 3, 2015, pp. 37-52

<sup>8</sup> Indira Jaising, *Marriage, Divorce and the Law: A Feminist Perspective*, *Lawyers Collective*, Vol. 14, 2009, pp. 5-16

contingent upon the permissibility of such a union within their respective traditions.

In the absence of a recognised and established tradition that delineates alternative specifications, it is not permissible for individuals to be classified as blood relatives.

In accordance with the ruling issued by the Supreme Court in the case of *M.M. Malhotra v. Union of India*, it is established that marriages which are in violation of Section 11 are deemed void ab initio. This designation indicates that such marriages are considered unlawful from their inception and may be disregarded in a legal context without the necessity for judicial proceedings.<sup>9</sup>

The act of bigamy arises as a result of non-compliance with the primary stipulations set forth in Sections 494 and 495 of the Indian Penal Code. Marriages that fail to meet the second or third criteria are subject to penalties, which may include fines, imprisonment, or a combination thereof, as delineated in Section 18 of the Act.

It is imperative to acknowledge that the initial marriage of an individual cannot be deemed null and void if the individual enters into another marriage while the prior marriage remains in effect. The only spouse authorised to present such a declaration is the individual who entered into matrimony with the person while his initial marriage remained valid under the law.

In accordance with legal stipulations, a marriage is deemed to have never taken place upon the issuance of a declaration of nullity and invalidity. The union between the parties involved does not give rise to any further legal implications, as they do not possess the legal status of husband and wife. The issuance of a formal declaration of nullity is deemed unnecessary for the aforementioned marriages, given their absence of legal legitimacy. Nonetheless, it is possible to secure a declaration of nullity if deemed necessary.

## **VOIDABLE MARRIAGE**

A judicial ruling has the potential to dissolve a Hindu marriage, contingent upon the fulfilment of specific conditions as delineated in Section 12 of the Hindu Marriage Act. The aforementioned justifications hold validity irrespective of whether the marriage occurred prior to or subsequent to the enactment of the Act. This document will outline the four primary grounds upon which a marriage may be deemed null and void. In the initial scenario, the respondent's infertility results in an unfulfilled marriage. The second scenario pertains to the respondent's mental illness or inability to furnish genuine consent during the course of the marriage<sup>10</sup>. The third justification pertains to

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<sup>9</sup> Archana Parashar, *Women and Family Law Reform in India*, Sage Publications, 1992, p. 88.

<sup>10</sup> A. Mukherjee, "Void and Voidable Marriages in India: A Comparative Study," *Indian Bar Review*, Vol. 32, 2005, pp. 51–69

instances wherein the consent of the petitioner, or that of a legal guardian in situations where such consent was not feasible prior to the 1978 amendment of the Child Marriage Restraint Act, was obtained through fraudulent means or coercion. In instances where the individual in question possessed an unborn child from a prior relationship during the course of their marriage, the fourth premise is deemed applicable.<sup>11</sup>

Nonetheless, these justifications are not devoid of certain constraints. In the third instance, it is important to note that a petition shall not be deemed acceptable if it is submitted beyond a one-year period following the conclusion of the force or subsequent to the identification of fraud. Should the petitioner persist in cohabitation with the respondent in the capacity of a spouse subsequent to gaining knowledge of the deception or following the cessation of the coercive conditions, their entitlement to pursue annulment on these grounds shall be rendered null and void. Furthermore, in order for the fourth ground to be deemed valid, it is imperative that the petitioner was not cognisant of the pregnancy at the time of marriage. The petition must be submitted within a one-year timeframe following the marriage, or prior to the commencement of the Act, contingent upon the specific timing involved. Additionally, it is essential that the petitioner abstains from engaging in marital intercourse with the respondent subsequent to acquiring knowledge of the pregnancy.<sup>12</sup>

Impotence may serve as a basis for the annulment of a marriage, as delineated by legal definitions and judicial rulings. In instances where one spouse exhibits a physical incapacity that precludes the possibility of engaging in sexual relations, it may be determined that the marriage is subject to consideration as null and invalid or potentially voidable, as delineated in Wharton's Law Lexicon. The failure to achieve an erection is identified as a primary factor contributing to the failure of consummation within the context of marriage, as referenced in Black's Law Dictionary. A spouse is deemed legally impotent if they are incapable of fulfilling their marital duties through the act of complete sexual intercourse. The observed inability to achieve consummation may be attributed to various psychological or emotional impediments, in addition to potential permanent anatomical issues pertaining to the sexual organs.<sup>13</sup>

Impotence was required to be demonstrated at the time of marriage and maintained subsequently in accordance with the previous legal framework. The amendment to the Hindu Marriage Act in 1976 established that the nullification of a marriage on the

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<sup>11</sup> Asha Bajpai, *Child Rights in India: Law, Policy, and Practice*, 3<sup>rd</sup> edn, Oxford University Press, 2017, p. 97

<sup>12</sup> Faizan Mustafa, *Bigamy and Personal Law: A Critical Examination*, *Aligarh Law Journal*, Vol. 19, 2007, pp. 112-126

<sup>13</sup> Anjali Srivastava, *Void Marriages and Public Morality in Indian Courts*, *Indian Legal Review*, Vol. 3, No. 1, 2018, pp. 19-34

grounds of impotence is not permissible if the condition is subsequently addressed through surgical intervention or alternative means. This point warrants significant attention and consideration. This adjustment suggests a systematic approach to evaluating both the curability and the durability of the disease in question. A comprehensive examination of this aspect has been provided through judicial interpretations. In the case of *Jyotsnaben v. Pravin Chandra*, it was determined that the absence of a uterus, the lack of a menstrual cycle, and the presence of a structural deformity in the vaginal region rendered sexual intercourse unfeasible. Consequently, the court upheld the judgement of nullity.<sup>14</sup>

Additionally, in the assessment of an individual's legal marital status, it is pertinent to evaluate not solely their physical limitations but also the degree to which their mental or emotional state influences their capacity to fulfil the responsibilities associated with their marriage. Subsequent to a cohabitation period of 17 days with her spouse, the individual in the case of *Prulose v. Mary* expressed a refusal to engage in sexual relations and articulated her intention to pursue a vocation as a nun. Due to this hesitance, it was determined that the fulfilment of consummation, an essential obligation within the institution of marriage, would be exceedingly challenging to achieve. The court has rendered a decision declaring the marriage to be null and void.<sup>15</sup>

In certain relationships, it is observed that one partner may exhibit a high level of sexual capability, whereas the other partner may experience challenges related to sexual potency. In reference to the judicial commentary provided in the case of *Jagdish Lal v. Shyama*, it is noted that an individual may possess the physical capacity for engaging in sexual relations broadly; however, this capability may not extend to interactions with their specific spouse. Provided that the marital union remains intact, this circumstance shall be classified as impotence.<sup>16</sup>

The condition of unsoundness of mind constitutes one of the specific grounds enumerated in Section 12(1)(b) that may render a marriage null and void. It is imperative that both parties possess sound mental faculties at the time of entering into matrimony, as delineated in Section 5(ii). A marriage may be deemed invalid due to mental incapacity under three additional conditions incorporated into this Article in 1976. In the initial scenario, the presence of a mental disability inhibits one party from providing valid consent. The subsequent scenario pertains to an individual who is officially deemed unqualified for the institution of marriage or the act of procreation

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<sup>14</sup> Anand, *Hindu Law and Uniform Civil Code*, Deep and Deep Publications, 2005, p. 122.

<sup>15</sup> A. Ramaswamy, *Matrimonial Remedies in India: Contemporary Challenges*, *Indian Journal of Law and Society*, Vol. 8, 2017, pp. 50-66

<sup>16</sup> Parashar, *The Hindu Marriage Act and Gender Justice*, *Journal of the Indian Law Institute*, Vol. 36, 1994, pp. 141-160.

due to a significant mental health condition that renders them incapable of furnishing informed consent. Individuals with a history of multiple instances of insanity fall under the purview of the third condition.<sup>17</sup>

The certification provided by a physician does not adequately establish the presence of a qualifying mental condition. Upon thorough examination of the pertinent information, it is the determination of the court that the condition in question significantly restricts the individual's capacity to engage in a marital relationship or to procreate.<sup>18</sup>

### **CONSENT OBTAINED BY FORCE AND FRAUD**

In accordance with the provisions outlined in Section 12(1)(c) of the Hindu Marriage Act, it is stipulated that a marriage shall be deemed null and void in instances where the assent of the petitioner or guardian has been procured through fraudulent means or coercion. The Child Marriage Restraint (Amendment) Act of 1978 has been instrumental in diminishing the incidence of child marriage through the elevation of the legal marriage age for females to eighteen years. Regardless of the geographical location of the couple, be it rural or urban, it is often requisite to obtain the consent of their respective parents or guardians for the facilitation of an arranged marriage in India.<sup>19</sup>

The matter concerning *Gursharn Singh v. Surjit Kaur*<sup>20</sup> involves a juvenile who was compelled by his maternal figure to enter into matrimony with an individual aged 31 years. The individual in question has reached the age of fifteen years. The court has reached a determination that the marriage in question is deemed null and invalid as a result of the presence of compulsion. In a similar context, the Madhya Pradesh High Court elucidated in the matter of *Nand Kishore v. Smt. Munni Bai* that the concepts of "force" and "fraud" are relevant in instances where genuine consent is absent. The designation "force" within the framework of marital law encompasses not solely physical aggression but also extends to psychological manipulation or intimidation.

The legal characterisation of "fraud" within the context of marital law is distinctly articulated and meticulously outlined. The assertion fails to include prevalent occurrences of misrepresentation or the withholding of essential information, except in cases where the deceit has a direct impact on consent. Fraud is characterised as a deliberate act of deception that compromises authentic agreement, as outlined in

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<sup>17</sup> Sakshi Khosla, *Restitution of Conjugal Rights and Void Marriages*, Indian Journal of Constitutional Law, Vol. 11, 2019, pp. 102-119

<sup>18</sup> Radhika Coomaraswamy, *Gender and Law: South Asian Experiences*, Sage Publications, 2001, p. 161

<sup>19</sup> Ayesha Malik, *The Concept of Voidable Marriage in Muslim Personal Law, Islamic and Comparative Law Review*, Vol. 9, 2013, pp. 21-37

<sup>20</sup> *Gursharn Singh v. Surjit Kaur*, AIR 1986 P&H 28

Section 17 of the Indian Contract Act. For instance, an individual may choose not to reveal the presence of amenorrhoea, the completion of a vasectomy, or the occurrence of uterine prolapse prior to the institution of marriage. All of the aforementioned scenarios are deemed misleading if they compromise the foundational elements of an individual's consent to enter into matrimony.<sup>21</sup>

The established legal precedent in cases such as *Scott v. Sebright*<sup>22</sup> and *Rice v. Rice* indicates that the application of physical force, inclusive of the implied threat of a handgun, to secure an individual's consent to enter into marriage is classified as coercion. As a result, it is possible to formally assert that the marriage is null and void. In accordance with the provisions outlined in Section 12 of the Act, it is established that a marriage may be deemed unlawful if it is determined that fraud or coercion was involved in its formation.<sup>23</sup>

### **PREGNANCY OF THE WIFE AT THE TIME OF MARRIAGE**

In accordance with Section 12(1)(d) of the Hindu Marriage Act, a marriage may be considered null and void if it is established that the respondent was in a state of expectancy with an individual other than the petitioner at the time the marriage was solemnised. For the basis of this annulment to be valid, three specific conditions are required to be satisfied: firstly, the petitioner must demonstrate a lack of awareness regarding the pregnancy at the time of the marriage; secondly, the petition for annulment must be submitted within a one-year timeframe following the marriage; and thirdly, the petitioner must not have participated in any marital relations with the respondent subsequent to becoming aware of the pregnancy. In accordance with the provisions outlined in Section 12(1)(d), it is pertinent to note that this section is relevant in circumstances where the female party acknowledges her expectant status prior to the matrimonial union, and the male party was not informed of her condition prior to the ceremonial proceedings, as interpreted by the Supreme Court. This provision does not constitute a legitimate foundation for annulment in instances where the husband was unaware of the wife's immoral conduct prior to the marriage.

### **LEGITIMACY OF CHILDREN OF VOID AND VOIDABLE MARRIAGE**

When the Bharatiya Sakshya Adhinyam, 2023 (BSA) took effect in 2024 and 2025, it substantially altered the legal system in India by replacing the Indian Evidence Act of 1872. During this era, the Bharatiya Nagarik Suraksha Sanhita, 2023 (BNSS) and the Bharatiya Nyaya Sanhita, 2023 (BNS) were also put into effect. A child's validity status when born into a marriage and the presumption of legitimacy for children born into

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<sup>21</sup> Anjani Kant, *Women and the Law*, APH Publishing, 2008, p. 212.

<sup>22</sup> *Scott v. Sebright*, (1886) 12 PD 31 (UK case, used in Indian context for consent under force)

<sup>23</sup> S. Sivakumar, *Hindu Marriage Act: A Conceptual Analysis*, NLSIU Journal, Vol. 5, 2016, pp. 23-41.

void or voidable marriages are two areas where the revisions have made a significant impact. The earlier rule was put into place under the Indian Evidence Act's Section 112, but it is now part of the BSA's Section 118. As described in Section 16 of the Hindu Marriage Act, 1955, which has been subject to several judicial and interpretive modifications, the aforementioned matter is currently being investigated in light of the current statutory frameworks.

The basic legal presumption of legitimacy is upheld by Section 118 of the Bharatiya Sakshya Adhinyam, 2023, in compliance with the principles of the abolished Indian Evidence Act, Section 112. When a child is born within a legally recognised marriage between a male and a female, or within 280 days after the marriage is dissolved<sup>24</sup>, as long as the mother hasn't remarried, the child is conclusively recognised as the legitimate progeny of the male, according to Section 118. Presenting strong, convincing, and unambiguous evidence that supports the total physical impossibility of access is the only way to challenge the strong presumption. In recent instances like *Nandlal Wasudev Badwaik v. Lata Nandlal Badwaik* (2014)<sup>25</sup> and *Dipanwita Roy v. Ronobroto Roy* (2015), judges have used DNA evidence to question the assumption. In situations when DNA testing clearly disproves claims of paternity, the results highlighted the significance of scientific truth replacing outdated assumptions.

By permitting courts to accept scientific evidence, the BSA and modern forensic and DNA procedures recognise the progress in the justice system, while maintaining the language linked with conclusive presumption<sup>26</sup>. Courts now have the authority to require DNA testing in appropriate cases, as stated in Article 21, which deals with the rights to dignity and equitable legal identity for both the offender and the minor.

The continued significance of Section 16 of the Hindu Marriage Act, 1955 within the criminal law framework that is anticipated to be put into place after 2023 is shown by an examination of said section. If the marriage was real, then any child produced from it would be lawful under Section 16's sub-section (1), even if the marriage is deemed null and void under Section 11. By doing so, we protect children from having to answer for their parents' marital status. In accordance with the Marriage Laws (Amendment) Act, 1976, the child's legitimacy is upheld regardless of when they were born. Offspring of invalid marriages have traditionally been associated with social shame and legal constraints; the proposed amendment seeks to remove this.

To the extent specified in subsection (2), the protection measures extend to any children born of marriages that have been ruled voidable and later annulled under

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<sup>24</sup> R. Bhargava, "Legitimacy of Children in Void Marriages," *Journal of Family Law*, Vol. 5, 2016, pp. 45–62.

<sup>25</sup> *Nandlal Wasudev Badwaik v. Lata Nandlal Badwaik*, (2014) 2 SCC 576

<sup>26</sup> Tahir Mahmood, *Principles of Hindu Personal Law* (3rd ed., Universal Law Publishing, 2019)

Section 12. A child's status that was formed or born before the nullity decision was issued will be unaltered in such a circumstance. All things considered, these kids are the legal heirs to a valid marriage<sup>27</sup>, even if it ended in divorce. To protect children from the effects of parental marital problems or inadequacies, the requirements are in line with the constitutional goals of equality and dignity.

It must be noted that subsection (3) imposes a specific restriction. It is made clear in subsections (1) and (2) that minors are not allowed to own any property that does not belong to them or their parents. Even while personal law and social status are acknowledged, this regulation makes sure that the rights of succession, which go beyond the biological parents, are maintained. However, it must be noted that these children cannot legally claim anything that belongs to their extended family or coparceners in a Hindu joint family; the court has already decided that they can only inherit things that are either their parents' or their own.

The Supreme Court's decision in 2023 addressed the matter at stake by affirming that children born of marriages that are considered invalid or voidable are entitled to a share of their parents' assets. According to the Mitakshara coparcenary framework, this encompasses the parental stake in ancestral property. But it must be noted that they cannot inherit the coparcenary in its entirety immediately, as their validity under Section 16 does not affect the pre-existing line of succession or the structure of the Hindu Undivided Family (HUF)<sup>28</sup>. Even though legality ensures that people will inherit property from their ancestors, it does not give coparcenary rights by definition.

In order for Section 16 to be applicable, a marriage must have taken place between the parents, regardless of whether the marriage is later declared null or voidable. This is supported by many court decisions that have continuously rejected the idea of providing legitimacy advantages to children born out of partnerships that do not have any kind of legal or informal marriage framework. Children born of cohabitation or extramarital encounters are thus not recognised by Section 16 unless some kind of marital appearance is present. This limiting interpretation provision prevents Section 16 from becoming an all-encompassing legitimacy clause and keeps it tightly linked to the institution of marriage notwithstanding its restrictions.

Comparing Section 118 of the BSA with Section 16 of the Hindu Marriage Act reveals two different views on the legality of offspring. Unlike the latter, which grants legitimacy to children born of unrecognised marriages, the former presumes that a

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<sup>27</sup> Kusum, "Hindu Marriage and its Legal Relevance," *ILI Law Review*, 2008

<sup>28</sup> Flavia Agnes, "Marriage, Divorce and Matrimonial Remedies in India: Issues and Challenges," *National Law School Journal*, Vol. 4, 2010.

marriage is legitimate since it is recognised by law<sup>29</sup>. Collectively, they represent the harmonious integration of social justice ideals with the established legal frameworks. While the BSA upholds the conventional method of determining legitimacy by means of the marital presumption, the acceptance of DNA evidence by the judiciary serves to temper this. By ensuring the preservation of values connected to succession and property law and by offering dignity and acknowledgement to children born from invalid or voidable marriages, the Hindu Marriage Act seeks to reinforce the present legal system.

Recent changes and court rulings show an unwavering commitment to maintaining legitimacy, even in the face of marital status complications, and an increasing acknowledgement of children's rights. To ensure the continuation of family ties and inheritance rights, the aforementioned protections are carefully droughted. The developed legal requirements for 2025 show that Indian personal law and evidence law are seen from a modern viewpoint. This framework stands out because to its balanced and progressive approach, which puts the needs of children first while also stressing the importance of clear legal guidelines.<sup>30</sup>

## CONCLUSION

A void marriage is characterised by its absence of legal recognition, considered null and invalid from the inception. This particular form of marriage lacks legal acknowledgement and is deemed to be non-existent. The determination of validity or legalisation must not be exclusively dependent on the agreement of the parties concerned or any actions taken thereafter. A voidable marriage is acknowledged as having legal validity and continues to be in effect until such time as a court provides an annulment. This particular form of marriage is acknowledged as valid in accordance with established legal standards, remaining so until such time as a court order is issued to nullify it.<sup>31</sup>

In order to ascertain the validity of a marriage pursuant to the provisions outlined in the Hindu Marriage Act, it is imperative that certain criteria be duly satisfied. In the event that any of the stipulations enumerated as (i), (iv), or (v) within Section 5 of the Act are contravened, the marriage shall be deemed null and void pursuant to the provisions set forth in Section 11. The outlined circumstances relate to situations wherein an individual is presently wed to a living partner while seeking to enter into an additional

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<sup>29</sup> A. Mukherjee, "Void and Voidable Marriages in India: A Comparative Study," *Indian Bar Review*, Vol. 32, 2005, pp. 51–69.

<sup>30</sup> R. Bhargava, *Legitimacy of Children in Void Marriages*, *Journal of Family Law*, Vol. 5, 2016, pp. 45–62.

<sup>31</sup> Shikha Chhibber, *Consent and Marriage Laws in India: A Critical Appraisal*, *Journal of Legal Studies*, Vol. 10, 2016, pp. 22–35

matrimonial arrangement (bigamy), cases where the parties involved possess prohibited familial connections, or instances concerning sapindas (close blood relatives) who do not possess the requisite customary approval for such a union. The validity of the marriage is contingent upon the fulfilment of these specific criteria; failure to meet such requirements may result in the marriage being deemed invalid and lacking legal standing.

In contrast, Section 12 of the Act delineates the specific conditions under which a marriage may be deemed null and void. A marriage that is classified as voidable may be subject to annulment under particular conditions. These conditions encompass instances in which one party is incapable of providing valid consent due to mental incapacity, or when the marriage was established through coercion or deceit. Nonetheless, a marriage that has not undergone annulment through a formal decree and remains unchallenged in a judicial setting is regarded as valid in accordance with legal statutes, thereby creating a recognised marital relationship between the parties involved.

The differentiation between void and voidable marriages is of significant importance in ascertaining the legal status of the parties concerned. Upon the declaration of nullity of a marriage, the parties concerned do not attain the legal designation of husband and wife, thereby maintaining their status as unmarried individuals. Consequently, they do not incur the legal obligations or advantages that are associated with a formally acknowledged marriage. The absence of legal acknowledgement as a spouse signifies that an individual in a void marriage is not entitled to maintenance from the male counterpart in accordance with matrimonial legislation. The lack of legal acknowledgement leads to the absence of rights and responsibilities that are ordinarily linked to such a partnership.

It is essential to acknowledge that neither party is subject to any legal impediments in seeking to enter into a marriage with another individual, thereby underscoring a notable legal implication of a void marriage. A subsequent marriage undertaken by either party shall not be categorised as bigamous and will not incur any criminal repercussions under bigamy regulations, as the marriage is deemed void from its inception. A subsequent marriage does not constitute a violation of legal statutes, given that the initial marriage is regarded as null and void in terms of its legal status.<sup>32</sup>

A voidable marriage is considered valid until such time as it is annulled, thereby creating a spousal relationship between the involved parties. This indicates that the parties involved are officially acknowledged as spouses, thereby conferring upon them

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<sup>32</sup> R. Bhargava, "Legitimacy of Children in Void Marriages," *Journal of Family Law*, Vol. 5, 2016, pp. 45–62.

all legal entitlements and obligations pertinent to a lawful marriage, unless otherwise adjudicated by a court of law. This includes the statutory responsibilities associated with cohabitation and the provision of reciprocal support, the acknowledgement of offspring resulting from the partnership, and the entitlement to pursue maintenance claims.<sup>33</sup>

The established legal framework delineates the distinctions between void and voidable marriages, thereby fostering procedural clarity and safeguarding individual rights. A marriage that is deemed void is classified as fundamentally flawed, resulting in an absence of legal acknowledgement. It is important to note that a voidable marriage may still encompass elements of consent and adhere to a range of formal requirements; however, these aspects may be influenced by particular defects or irregularities that arise in the process. The legal framework provides the involved parties in a voidable marriage with the option to seek judicial intervention, which may lead to either the correction or termination of the marriage, contingent upon the particular circumstances presented.<sup>34</sup>

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<sup>33</sup> S.C. Tripathi, *Law Relating to Women and Children*, 4<sup>th</sup> edn, Central Law Publications, 2017, p. 156.

<sup>34</sup> S. Radhakrishnan, *Valid and Invalid Marriages in India: A Critical Analysis*, *Indian Journal of Legal Studies*, Vol. 10, 2015, pp. 19-37.

# Harnessing Artificial Intelligence and Open-Source Intelligence (OSINT) for Counterterrorism: Opportunities, Challenges, and Ethical Implications

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## Abstract

The integration of Artificial Intelligence (AI) with Open-Source Intelligence (OSINT) has significantly transformed modern counterterrorism strategies. This research paper explores how AI-driven technologies—such as machine learning, data analytics, and large language models (LLMs)—enhance the ability of intelligence agencies to detect, monitor, and respond to terrorist threats through public digital platforms. The study evaluates how AI tools enable real-time analysis of vast datasets from social media, messaging apps, and other open sources, thereby streamlining intelligence workflows, detecting anomalies, mapping terrorist networks, and identifying intent. A key focus is placed on the Reciprocal Human-Machine Learning (RHML) model, where human expertise complements AI capabilities to achieve nuanced and accurate threat assessment. Despite their potential, these technologies raise critical ethical concerns related to privacy, bias, regulatory oversight, and the risk of overreliance on automated systems. The paper discusses these dilemmas within the context of global legal frameworks such as the EU's GDPR and contrasts them with relatively lax oversight mechanisms in other jurisdictions. It also underscores the necessity of robust governance, cross-sector collaboration, and the development of analyst-friendly AI interfaces to maximize the potential of OSINT while preserving civil liberties. Ultimately, the study argues that the future of effective counterterrorism lies in the careful balance between technological innovation and human judgment, ensuring AI serves as a force multiplier rather than a substitute for critical thinking.

**Keywords:** Artificial Intelligence, Open-Source Intelligence, Counterterrorism, Ethics in Surveillance

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## Introduction

The information era has introduced unmatched obstacles to the espionage sector and security enforcement divisions, demanding a paradigmatic alteration in the manner evaluators function and how data is interpreted (Lowenthal, *Intelligence: From Secrets to Policy*, 2020). This inquiry evaluates the pivotal significance of cutting-edge digital methodologies in responding to these intensifying complications, with an emphasis on the gathering of Publicly Accessible Intelligence (PAI) through machine cognition-based interpretive mechanisms (Clarke & Knake, *Cyber War*, 2010).

The analysis reveals that machine learning, computational scrutiny, and integrative cognition frameworks possess immense promise in augmenting the proficiency of anti-terrorism intelligence specialists (Zegart, *Spies, Lies, and Algorithms*, 2022). Furthermore, the exploration underscores the necessity of a data amalgamation strategy by converging varied PAI origins to uncover militant conduct across diverse cyberspace layers, yielding discoveries that may remain obscured when scrutinized in isolation (Oselio, Kulesza, & Hero, 2015, in *Journal of the Franklin Institute*).

Employing an illustrative case of Salafist radicalism, this composition addresses the central investigative query: In what manner can espionage and enforcement entities proficiently synthesize and interpret PAI datasets to neutralize digital extremist operations through the application of sophisticated computational instruments?

Digital and Communicative Mechanisms (DCM) possess a noteworthy influence across every dimension of contemporary existence. DCM has transformed the methods by which individuals interact, retrieve data, engage in employment, facilitate commerce, and connect with governmental structures (Roztocki, Soja, & Weistroffer, 2019, *Information Systems Management*). Currently, within the epoch of Vast Information Streams, intelligence operations and security enforcement units are inundated with an overabundance of data requiring systematic interpretation.

To counteract this dilemma, high-value informational deliverables provide mechanisms for accumulating, discerning, validating, and amalgamating data assets (Yi, 2021, *International Journal of Information Management*). The fundamental responsibility of knowledge retrieval and assessment is confronted by immense possibilities alongside substantial impediments.

Availability of Public Intelligence Sources (PAIS) presents encouraging prospects for law enforcement authorities to apply non-intrusive acquisition of publicly available data without deploying aggressive digital tactics. It remains essential to maintain equilibrium between safeguarding communal confidentiality and preserving sovereign protection, all while upholding entitlements granted to the populace in terms of both individual security and personal anonymity (Solove, 2021, *Understanding Privacy*).

Among the foremost obstacles encountered by the espionage and public security sectors is the imperative to construct innovative mechanisms for extracting data from and overseeing the engagement with online portals, interactive environments, and software utilities (collectively termed ‘apps’); to prevent agitation leading to ideological extremism and violence; and to initiate anticipatory strategies to obstruct violent incidents (Cohen, 2015, *Cybersecurity and Cyberwar*). A superficial web inquiry is now insufficient to attain the requisite depth of insight and operational acumen.

An in-depth inspection of numerous digital interfaces—from encrypted messengers like Telegram and Signal to interactive social ecosystems—has now become the foundational prerequisite for any thorough inquiry. For instance, Wickr, a fully encrypted communication utility often employed by radical networks, was decommissioned in 2023 due to its recurring use in unlawful digital transactions (Harwell & Schaffer, 2024, *Washington Post*).

Despite the abundance of threat-centric knowledge retrieved by cybersecurity operatives and affiliated institutions, they continually encounter the escalating burden of surveilling behavioural trends on social communication systems, which are growing at an exponential rate (Chaudhry, 2017, *Exploring Cyber Crime*). The transnational dimension of militant operations necessitates comprehension of polylingual materials and the scrutiny of actors and collectives who exploit the veil of online anonymity to advance radical and militant agendas.

Harvesting pertinent material and subsequently conducting a layered analytical procedure on these entities is integral to crafting a comprehensive situational framework—a tool that can substantially assist both enforcement bodies and academic stakeholders in decoding such movements (Abbasi & Chen, 2005, *IEEE Intelligent Systems*).

Nonetheless, the moral complications stemming from the detection of dubious conduct in digital environments must be carefully addressed. Although Publicly Available Intelligence (PAI) outcomes can unquestionably aid in constructing insights into a potential individual of interest, the fact that any entity can generate and circulate open-access content mandates rigorous scrutiny of its trustworthiness and precision (Busser, 2014, *Policing in the Information Age*). For the purposes of legal inquiry, security and intelligence personnel implement validation frameworks and customarily guarantee that such intelligence is corroborated with supplementary evidentiary elements.

### **The Digital Transformation of Salafi Jihadist Extremism**

While numerous radical collectives have assimilated emerging technological mediums, the paradigm of Salafi-based violent extremism merits distinct academic focus. This

concentration originates from its unrivalled command over electronic communication interfaces and mobile software, constituting an integrated methodology that has revolutionised the ways in which violent organisations globally employ innovation to accomplish their strategic missions (Dover, 2020, *Terrorism and Digital Media*).

Dover classifies the digital militarisation of social interaction systems into three primary typologies: (1) the decentralisation of violence, (2) mass mobilisation, and (3) informational warfare. The first category entails antagonistic participants utilising interactive media to instigate disruption, defiance, or hostility, while opposing state mechanisms attempt to exploit structural vulnerabilities within these dynamics.

The second refers to orchestrated initiatives that operate at sub-national to national scales through online mobilising infrastructures. The third—information-based antagonism—addresses psychological and cognitive conflicts initiated by actors often linked to formal regimes or powerful interest coalitions.

Salafi-aligned militant groups have not only embraced but also re-engineered the brutal methods formerly applied by legacy terror cells during the contemporary epoch of social interaction and instant messaging platforms (Dover, 2020). Berger and Morgan (2015) conducted an in-depth investigation into the composition and activity of individuals on Twitter who expressed allegiance to the Islamic State, focusing on their demographic attributes, geographic dispersion, and participation in virtual propaganda efforts (The Brookings Project on U.S. Relations with the Islamic World). By analyzing a sample dataset of 20,000 pro-ISIS social media profiles, they constructed a sociotechnical framework characterizing supporters' digital behavior patterns.

The findings revealed that these extremist-aligned profiles maintained an average of 1,000 digital followers, considerably surpassing the engagement metrics of an ordinary Twitter account during that timeframe. Furthermore, such accounts demonstrated markedly elevated activity levels in comparison to neutral or non-radicalized users. Berger and Morgan also identified that a disproportionately influential minority, ranging between 500 and 2,000 hyper-engaged profiles, were responsible for strategically coordinated, high-frequency messaging bursts. These efforts significantly amplified the digital footprint of the group and boosted its attractiveness to potential adherents (Berger & Morgan, 2015, Brookings Institution).

In a complementary investigation, Klausen (2015) evaluated social media conduct of foreign combatants aligned with ISIS and determined that nearly 70% of their Twitter output consisted of retransmitted content rather than original statements. This dissemination model revealed a deliberate orchestration of messaging (Perspectives on Terrorism). Klausen's analysis exposed that content which appeared spontaneous or user-generated was in fact tightly moderated, combining benign imagery—such as pet

photographs—with disturbing depictions of violence to both normalize extremist ideology and incite psychological distress among adversaries.

In recent years, dominant digital corporations have intensified efforts to suppress radicalized digital behavior, compelling militant entities to adopt more inventive methods to sustain their operations while evading detection. Specifically, online service providers have begun deploying artificial intelligence mechanisms to intercept and eliminate extremist content from their platforms (Macdonald, Correia, & Watkin, 2019, International Centre for Counter-Terrorism).

Berger and Perez (2016) observed that the Islamic State's presence on Twitter underwent intermittent account suspensions. These disruptions stabilized the aggregate expansion of pro-ISIS online ecosystems while directly impairing the visibility and influence of frequently targeted propagandists (George Washington University Program on Extremism). As a result of this AI-driven enforcement, such organisations have gravitated toward a fragmented communication model, increasingly operating through distributed networks.

Despite the notable interventions by mainstream platforms—Facebook reported eliminating over 14 million items linked to ISIS and al-Qaeda in 2018, with 99% of them removed proactively (Rosen, 2018, \*Facebook Transparency Report)—the threat endures. YouTube, similarly, revealed that 98% of extremist video content removals stemmed from automated machine learning detection (Ayad, 2019, Global Network on Extremism & Technology).

Nevertheless, Ayad (2019) identified more than 77 Arabic-language media pieces glorifying prominent Islamist radical figures still accessible on platforms like YouTube and Facebook. These assets created a cross-platform multiplier effect, as supporters strategically redistributed them across ecosystems, thereby extending influence beyond the original medium. Ayad (2020) later reported that Facebook's internal data showed that from 2018 to 2020, around 26 million terrorism-related materials were detected and expunged pre-publication, though the residual 1% allowed an ecosystem of radical accounts to remain functional.

More specifically, the residual pro-ISIS online segment is composed of hundreds of active digital profiles, reaching audiences in the tens of thousands. These persistent nodes highlight the durability of networked extremists, the technical vulnerabilities they exploit, and the interoperability across platforms, even within a digitally adversarial landscape (Ayad, 2019).

Lakomy (2024) identifies a notable transformation in the strategies employed by the Islamic State to construct and perpetuate its messaging dissemination architecture, largely as a reaction to intensified content suppression initiatives. At the nucleus of this

ideological distribution mechanism lie three autonomous web domains—consisting of one centralized hyperlink repository and two digital archives of multimedia content (Lakomy, 2024, *Journal of Deradicalization*). These web interfaces function as operational hubs, extensively networked with an array of auxiliary platforms strategically crafted to attract and guide audiences toward primary communication conduits.

Nonetheless, ISIS has not entirely abandoned the exploitation of mainstream social platforms, as evidenced during the Vienna lone-actor incident in 2020. The group's media divisions increasingly rely on peer-to-peer data-sharing environments and encrypted digital messaging applications such as Telegram and Rocket Chat (Holloway, 2020, *Counter-Terrorism Research Reports*). The case of Fejzulai Kujtim, who executed the Vienna shooting spree, demonstrates the advancement of self-directed terrorism, catalyzed by social media influence. Despite having undergone deradicalization initiatives, he sustained virtual links with Islamic State intermediaries and consistently accessed radical materials via Salafi-oriented websites (Holloway, 2020).

Klenk et al. (2020) provide an account of Kujtim's engagement with extremist content, including media issued by the outlet 'Im Auftrag des Islam' and material from the pro-ISIS preacher Halis Bayancuk (Klenk, Maier & Schmid, 2020, *Journal of Policing and Society*). His Instagram activity prior to the attack, comprising displays of weaponry and ISIS-affiliated slogans, illustrates the persistent dilemma facing tech platforms in eliminating extremist outputs. This case further spotlights the systemic difficulties encountered in identifying and intercepting digital radicalization trajectories (Holloway, 2020; Saal & Lippe, 2021, *Security Studies Review*).

Although the notoriously visible digital footprint of the Islamic State eventually contributed to its decline in operational dominance, successor organisations have adopted more advanced, discreet methodologies by integrating minimal online exposure with encrypted digital correspondence. This evolution, highlighted by Courchesne and McQuinn (2021) and further corroborated by Conway and Looney (2021), involves intentional deployment of web-based portals and secure communication platforms for both indoctrination and tactical coordination (\*Courchesne & McQuinn, 2021, *Journal of Strategic Security*; Conway & Looney, 2021, *Perspectives on Terrorism*).

ISIS previously achieved unparalleled transnational dissemination through its calculated manipulation of social media, but with the increasing eradication of radical content and user bans, supporters are now gravitating back toward conventional websites, reinforcing their durability within the digital radical milieu (Conway & Looney, 2021). Importantly, the virtual sphere accessible to a radicalising individual

today is markedly different from that of the mid-2010s, when jihadist and extremist operatives navigated cyberspace with fewer constraints.

At present, these networks face an antagonistic digital climate and must rely on a diversified infrastructure, including end-to-end encrypted messaging systems, cloud-based file storage, militant-run web portals, alternative technology networks, the decentralised internet, gaming-adjacent platforms, and the gamification of recruitment and narrative dissemination. As technology custodians enhance their capacity for removing harmful materials, extremists have responded by constructing robust, privacy-oriented digital ecosystems. The global transition toward Web 3.0, characterised by decentralisation and reduced content moderation, presents emerging opportunities for malicious exploitation (Lakomy, 2017; Whittaker, 2022, *Digital Extremism Review*). Earlier scholarly examinations of cyber-radicalisation have questioned the effectiveness of contemporary digital regulation mechanisms in mitigating virtual extremism, thereby uncovering significant discrepancies between platform governance protocols and their operational enforcement (Conway, 2016; Lakomy, 2023). As articulated by Conway (2016) in *The Journal of Deradicalization*, and reaffirmed by Lakomy (2023) in *Cyberterrorism Studies*, virtual content filtering and digital oversight, central pillars of internet-based counter-extremism efforts, frequently fall short of their intended impact.

Lakomy (2023) further asserts that, in spite of robust regulatory interventions, the rhetoric and audiovisual propaganda propagated by militant Salafi factions remains readily retrievable across mainstream web domains. Moreover, regulatory inconsistencies have resulted in selective enforcement, disproportionately affecting some extremist actors over others, thereby allowing entities espousing violent ideologies to cement their presence on the indexable web layer (Lakomy, 2023).

He also challenges the reliability of CVE (Countering Violent Extremism) paradigms which primarily focus on digital content suppression, citing terrorists' ease in rebuilding deactivated channels, the existence of numerous alternate dissemination nodes, ambiguous statutory frameworks, cross-border digital governance dilemmas, and the Streisand phenomenon—wherein censorship attempts paradoxically amplify visibility (Lakomy, 2023).

To confront this issue effectively, Lakomy advocates for hybridised counter-radicalisation measures—blending offline community engagement with digital interventions—which typically fall outside the purview of conventional CVE models. This implies a need for strategic re-evaluation among stakeholders, moving away from passive content deletion tactics toward proactive, integrative strategies that tackle the root causes underpinning the sustainability of extremist narratives within the online realm (Lakomy, 2023).

In response to the evolution of digital governance strategies and technological countermeasures by dominant digital conglomerates, operatives affiliated with extremist factions and their sympathisers have crafted ingenious techniques to circumvent the algorithmic surveillance infrastructure of social media giants' artificial intelligence-based detection systems (Klein, 2021). The overarching tactic involves constructing benign-seeming online identities, aimed at evading automated classification protocols implemented by social networking platforms (Marwick & Lewis, 2017).

Among the principal deception mechanisms is the deployment of counterfeit profile visuals. By utilising fabricated and harmless-looking images, these individuals navigate one of the most formidable obstacles in profile construction—namely, the use of visual identifiers (Bertram, 2020). Additionally, extremists often manipulate virtual positioning information. The geospatial metadata embedded in user profiles serves as a crucial indicator for identifying accounts affiliated with radical networks. To deceive automated systems, such individuals employ spoofed IP addresses and falsify both origin points and current residence data, misleading the platform's geolocation classifiers (Gartenstein-Ross, Barr, & Moreng, 2016). Another pivotal shift observed is the migration from open-access social platforms to encrypted instant messaging (IM) ecosystems. Recognising the mass outreach potential of traditional social media yet aware of its inherent traceability, radical entities now reroute prospective recruits and sympathisers toward more fortified digital environments for continued discourse and indoctrination (Awan, 2017).

By embracing adaptive concealment practices, terrorist factions remain adept at leveraging digital domains, software applications, and online portals to transmit propaganda and coordinate communications while minimising exposure to detection algorithms (Wignell, Tan, & O'Halloran, 2017). Their continual refinement of evasion methodologies highlights the dynamic interplay between extremist innovation and tech sector countermeasures. Oversight in Surveillance and Security Analysis Frameworks The overlooked dimension within the realm of national security and policing entities pertains not to a deficiency in conceptual comprehension of extremist exploitation of social networking channels, encrypted correspondence platforms, and digital broadcasting avenues, but rather to two distinct categories of operational and technological hindrances (Reed & Pohl, 2017). Primarily, notwithstanding the extensive corpus of scholarly inquiry into open-source intelligence (OSINT), investigative and espionage institutions remain predominantly dependent on signals interception mechanisms (SIGINT) as the cornerstone of tangible intelligence extraction. This dependence often results in the systematic marginalisation of publicly obtainable intelligence due to long-standing institutional preferences and ingrained analytical routines (Lowenthal, 2020).

Secondly, a crucial digital shortcoming is evident in the incapacity of security departments to seamlessly synthesize confidential and OSINT-derived datasets. This inability perpetuates functional compartmentalisation, wherein essential linkages between top-secret and publicly accessible data remain unrecognised, consequently undermining comprehensive intelligence assessments (Leuprecht, Walther, & Skillicorn, 2019).

This infrastructural deficiency in data harmonisation and interoperable systems obstructs the effective exploitation of heterogeneous intelligence streams, potentially resulting in analytic blindspots, delayed threat anticipation, and compromised decision-making timelines (Omand, Bartlett, & Miller, 2012).

**Structural Dependence on Technical Surveillance in Intelligence Institutions**  
The disproportionate dependence of intelligence establishments on signals-derived monitoring (SIGINT), often to the detriment of publicly accessible intelligence (OSINT), reflects entrenched institutional and organisational frameworks. Crosston (2013) cautions, in his critique of analytic breakdowns, that practitioners must move beyond ‘factor-centric’ debates that aim to elevate singular causative elements, instead emphasising the interplay and compound influence of diverse variables.

This predisposition is not solely a matter of organisational ethos but is rooted in systemic structural arrangements. Davies (2010, p. 41) illustrates how the internal mechanics of intelligence bodies generate preferences for certain information-gathering methodologies. In particular, technologically oriented departments exhibit what he terms ‘collection inflation’—a proclivity toward high-cost, classified surveillance infrastructures while discounting economical alternatives that may yield comparable intelligence outcomes.

Sullivan and Lester (2022, p. 91) further clarify how these organisational inclinations materialise in operational contexts, arguing that ‘institutional rivalry and embedded cultural norms’ obstruct the cohesive assimilation of diverse intelligence streams. Supporting this diagnosis, McMahon (2023) asserts that depending exclusively on one intelligence avenue, regardless of its perceived superiority, is akin to ‘observing reality through a narrow aperture.’

This ingrained preference for classified, technology-intensive collection engenders critical vulnerabilities in threat assessment, especially when rigid bureaucratic demarcations hinder the inclusion of open-source data that could furnish indispensable interpretive insights. Though this critique is mainly directed at intelligence entities, Bury and Chertoff (2020) argue that law enforcement bodies exhibit parallel structural tendencies, often mimicking intelligence agencies in prioritising technical monitoring over human-led or OSINT-driven collection. Thus, the issue reflects a widespread

institutional pattern that spans geographical and organisational contexts, highlighting the need for comprehensive reform in intelligence acquisition and evaluation methodologies.

**Contemporary Challenges** in Monitoring Salafi Jihadist Digital Activities  
The intelligence sector encounters numerous formidable obstacles in effectively monitoring the virtual undertakings of Salafi jihadist entities. The unprecedented surge of unstructured digital content across a multitude of platforms poses substantial analytical constraints—from TikTok’s rapid short-form media requiring intricate facial and object detection algorithms, to Telegram’s encrypted forums necessitating complex metadata interrogation. Conventional analytical frameworks are frequently inadequate for these emerging digital modalities, while extremist actors’ transition toward secure messaging applications results in notable detection voids.

Moreover, the sector's entrenched reliance on signals-based intelligence (SIGINT) over open-source intelligence (OSINT) exacerbates strategic blind spots. In addition, systemic technical and organisational impediments inhibit the seamless integration of sensitive, classified datasets with unclassified OSINT materials, resulting in operational disjunctions and missed intelligence correlations. To overcome these limitations, intelligence organisations must adopt pioneering technological interventions. These include artificial intelligence-driven video and image recognition systems, interoperable cross-platform intelligence integration frameworks, and automated digital content auditing tools. Collectively, such innovations could significantly bridge the prevailing divide between closed-source and open-source intelligence paradigms.

### **Barriers to Counterterrorism in Encrypted and Anonymous Digital Spaces**

Employing end-to-end encrypted (E2EE) instant messaging (IM) services as part of counterterrorism efforts introduces several intertwined complexities. Firstly, a notable lack of willingness or incentive exists among certain E2EE platform developers and proprietors to collaborate with governmental entities, even in instances where content constitutes a national security concern. In many cases, platform operators prioritise commercial interests, often monetising user data through partnerships with private sector entities rather than cooperating with law enforcement or counterterrorism units.

Secondly, the fluid and rapidly evolving regulatory environment within the big tech ecosystem significantly hampers the capacity of governmental analysts or security practitioners to secure access to application programming interfaces (APIs), which are essential for monitoring digital communication channels (Tech Against Terrorism, 2023). Thirdly, the Dark Web remains a persistent challenge due to its inherent anonymity, which extremist factions—including ISIS—exploit to avoid detection. The utilisation of proxy servers effectively conceals users’ internet protocol (IP) addresses,

obstructing the ability of security agencies to track or identify individuals. This technological obscurity, compounded by offenders' deployment of anonymity-preserving tools and applications, severely limits the investigative reach of law enforcement personnel (Minárik & Osula, 2016).

### **Reconceptualising OSINT Integration in the Evolving Intelligence Ecosystem**

While open-source intelligence (OSINT) has emerged as a vital and increasingly indispensable component of modern intelligence frameworks, its effective assimilation into established operational architectures remains fraught with substantial obstacles. The swift evolution and convergence of cutting-edge technologies are reshaping the intelligence landscape, producing novel ambiguities and equipping adversaries with unprecedented capabilities to exploit digital innovations. Traditionally, intelligence functions as a cognitive and interpretative endeavour conducted by a limited number of specialised agencies tasked with information collection and analysis. However, the current data environment is increasingly decentralised and democratised, with a staggering influx of data inundating agencies and complicating their analytical capabilities.

This shift generates a fundamental tension between the imperatives of secrecy—essential for safeguarding sensitive sources and collection methodologies—and transparency, which is pivotal to upholding democratic oversight. In today's environment, intelligence organisations are compelled not only to identify and evaluate emergent technologies originating beyond governmental confines but also to rapidly integrate them and collaborate with private sector technology firms (Zegart, 2022). The enduring institutional blind spots within intelligence and law enforcement spheres necessitate systemic reforms. Moving forward, these sectors must transcend their conventional reliance on classified technical collection and pivot toward an integrative, technology-savvy, and adaptable intelligence paradigm that leverages both open and closed sources for comprehensive situational awareness and threat analysis.

### **Harnessing Technological Innovation for Advanced Intelligence Collection**

The technological dimension of counterterrorism has advanced considerably, particularly through strategic collaborations between intelligence agencies and private sector entities. Private intelligence specialists play a pivotal role in the realm of open-source intelligence (OSINT), primarily because they often lack the high-level security clearances required for access to classified intelligence and are, therefore, more adept at navigating unclassified digital domains (Minas, 2010). Their early adoption of methodologies such as data scraping and sentiment analysis—both reliant on artificial intelligence (AI) to process the vast quantities of publicly available online content—underscores their innovative edge (Ünver, 2018). As OSINT continues to constitute a

growing proportion of intelligence collection, deepening engagement with private sector expertise will become increasingly indispensable to augment national security efforts and refine analytical capabilities.

### **Technological Platforms and the Evolution of Intelligence Gathering**

In the United States, platforms such as Palantir and Flashpoint exemplify the transformative impact of technological innovation on intelligence operations. Palantir offers comprehensive data integration and analytical tools, while Flashpoint specialises in monitoring and infiltrating clandestine extremist networks. Together, these platforms enhance the ability of intelligence agencies to synthesise fragmented data and derive actionable insights. The integration of such advanced tools with human analytical expertise has become a cornerstone of modern counter-terrorism strategies. However, Schaurer and Störger (2013) caution that partnerships between state institutions and non-state actors require stringent oversight. These collaborations, while beneficial, necessitate robust confidentiality agreements to safeguard sensitive information, given the enhanced technological capacities of private contractors. Nadeem (2024) observes that Palantir has sought to address these concerns through highly customisable security configurations, though its elevated cost often places it beyond the reach of resource-constrained states grappling with acute terrorist threats. This scenario illustrates the broader dilemma in contemporary intelligence ecosystems—how to effectively integrate private sector technological solutions while maintaining rigorous security standards and ensuring equitable access.

### **Integrating OSINT with Traditional Intelligence Approaches**

Open-Source Intelligence (OSINT) proves most effective when used in conjunction with traditional intelligence methodologies. As OSINT continues to expand in scope and usage, state adversaries are increasingly adapting by concealing their digital activities (Courchesne & McQuinn, 2021). The overwhelming volume of data presents a significant analytical challenge, often obscuring critical insights amid an abundance of irrelevant content. Without substantial advances in artificial intelligence, the task of distinguishing meaningful information from digital noise remains a persistent limitation (Agarwal & Sureka, 2015). Furthermore, the nuanced understanding provided by regional experts within conventional intelligence structures remains essential for interpreting context-specific, publicly accessible data.

Despite these challenges, OSINT significantly enhances intelligence capabilities by complementing and validating classified intelligence through techniques such as natural language processing, sentiment analysis, data mining, event detection, predictive analytics, social network analysis, and crowdsourced input (Bartlett & Reynolds, 2015). Crucially, OSINT relies on publicly available information (PAI),

facilitating broader dissemination across agencies without the barriers imposed by classification protocols. This unrestricted accessibility allows for more agile threat response, overcoming the internal information-sharing constraints that often hamper the effectiveness of traditional intelligence systems (Brown & Medina, 2021).

### **The Transformative Potential of OSINT in the Intelligence Landscape**

The integration of Open-Source Intelligence (OSINT) with classified intelligence sources holds transformative potential for the intelligence community. The vast expanse of publicly available information (PAI) and its unprecedented accessibility presents a game-changing opportunity for intelligence gathering. The ability to verify classified insights through open-source cross-referencing enhances both accuracy and operational efficiency. As Hoelzle (2012) illustrates, tasks that once demanded extensive planning—such as route optimization or archival research—can now be accomplished in moments using freely available digital tools and search engines.

However, this abundance of accessible data also creates a paradox: the very volume that makes OSINT powerful can also overwhelm analysts, leading to delays in providing real-time situational awareness to decision-makers. Despite recent advancements in large-scale data processing, significant progress is still required to ensure that analysts can navigate and synthesize complex datasets efficiently. Innovations such as advanced search operators, natural language processing (NLP) for contextual keyword variation, enhanced optical character recognition (OCR), and sophisticated image analysis are critical for evolving OSINT capabilities to meet modern intelligence demands (Callaghan, 2021).

### **Technological and Analytical Gaps in Intelligence Integration**

Security agencies and law enforcement units face persistent technological challenges in the integration and dissemination of relevant intelligence materials, which are often compartmentalised within departmental silos. These structural limitations impede timely information flow and holistic analysis. While advanced technological systems capable of organisation-wide integration could address this fragmentation, such solutions often come at the expense of access flexibility and security control. Moreover, a cultural resistance to adopting emerging technologies further compounds the problem, with many analysts hesitant to embrace unfamiliar tools and methods due to institutional inertia and uncertainty about efficacy.

The analytical framework for studying terrorist digital activity is increasingly benefiting from the application of Automatic Text Classification (TC) and network analysis methodologies. As Neuendorf (2017) outlines, TC systems function either through unsupervised models, which autonomously detect patterns in unstructured texts, or supervised models, which rely on human-labelled data for algorithmic

training. This bifurcated approach is especially relevant in analysing the diffuse and varied nature of terrorist communications across platforms. Despite the application of numerous statistical TC techniques—such as neural networks—Dumais and Chen (2000) highlight persistent limitations in these models' ability to replicate the nuanced cognitive associations between content and classification categories. The magnitude of unstructured and often inaccessible data presents a further analytical burden. Therefore, scalable processing systems are essential to enable analysts to identify and synthesise actionable intelligence rapidly and reliably (Schäfer et al., 2019).

### **The Information Paradox and the Emergence of Reciprocal Human-Machine Learning (RHML)**

A persistent challenge in intelligence operations is the *information paradox*, wherein stakeholders widely acknowledge the centrality of high-quality information access to organisational success, yet struggle with the effective identification, sharing, and quality maintenance of such information—particularly amidst the exponential growth of both structured and unstructured data (White, 2012). This paradox is especially salient in the context of analysing terrorist networks, where information is often dispersed, encrypted, and dynamically evolving.

A promising solution lies in the adoption of a *Reciprocal Human-Machine Learning* (RHML) model, as proposed by Te'eni et al. (2023). This approach envisions a continuous and interactive collaboration between human analysts and artificial intelligence systems. While AI excels at parsing large datasets across diverse platforms and languages, human experts contribute indispensable contextual awareness and inferential reasoning required to interpret complex and shifting threat environments (Alevizos & Dekker, 2024). The RHML model offers a hybrid framework that leverages the strengths of both entities, enabling more nuanced threat detection and response.

This collaborative intelligence model parallels the internal dynamics of terrorist organisations, which often exhibit meritocratic structures in their digital ecosystems. As Holt, Blevins, and Kuhns (2008) note in their study of hacker subcultures, experienced actors frequently mentor newcomers through systematic knowledge transfer. Terrorist networks mimic this practice, applying structured digital mentoring and recruitment strategies that further complicate counter-terrorism efforts in cyberspace.

### **Emerging Technologies and the Transformation of Intelligence Analysis**

Emerging technologies are fundamentally reshaping how intelligence communities collect, process, and analyse information. Several converging technological trends have catalysed this transformation, including exponential increases in computing and

processing power, the maturation of cloud infrastructure, and significant advancements in artificial intelligence (AI) and machine learning (ML) capabilities. These developments have been further complemented by the proliferation of networked multimodal sensors and the growth of accessible open-source data, big data repositories, and sophisticated data analytics platforms.

Given the increasingly complex operational environment faced by modern intelligence analysts, there is a pressing need to enhance the management of analytic processes, deepen domain-specific expertise, and improve the usability and interpretability of available information. AI has the potential to serve as a transformative enabler in this context, offering data-driven contextualisation of strategically significant events. By integrating AI with advanced data analytics, intelligence organisations can achieve a more refined situational awareness and better predict adversarial behaviour.

U.S. national security agencies have already demonstrated the capacity to operationalise AI, ML, and big data analytics within counterterrorism frameworks across multiple intelligence domains. These technologies have proven effective in a variety of core functions, including the mapping of terrorist network structures, the detection of internal organisational tensions and fractures, and the geolocation of high-value targets (Ganor, 2019). Additionally, AI-powered tools reduce the cognitive and operational burden on human analysts by automating time-intensive data collection and preliminary analysis processes, thereby allowing analysts to concentrate on critical thinking, interpretive tasks, and strategic decision-making.

### **Integrating AI into Collaborative Intelligence Environments**

Emerging technologies not only enhance data processing and analysis but also facilitate the development of integrated analytic environments, where intelligence personnel can collaborate more effectively across organisational boundaries. These shared digital workspaces enable analysts to exchange insights in real time, promote inter-agency cooperation, and foster collective situational awareness, thereby enhancing the overall efficacy of counter-terrorism and law enforcement operations.

However, while artificial intelligence (AI) and machine learning (ML) offer significant advancements, it is important to acknowledge their limitations. These technologies, including the recent emergence of large language models (LLMs), cannot yet replicate the full depth and subtlety of human decision-making. Nevertheless, LLMs represent the next frontier in this technological evolution—combining improved computational performance, the capacity to process vast volumes of big data, and increasingly autonomous decision-making through AI agents. To adapt to this new data-rich environment, intelligence and law enforcement agencies—as well as broader public sector institutions—must undergo a foundational paradigm shift in how they

conceptualise and operationalise the intelligence cycle. Traditional methodologies must be re-evaluated in light of automated technologies capable of exponentially increasing analyst productivity. For instance, machine learning algorithms and AI-driven platforms now offer capabilities such as intelligent querying, text summarisation, and enhanced source aggregation—tools that significantly improve the identification of actionable intelligence amid overwhelming volumes of data (Katz, 2021).

### **Leveraging Social Media for Intelligence Gathering**

The proliferation of social media (SM), alongside the rapid evolution of analytical tools—often originally developed for marketing and online advertising—has opened new avenues for law enforcement and intelligence agencies to collect, analyse, and act upon open-source intelligence (OSINT). These tools offer opportunities not only to detect criminal activity and forecast public disorder but also to gauge public sentiment and assess emerging security threats in near real-time (Omand, Bartlett, & Miller, 2012). A notable advantage of SM monitoring is its ability to provide insights into clandestine groups, reveal early indicators of criminal intent, and enhance situational awareness.

For instance, the investigation of suspicious Facebook accounts can expose a suspect's social connections, behaviours, geolocation, interests, and ideological leanings (Softness, 2017). Intelligence professionals can now repurpose the vast troves of publicly accessible data—initially designed for commercial applications—for national security objectives. As Charania (2016) observes, SM accounts alone can yield critical intelligence, including communication networks, ideological affiliations, and location tracking. This data can then be complemented with freely accessible satellite imagery, enabling operatives to analyse geographical layouts, identify distinguishing terrain features, and plan secure and effective routes to high-value targets (Coulthart, Maloney, & Turley, 2020).

Moreover, the use of basic online tools such as search engines and real-time feeds can greatly enhance strategic awareness. A simple Google search can unearth extensive press coverage on countries or actors posing national security threats, while real-time hashtag tracking on platforms like X (formerly Twitter) allows analysts to monitor unfolding events as they happen (Stottlemyre, 2015). This convergence of public data, open-source tools, and social media analytics signals a transformative shift in how intelligence is gathered, processed, and operationalised in modern security frameworks.

### **The Accessibility and Advantages of Open-Source Surveillance**

What is perhaps even more remarkable than the sheer volume of publicly available data is the unprecedented ease with which intelligence agencies can now access and utilise it. Intelligence operatives no longer need to infiltrate hostile territories physically;

instead, they can monitor adversaries remotely—from secure office spaces—by leveraging open-source intelligence tools. Through the analysis of cell phone metadata, operatives can determine individuals' geolocation, while social media connections reveal networks of close associates. Additionally, behavioural patterns such as surges in website traffic among known followers may serve as indicators of impending terrorist activity (Charania, 2016).

This mode of surveillance is both passive and discreet; it often occurs without the subject's awareness, limiting their opportunity to alter their actions before preventive measures are enacted. As Brown and Medina (2021) argue, OSINT significantly reduces operational risks: it removes the need for covert operations that may compromise agents, leak sources, or disrupt intelligence channels. Since the information is publicly available, intelligence gathering incurs fewer diplomatic or ethical repercussions. The main countermeasure available to targets, therefore, is to restrict the dissemination of sensitive content into the public domain in the first place—a task increasingly difficult in the digital age.

### **Automation, Big Data, and Decision-Making Bias in Intelligence Work**

The proliferation of mass-scale data collection and the automation of knowledge extraction have necessitated the adoption of robust big data management systems (Kostakis & Kargas, 2021). While automation technologies promise greater efficiency in data analysis and processing, they may also compromise the nuanced formulation and evaluation of decision-making alternatives. Despite the widespread availability of platforms, devices, and search engines designed to support various phases of decision-making, these systems typically leave final judgements to human agents. However, reliance on default settings and partially automated processes can streamline operations at the cost of introducing significant cognitive biases into human decision-making (Darioshi & Lahav, 2021).

In intelligence contexts, where rapid yet precise decisions are critical, these biases can distort risk assessments and operational responses. Big data lifecycle management—including data analysis, storage, and visualisation—must therefore integrate not only technological solutions but also frameworks that address human error and systemic bias. As Kostakis and Kargas (2021) argue, extracting actionable insights from vast datasets provides a competitive advantage, particularly in intelligence and security environments. Yet, this advantage is contingent upon maintaining strong data security protocols that ensure decision-making integrity while minimising operational risk.

### **The Potential and Limitations of AI and LLMs in Counter-Terrorism Intelligence**

Artificial Intelligence (AI) and Large Language Models (LLMs) present a transformative potential in enhancing counter-terrorism operations.

Their implementation can reduce unnecessary or unjust surveillance of specific populations, mitigate the effects of human bias in decision-making, and more efficiently allocate investigative resources based on demonstrable indicators of intent found in online behavior. When employed responsibly, these systems can support more equitable and evidence-based intelligence practices. However, the efficacy of AI and LLMs is fundamentally constrained by the scope and quality of the data they can access. Consequently, the deployment of such technologies must be carefully regulated and protected to prevent misuse and ensure ethical standards are upheld.

Crucially, a hybrid approach that integrates AI systems with human oversight is essential to preserve fairness and accountability in the assessment of potential terrorist threats on social media and other open platforms. Such collaboration balances the imperatives of national security with the protection of individual rights, including privacy and freedom of expression (McKendrick, 2019). AI's technical capacity to process massive and complex intelligence datasets—ranging from communications intercepts and social media activity to OSINT streams—marks a significant evolution in intelligence methodology. These systems can convert raw digital traces into actionable insights in real-time. Nevertheless, the successful implementation of this approach requires resolving persistent issues, such as algorithm training, secure data integration, and managing the convergence of classified and unclassified intelligence sources. While the promise of AI-driven intelligence is substantial, it is accompanied by enduring institutional and operational challenges that must be systematically addressed.

### **Future Research and Ethical Concerns**

The increasing reliance on Open Source Intelligence (OSINT) for criminal and counter-terrorism investigations raises significant ethical and legal questions, particularly regarding the use of data that may be personal or private in nature. It is imperative that data protection standards aligned with prevailing legal frameworks and ethical norms are strictly enforced to safeguard fundamental rights, such as privacy and due process. The tension between the right to privacy and the right to a fair trial presents a complex challenge for states seeking to incorporate OSINT into investigative processes. In this context, data obtained through OSINT must be verified for accuracy, relevance, and necessity to ensure it addresses specific and credible threats, rather than supporting indiscriminate or speculative surveillance practices.

Moreover, the unchecked use of OSINT runs the risk of encouraging forms of digital vigilantism, wherein individuals or organizations act upon unverified or misinterpreted information without legitimate cause. This phenomenon must be carefully regulated to prevent violations of civil liberties and wrongful accusations. As Busser (2014) emphasizes, while OSINT can serve as a valuable tool in identifying individuals of

interest or gathering preliminary evidence, it should be employed in conjunction with traditional investigative methods. This complementary approach ensures that intelligence is contextualized, corroborated, and interpreted within appropriate legal and ethical boundaries.

The use of Open Source Intelligence (OSINT) for tracking terrorist networks presents complex ethical challenges, particularly concerning personal data protection and the legal boundaries of surveillance. This is especially pertinent in investigations involving Violent Extremist Organizations (VEOs), where sensitive personal data and operational risks converge. Lakomy (2024b) identifies multiple ethical dilemmas in OSINT research, including threats to researcher safety, vulnerabilities within scientific infrastructure, and the potential misuse of research findings for malevolent purposes. Accessing terrorist communication channels poses significant operational hazards, often exposing researchers and analysts to malicious software and unexpected disclosures of impending attacks.

Friedman (2021) raises serious concerns about the ethical and legal implications of unauthorized bulk digital surveillance, arguing that such practices compromise both individual privacy and democratic accountability. He underscores the necessity of robust legislative oversight, particularly emphasizing that constitutional safeguards prohibit indiscriminate data collection on individuals without reasonable suspicion. Notably, Friedman also critiques the United States' regulatory landscape, highlighting systemic gaps that permit law enforcement agencies to aggregate vast quantities of personal data with minimal oversight—conditions far less stringent than those found in European jurisdictions.

In contrast, Lakomy (2024b) points to the European Union's General Data Protection Regulation (GDPR) as a model for ethical governance in digital intelligence. The GDPR mandates explicit user consent, enforces data minimisation, and outlines detailed procedural safeguards, offering a more principled and legally coherent approach to OSINT operations. Furthermore, Conway (2021) draws attention to the ethical considerations surrounding researcher safety in hostile online environments, calling for tailored consent protocols and comprehensive risk mitigation strategies. These insights reinforce the critical need to balance national security objectives with the preservation of individual rights and ethical research practices in OSINT-based counter-terrorism efforts.

Law enforcement agencies increasingly utilize a variety of tools to expand upon initial OSINT indicators and construct actionable profiles that may justify arrest or detention. In the United States, there is currently no comprehensive federal legislation explicitly regulating the use of social media-derived intelligence by law enforcement; however, the acquisition and admissibility of such data are indirectly shaped by the policies of

social media platforms, internal agency protocols, and broader rules of criminal procedure (Finklea, 2022). The analytical scope of OSINT can be significantly widened by examining a suspect's broader social media footprint and Internet usage patterns. These activities, when correlated, may yield critical indicators of intent, ideology, or pre-operational behavior, thereby strengthening the evidentiary basis for preemptive counter-terrorism measures.

Cryptocurrency investigations represent an emerging frontier in this domain. These inquiries can be conducted with minimal intrusion and may uncover transactional patterns that suggest terrorist financing or logistical preparation for attacks. The integration of blockchain technology into global financial systems—via decentralized financial technologies—has introduced new complexities to anti-money laundering (AML) and counter-terrorist financing (CTF) efforts. Cryptocurrencies operate beyond the jurisdiction of traditional regulatory frameworks, complicating efforts to trace financial flows and establish definitive links to illicit or extremist networks. As such, the technological challenge of attributing blockchain-based transfers to terrorist entities undermines the efficacy of preventive mechanisms and inhibits law enforcement's capacity to take timely action. Consequently, there is a pressing need for more advanced forensic tools and international regulatory cooperation to effectively counter the financial dimensions of modern terrorism.

Artificial Intelligence (AI) policy development must encompass both pragmatic problem-solving approaches and the affective dimensions of security—namely, physical and ontological safety. As Schmid, Pham, and Ferl (2024) argue, governments should strategically leverage human-AI interaction to advance societal and geopolitical objectives while remaining vigilant about the associated risks. A key benefit of AI integration lies in its capacity to mitigate the cognitive and perceptual biases inherent to human analysis. Through automated data scraping and real-time monitoring, AI systems can augment investigative processes by uncovering latent digital activity patterns of persons of interest. When integrated effectively, AI not only enhances predictive capabilities but also serves as a procedural counterweight to human-led analysis, facilitating a balanced, multi-vector approach in building substantiated, impartial evidence of terrorist intent exhibited online. This proactive identification can enable state actors to intervene before such individuals can perpetrate acts of violence.

However, ethical and operational risks remain. Ranalli (2024) cautions against the indiscriminate use of AI in law enforcement reporting, underscoring that AI-generated documentation may fail to capture the contextual nuance of specific incidents, thereby undermining evidentiary integrity and increasing the likelihood of legal challenges. A viable mitigation strategy involves employing secure, on-premise AI systems trained exclusively on internal datasets to avoid unauthorized data synthesis and potential

forgery. Furthermore, Ranalli emphasizes the need for continued officer training in critical observation and articulation skills to prevent over-reliance on automated outputs. From an institutional standpoint, increased AI usage may expose latent gaps in law enforcement training and professional development, necessitating regular evaluation and ethical oversight.

In this context, OSINT emerges as a powerful tool for counter-terrorism, enabling the fusion of publicly available digital content with AI-driven analytics. Nevertheless, its deployment must be anchored in stringent ethical and legal frameworks to safeguard privacy and civil liberties. Law enforcement agencies must establish transparent, accountable governance structures that uphold due process and ensure the responsible application of these advanced technological tools.

### **Conclusion**

This study has explored the transformative role of advanced technological solutions in addressing the evolving and increasingly complex challenges encountered by intelligence analysts in the digital era. The findings underscore that the integration of open-source intelligence (OSINT) with cutting-edge technologies—such as artificial intelligence (AI), big data analytics, and data fusion platforms—holds immense potential to enhance the analytical capacity and operational efficiency of intelligence professionals. These technologies facilitate advanced network mapping, real-time anomaly detection, and the processing of vast, heterogeneous datasets, thereby streamlining the intelligence cycle, improving information flow, and producing actionable insights with greater speed and precision.

Importantly, while these innovations offer substantial benefits, they should not be misconstrued as replacements for human cognition. Rather, AI and related technologies must be conceptualized as force multipliers—augmenting human judgment, supporting strategic foresight, and enabling analysts to redirect their focus from data acquisition to critical interpretation and strategic synthesis. As such, the study advocates for the continued refinement of AI-enabled intelligence platforms, with an emphasis on designing user-centric, intuitive interfaces that are accessible to professionals with varying levels of technical proficiency.

In essence, the convergence of human expertise and technological innovation presents a powerful paradigm for future intelligence operations. However, the success of this transformation will depend not only on technical progress but also on the implementation of robust ethical, legal, and governance frameworks that ensure the responsible and equitable use of these capabilities.

Intelligence organisations must leverage innovative tools to combat extremism and terrorism effectively through the systematic collection and analysis of open-source

intelligence (OSINT). There is a pressing need for intelligence agencies to collaborate closely with social media platforms and instant messaging services, making targeted adaptations to their OSINT methodologies. This includes deploying advanced, computerised systems capable of extracting, integrating, and cross-referencing data from multiple platforms, enriched by enhanced artificial intelligence (AI) capabilities. Such an approach can optimise intelligence flows, automate repetitive yet essential processing tasks, and strengthen the analysts' ability to derive meaningful insights through critical thinking and contextual understanding.

The effectiveness of intelligence analysis lies in achieving a carefully calibrated balance between technological augmentation and human expertise. As the global threat environment grows increasingly complex and diffuse, the integration of AI and advanced analytics into intelligence processes will be indispensable. Nonetheless, the human element remains central in navigating the subtle dimensions of strategic judgment, ethical evaluation, and decision-making. Future research should delve deeper into this intersection—examining not only the operational utility of AI but also the ethical, legal, and epistemological implications of its growing influence in national security domains. Ensuring that AI serves as a complement rather than a substitute for human analysis will be pivotal in maintaining both efficacy and integrity in intelligence operations.

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# Anticipating the Third World War: Analysing Geopolitical, Economic, and Social Implications of Future Global Conflict

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## Abstract

The possibility of a third world war, once considered a relic of Cold War-era speculation, is increasingly resurfacing in academic and policy discussions amid rising global tensions. This research paper explores the potential onset of such a conflict, analysing its anticipated geopolitical, economic, and social ramifications in the 21st century. Unlike the world wars of the 20th century, a future global conflict would likely be shaped by a vastly different set of dynamics, including nuclear proliferation, cyber warfare, artificial intelligence, and shifting global power centres. With ongoing tensions between major powers—such as the United States, China, Russia, and regional blocs—this study investigates whether current conflicts, alliances, and arms races could escalate into a broader, worldwide confrontation.

The paper draws upon various sources, including historical case studies, international relations theory, economic forecasts, and expert assessments from think tanks and global security organisations. It aims to synthesise these insights to evaluate a hypothetical third world war's potential triggers, scale, and outcomes. Special emphasis is placed on the economic repercussions of global conflict, including disruptions to trade, energy markets, and financial systems, as well as the social and humanitarian toll on civilian populations.

By contextualising contemporary geopolitical frictions within the broader historical narrative of warfare and diplomacy, this research seeks to contribute to a more informed understanding of the risks and consequences of large-scale war in the modern era—and the urgent need for preventive diplomacy and cooperative global governance.

**Keywords:** Geopolitical, Global conflict, Economic impact, Social disruption, World War III

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## Introduction

The spectre of a third world war casts an ominous shadow over contemporary international affairs, fuelled by a complex convergence of escalating geopolitical rivalries, economic turbulence, and emerging multidimensional security threats. The global political climate is increasingly marked by confrontations between major powers, such as the United States, Russia, and China, as well as growing tensions in flashpoint regions like Eastern Europe, the South China Sea, and the Middle East. These developments have led to heightened military preparedness, shifting alliances, and aggressive rhetoric that collectively point to a potentially volatile future.

Predictions about a global conflict have not been limited to political analysts or security experts. Popular figures and mystics, such as Baba Vanga<sup>1</sup>, have also foretold dire global events, captured public imagination and intensified the sense of impending crisis. While such forecasts are not empirical, they reflect widespread societal anxieties about the direction in which the world is heading. Meanwhile, scholarly research and strategic assessments increasingly warn that systemic instability—caused by regional wars, rising authoritarianism, resource competition, cyber warfare, and nuclear brinkmanship—could escalate into a catastrophic global confrontation, particularly concentrated in Europe and Asia.

In light of the persistent aftershocks of previous conflicts, the COVID-19 pandemic, and ongoing economic disruptions, exploring and understanding the implications of a potential third world war has become both a scholarly imperative and a critical policy concern. This research seeks to provide a grounded, interdisciplinary analysis of this looming threat, highlighting the urgent necessity for global cooperation, diplomacy, and conflict prevention.<sup>2</sup>

## Research Objectives

This study is structured around five key objectives to comprehensively understand the potential onset and consequences of a third world war in the 21st century.

First, it seeks to analyse current geopolitical tensions that could act as catalysts for a global conflict. This involves examining the strategic posturing of major powers, the formation and friction of military alliances, contested territories, and flashpoints such as Ukraine, Taiwan, the Middle East, and the Indo-Pacific. The objective is to map out

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<sup>1</sup> <https://economictimes.com/news/new-updates/india-vs-pakistan-war-heres-what-baba-vanga-predicted-for-world-wars-across-theworld/articleshow/120752902.cms>, (Last Accessed on 22 June, 2025)

<sup>2</sup> Manchia Minko, The impact of the prolonged COVID-19 pandemic on stress resilience and mental health: A critical review across waves, NIH, Available at, <https://pmc.ncbi.nlm.nih.gov/articles/PMC8554139/>, (Last Accessed on 25<sup>th</sup> June 2025)

how these evolving power dynamics and unresolved conflicts contribute to a fragile international order.

Second, the research aims to assess the potential economic consequences of a future world war. A global conflict in today's interconnected economy could disrupt supply chains, crash financial markets, devastate energy infrastructure, and lead to a massive global recession. This objective will focus on analysing models of economic fallout, sectoral vulnerabilities, and lessons from past wartime economies.

Third, the study intends to evaluate large-scale warfare's social and humanitarian impacts. This includes displacement of populations, refugee crises, civilian casualties, mental health repercussions, and the strain on international humanitarian systems. The human cost of war, often overshadowed by strategic considerations, remains central to this analysis.

Fourth, the research will explore historical precedents—namely World War I, World War II, and Cold War conflicts—to identify patterns, triggers, and missteps relevant to contemporary global risks. These historical lessons provide vital insight into major wars' warning signs and escalatory pathways.

Finally, the paper will propose policy recommendations for conflict prevention and mitigation. Drawing on diplomatic strategies, international law, multilateral institutions, and confidence-building measures, this section offers actionable steps for governments, civil society, and global organisations to prevent large-scale conflict.

### **Research Methodology:**

This study employs a qualitative research approach, synthesising data from:

- Recent scholarly articles and economic reports on war and conflict.
- Predictions and analyses from geopolitical experts and forecasters.
- Case studies of recent regional conflicts (e.g., Syria, Ukraine).
- Review of historical world wars for comparative analysis.
- Media reports and official statements on current international tensions.

### **Importance of the Study**

- This research holds significant importance in light of global instability and uncertainty. The study underscores the urgent need for international cooperation, diplomacy, and strategic foresight to prevent catastrophic conflict by examining the possibility and potential consequences of a third world war. In an era where rising nationalism, militarisation, and geopolitical rivalries threaten global peace, this work aims to inform academic inquiry and practical

policy formulation.

- One of the key contributions of the study is its ability to **provide actionable insights for policymakers**, enabling the development of more robust **crisis management strategies** and early-warning mechanisms. Understanding the triggers and warning signs of conflict can help states and international organisations proactively engage in de-escalation, negotiation, and conflict resolution.
- The research also critically **assesses the vulnerabilities within global economic and social systems** that may be exacerbated by war, such as supply chain dependencies, humanitarian fragility, and energy insecurity. These findings are particularly relevant for countries with high exposure to international markets and geopolitical volatility.
- Furthermore, the study educates and informs **the public, civil society, and global stakeholders** about the real and present risks of escalating international tensions. Doing so fosters a more aware and engaged global citizenry that can support peace-building efforts.
- Finally, this research contributes meaningfully to the **academic discourse on conflict prevention, international security, and peace studies**, offering a multidisciplinary perspective that blends history, political science, economics, and ethics to address one of the most pressing global concerns of the 21st century.

#### **Relevance of Study:**

- Addresses contemporary concerns about rising geopolitical risks.
- Offers a framework for understanding the interconnectedness of global economies and security.
- Supports the development of early warning systems for conflict escalation.
- Informs humanitarian organisations about potential crisis scenarios.
- Guides governments and international bodies in contingency planning.

#### **Analysis and Discussion**

Though still speculative, the spectre of a Third World War (WWIII) has evolved from a distant possibility into a pressing concern within international policy and academic discourse. The global landscape is becoming increasingly unstable with new power dynamics, regional conflicts, and technological advancements in warfare. Modern conflict is no longer confined to conventional military engagement; it now

encompasses cyber warfare, disinformation campaigns, economic coercion, and critical infrastructure sabotage. In this context, evaluating a potential global conflict's geopolitical, financial, and social dimensions is crucial, considering historical lessons that can guide future peacekeeping efforts.<sup>3</sup>

- 1. Geopolitical Implications:** The geopolitical structure of the 21st century is markedly different from that of the early 20th century. Rather than a bipolar or unipolar world order, today's global system is multipolar, with several major powers—including the United States, China, Russia, the European Union, and regional actors like India and Iran—competing for influence. This power distribution contributes to unpredictability, as traditional balances of power are disrupted and new alliances are formed.<sup>4</sup>

Key flashpoints such as Ukraine, Taiwan, the South China Sea, and the Middle East have emerged as potential triggers for broader conflict. Russia's invasion of Ukraine in 2022 reawakened fears of large-scale warfare in Europe, while increasing Chinese military activity around Taiwan has heightened tensions in the Indo-Pacific. Both scenarios involve the strategic interests of NATO and the United States, raising the risk of escalation between nuclear-armed states.

The concept of hybrid warfare—a blend of conventional military force, cyberattacks, psychological operations, and economic pressure—is becoming increasingly prominent. For instance, the Nord Stream pipeline sabotage illustrated the vulnerability of critical energy infrastructure in conflict scenarios. As such tactics blur the line between peace and war, nations may find themselves drawn into conflict through incremental provocations rather than a single, definitive act of aggression.

Furthermore, the erosion of international institutions such as the United Nations and the weakening of multilateralism have compromised global mechanisms for conflict resolution. The failure to achieve consensus on key issues, including disarmament, climate change, and cyber regulations, reflects a deepening divide among world powers. At the same time, the emergence of regional alliances—such as BRICS and the Shanghai Cooperation Organisation (SCO)—presents a parallel shift in global influence, challenging the

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<sup>3</sup> Picasso Pablo, Conflict Then and Now: Historical and Modern Perspectives on World War III, Available at <https://www.law.georgetown.edu/academics/wp-content/uploads/sites/58/2024/07/GLS-2L-Project-Part-One.pdf>. (Last Accessed on 27<sup>th</sup> June 2025)

<sup>4</sup> Muhammad Abdulgaffar, The Geopolitical Implications of Shifting Alliances in a Multipolar World, Available at, [https://www.researchgate.net/publication/374332148\\_The\\_Geopolitical\\_Implications\\_of\\_Shifting\\_Alliances\\_in\\_a\\_Multipolar\\_World](https://www.researchgate.net/publication/374332148_The_Geopolitical_Implications_of_Shifting_Alliances_in_a_Multipolar_World). (Last Accessed on 25<sup>th</sup> June 2025)

dominance of Western-led institutions like NATO and the G7.

In such a fragmented environment, the lack of a coherent and enforceable international legal framework increases the likelihood of miscalculation, escalation, and open conflict.

2. **Economic Implications:** The economic consequences of a third world war would likely be unprecedented in scope, given the level of globalisation that characterises the modern economy. Unlike in the early 20th century, national economies today are deeply interdependent through trade, finance, energy, and digital infrastructure.

A global war could result in devastating economic disruption, starting with the destruction of physical infrastructure in conflict zones and extending to worldwide financial instability. The global supply chain crisis witnessed during the COVID-19 pandemic and the Russia-Ukraine war offers a limited preview of the broader chaos a world war could trigger. Energy shortages, food insecurity, raw material scarcities, and breakdowns in logistics could paralyse both developing and developed economies.<sup>5</sup>

Military conflicts typically lead to massive increases in defence spending, often at the expense of social welfare and development programs. For example, military expenditures surged during both World Wars, diverting resources from domestic economies and creating wartime inflation. In the current global context, such a redirection of resources could further strain already fragile public health, education, and social protection systems, especially in low- and middle-income countries.

Another critical dimension is the financial markets. In a full-scale global war scenario, investor confidence would collapse, leading to capital flight, stock market crashes, and the potential collapse of international financial institutions. Global debt levels—already at historic highs due to pandemic spending—would skyrocket further, limiting the fiscal space for post-war recovery.<sup>6</sup>

Moreover, the management of post-conflict economies would present enormous challenges. Rebuilding war-torn regions would require decades of investment, similar to the Marshall Plan after WWII. However, the cost would be exponentially higher in today's more populous and urbanised world. The long-term economic implications would likely include widened inequality,

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<sup>5</sup> Huwart Jean-Yves, Economic Globalisation, Origins and Consequences, Available at [https://www.oecd.org/content/dam/oecd/en/publications/reports/2012/11/economic-globalisation\\_g1g134da/9789264111905-en.pdf](https://www.oecd.org/content/dam/oecd/en/publications/reports/2012/11/economic-globalisation_g1g134da/9789264111905-en.pdf). (Last Accessed on 5<sup>th</sup> July 2025)

<sup>6</sup> Ibid.

inflationary pressures, and a shift in global economic leadership, possibly accelerating the decline of traditional powers and the rise of new ones.

- 3. Social and Humanitarian Implications:** The social cost of a third world war would be catastrophic, potentially surpassing that of previous global conflicts due to the destructive capabilities of modern weaponry and the interconnectedness of international societies. The loss of life, both military and civilian, would likely be immense, primarily if nuclear weapons or other weapons of mass destruction were employed. Additionally, densely populated urban areas—now more vulnerable to high-precision missile strikes and drone warfare—would suffer disproportionately.

Mass displacement and refugee crises would reach unparalleled levels. Already, regional conflicts such as those in Syria, Afghanistan, and Ukraine have resulted in millions of displaced persons. A world war could easily displace tens or even hundreds of millions of people, overwhelming the capacity of international humanitarian organisations and host countries.<sup>7</sup>

The breakdown of healthcare, education, and social support systems in conflict zones would exacerbate preexisting inequalities, pushing vulnerable populations into deeper poverty. In war-torn societies, access to clean water, food, medical care, and shelter becomes increasingly scarce. Furthermore, trauma and psychological damage—particularly among children and survivors of violence—can have intergenerational effects, destabilising communities for decades after the conflict ends.

Social unrest could also spread far beyond the immediate war zones. Economic hardship, political repression, and disinformation campaigns will likely fuel civil protests, populist movements, and authoritarian responses in warring and neutral states. Trust in institutions may decline, and societies could become more polarised and fragmented.

Regarding cultural and educational impacts, global conflict could lead to the destruction of heritage sites, loss of intellectual capital, and disruption of global knowledge-sharing networks. The war in Ukraine, for instance, has already led to significant losses in cultural infrastructure and academic displacement.<sup>8</sup>

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<sup>7</sup> Rayhan Abu, *The Looming Shadow: Assessing the Likelihood and Aftermath of a Third World War*, Available at, [https://www.researchgate.net/publication/392827274\\_The\\_Looming\\_Shadow\\_Assessing\\_the\\_Likelihood\\_and\\_Aftermath\\_of\\_a\\_Third\\_World\\_War](https://www.researchgate.net/publication/392827274_The_Looming_Shadow_Assessing_the_Likelihood_and_Aftermath_of_a_Third_World_War). (Last Accessed on 24<sup>th</sup> June 2025)

<sup>8</sup> Ibid.

**4. Historical Precedents and Lessons:** History provides vital context for understanding the dynamics and consequences of global war. World Wars I and II were preceded by intense nationalism, alliance-building, arms races, and diplomatic failures—conditions that echo today’s international climate.

World War I was primarily triggered by a complex web of alliances and a single act of political violence (the assassination of Archduke Franz Ferdinand), demonstrating how rapidly localised tensions can escalate into global conflict. The war introduced mechanised warfare, trench combat, and mass conscription, resulting in profound human and material loss.

World War II was even more destructive, involving total war across multiple continents and culminating in the first—and so far only—use of nuclear weapons. It was also a war with ideological underpinnings: fascism versus democracy, militarism versus collective security. The aftermath of the war led to significant geopolitical restructuring, including the creation of the United Nations, the Bretton Woods system, and the division of the world into Eastern and Western blocs during the Cold War.<sup>9</sup>

From these historical experiences, several lessons emerge:

- Diplomatic failure and appeasement often embolden aggressive states.
- Unresolved regional conflicts can serve as triggers for larger wars.
- Economic hardship and inequality can fuel nationalism, xenophobia, and political extremism.
- Strong international institutions and multilateral cooperation are essential to maintaining peace and preventing escalation.<sup>10</sup>

In today's world, these lessons remain profoundly relevant. However, the stakes are higher: modern warfare includes not just conventional armies but nuclear arsenals, cyber weapons, and autonomous military systems. This underscores the need for urgent diplomatic engagement, arms control agreements, and confidence-building measures among global powers.<sup>11</sup>

## Conclusion

Though still hypothetical, the possibility of a Third World War (WWIII) continues to loom large over international discourse as the world navigates a period marked by

<sup>9</sup> Dosenrode, World War I The Great War and Its Impact Edited By Søren Dosenrode, Available at, [https://vbn.aau.dk/ws/portalfiles/portal/290558684/World\\_War\\_I\\_The\\_Great\\_War\\_and\\_its\\_Impact\\_OA\\_edition.pdf](https://vbn.aau.dk/ws/portalfiles/portal/290558684/World_War_I_The_Great_War_and_its_Impact_OA_edition.pdf). (Last Accessed on 6<sup>th</sup> July 2025).

<sup>10</sup> <https://cepr.org/voxeu/columns/geopolitical-risks-and-their-implications-consumer-expectations-and-spending>

<sup>11</sup> Ibid.

geopolitical volatility, economic fragility, and evolving security threats. While war on a global scale has not occurred since 1945, the emergence of multipolar power structures, rising regional conflicts, technological militarisation, and ideological polarisation suggest that the conditions for large-scale conflict are gradually intensifying. Geopolitically, increasing tensions in key flashpoints such as Eastern Europe, East Asia, and the Middle East shape the current international landscape. The Russia-Ukraine war has rekindled fears of expanded warfare in Europe, while the U.S.-China rivalry, particularly over Taiwan and the South China Sea, threatens to destabilise the Indo-Pacific. These tensions are further exacerbated by the increasing use of hybrid warfare—cyberattacks, economic coercion, propaganda, and sabotage of infrastructure—which blurs the traditional boundaries of war and peace, making escalation more likely. Once maintained by institutions such as the United Nations and NATO, the global security architecture shows signs of strain, and new regional alliances challenge the existing order. Economically, a future world war would likely cause widespread disruption in a deeply interconnected global economy. The destruction of infrastructure, labour displacement, and collapse of financial systems would be accompanied by inflation, scarcity of resources, and long-term recessions. Supply chains—already tested by the COVID-19 pandemic and current geopolitical tensions—could completely break down, affecting everything from food to medicine to technology. Military spending would rise dramatically, diverting resources from essential public services and weakening fragile economies. Moreover, post-conflict reconstruction would demand colossal financial input, particularly in regions already struggling with debt and underdevelopment. On the social front, the human cost of a third world war would be catastrophic. Civilian populations would bear the brunt of the violence, with mass displacement, refugee crises, and widespread trauma likely outcomes. Healthcare systems would be overwhelmed, education would be disrupted, and the basic fabric of society would deteriorate, especially in the most affected regions. The psychological impact of conflict—particularly on children and vulnerable groups—could span generations, compounding cycles of poverty, instability, and unrest. Additionally, war often triggers internal political upheaval, populist movements, and authoritarian responses, further destabilising global democracies. Historical precedents such as World War I and World War II offer essential lessons: the role of alliance politics, the dangers of nationalism, and the consequences of diplomatic failure. Both wars began with regional conflicts and quickly escalated due to entangled alliances, aggressive militarism, and a lack of timely mediation. While not escalating into direct global warfare, the Cold War era showcased how nuclear deterrence, diplomacy, and international institutions can contain hostilities. This approach must be strengthened in today's context. In conclusion, the potential for a third world war, though not imminent, is increasingly plausible due to overlapping geopolitical,

economic, and social pressures. The consequences would be devastating and far-reaching, reinforcing the urgent need for preventive diplomacy, cooperative governance, and global awareness to avoid a crisis from which the world may not recover.

# **New Religious Movement: A Durkheimian functional Perspective on Radha Soami Tradition**

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## **Abstract**

A new religious movement called Radha Soami was established in Dayalbagh, Agra, in 1861 by Seth Shiv Dayal Singh. Since then, it has developed into a spiritual tradition that cuts over national, ethnic, and religious lines, founded on "community cohesion, ethical living, and spiritual knowledge". This paper explores the functionalist sociological facets of Radha Soami's major ideas, including communal cohesion, ethical living, universalism and inclusivity, and Surat Shabd Yoga. Based on current research and Durkheim's functionalist theory, this study demonstrates how Radha Soami promotes moral stability, emotional resilience, and social integration while tackling today's issues and providing followers with a sense of peace. In the complicated world of today, the movement offers a methodical manner for people to deal with social and personal issues while building relationships within communities. The function of Radha Soami as a social and spiritual organisation that upholds moral order and communal identity is examined in this study via the prism of Durkheim's functionalism.

**Keywords:** Surat Shabd Yoga, cohesion, functionalism, ethical living, inclusivity

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## Introduction

India has historically been a hotbed for the rise of many New Religious Movements because of its rich spiritual legacy and diverse religious landscape. The nation has been a vibrant site for the emergence of contemporary spiritual groups that reinterpret and reformulate religious thinking and practice, even though it is home to some of the oldest religions in the world, such as Buddhism, Sikhism, Jainism, and Hinduism. In India, new religious movements are frequently arise in response to social, cultural, and spiritual discontent, providing substitute frameworks that aim to reconcile modernity and tradition, spirituality and reason, or individual growth and societal ethics. Indian NRMs, by introducing new theological interpretations, redefining the role of the guru, and emphasising inner transformation via ethical living, meditation, and service (*seva*). In India and elsewhere, these movements add to the larger conversation about modernity, identity, and spirituality in addition to fostering religious innovation. One of the most well-known contemporary religious movements in India is the Radha Soami tradition, which is distinguished by its unique blend of spiritual universalism and devotional spirituality. Seth Shiv Dayal Singh Ji established the Radha Soami tradition, also called the Radhasoami Panth, in Agra, India, on the day of Basant Panchami in 1861. Seth Shiv Dayal Singh Ji was born into a household steeped in spiritual teachings his parents were devotees of Tulsi Sahib, a well-known spiritual guru from Hathras, and Guru Nanak. The teachings of Tulsi Sahib and a family of Nirguna (formless) saints like Ravidas, Dadu, Kabir, and Tulsidas greatly influenced his own ideas. "Radha Soami" itself has a spiritual connotation; it approximately translates to "Lord of the Soul." Seth Shiv Dayal Singh Ji, who was regarded by his disciples as a Living Master and a divine incarnation, is likewise honoured with this title. Under the leadership of his supporters, including Salig Ram, the movement grew after his death. It eventually split off into many denominations, such as Radha Soami Satsang Dinod, Radha Soami Satsang Beas, Radha Soami Satsang Dayalbagh, and Radhasoami Satsang Soami Bagh Agra. Radhasoami has many different roots, and it should be viewed as the result of a long historical development within the Sant tradition. Suratsabd-yoga, which has a strong bhakti component, was definitely influenced by Sufism and Vaishnavas, who are devotees of Lord Vishnu. (Callewaert, 2011).

The fundamental principles of the Radhasoami tradition are shared by all of these branches, despite the fact that each one evolved its own interpretations and practices. Today, Radha Soami Satsang has grown beyond its origins and has spread globally, giving rise to what scholars have termed a "transnational movement" (Jurgensmeyer,1987). Radha Soami's teachings emphasise individual spiritual development over strict rituals or conventional rites in today's fragmented and fast-paced world. Fostering a meaningful and direct relationship with God is the main goal. As Singh (2004) discusses, the Satguru's presence in the community provides a sense

of spiritual authority and moral leadership, which strengthens social bonds among followers. The leader's teachings emphasize the importance of spiritual equality, further contributing to a sense of unity and solidarity within the community. The Sant Satguru is seen as the "living embodiment of truth" and is essential to the Surat Shabd Yoga path (Juergensmeyer, 1991). Encouragement of honesty, empathy, and compassion, these teachings support community involvement, ethical living, and inclusivity. They facilitate reconnection, both with others and with oneself, creating a sense of purpose and belonging in a world that is frequently disjointed. According to the sociological theory of functionalism, society is made up of interdependent pieces that cooperate to keep things stable and harmonious (Parsons, 1951). As a social institution, religion has vital roles in maintaining continuity over time, fostering social cohesiveness, regulating behaviour, and reaffirming shared ideals (Durkheim, 1995). A spiritual movement that emphasises self-discipline and inner devotion, the Radha Soami sect demonstrates several important behaviours that are consistent with functionalist ideas. These include Surat Shabd Yoga (meditative practice), Ethical Living (vegetarianism, abstinence from alcohol, Satsang, and Naam Simran (meditative chanting of the divine name). We may comprehend how these activities support social stability, group cohesion, and individual well-being inside the sect by examining them through the functionalist perspective. Radha Soami, inspired by Sant Mat traditions, follows a spiritual path built on four key principles:

- **Surat Shabd Yoga (Meditative Practice):** Followers focus on the divine sound and light during meditation to connect with higher consciousness.
- **Universalism and inclusivity**
- **Ethical Living:** The sect encourages vegetarianism, abstinence from alcohol, and strong moral principles.
- **Social Cohesion:** Community service and collective worship in Satsang foster unity and shared spirituality.

#### **Surat Shabd Yoga: A Path to Inner Transformation:**

The meditation technique known as Surat Shabd Yoga has been used by Radha Soami's disciples. In the practice of Surat Shabd yoga, sound stream is united with the higher divine energy. "The discipline of concentrating on the divine word through one's inner current" (Juergensmeyer, 1987). It is the principle that codifies the movement's theology. According to tradition, there are four areas in their meditation practice that are crucial for assisting someone in connecting with sacred energy. Sunn samadhi is another name for meditation. Nirmal-Chaitanaya-Desh, also known as the Peaceful Dyanamic, is the fourth area, or big region. Four Loks can be found in this vast area. Present-day psychological problems are addressed by Surat Shabad Yoga, which also

promotes emotional fortitude and stress reduction. A key component of Surat Shabd Yoga is the prolonged disengagement from external factors and the subsequent inner rerouting of attention, which acts as a stabilising anchor for the mind. This is similar to how samatha meditation works in Buddhist traditions, when concentration and serenity are fostered by focussing on a single object, such as the breath (Goleman, 2003).

Surat Shabd Yoga, on the other hand, directs the practitioner within and away from sensory distractions by focussing on the inner sound current, or Shabd. Similar to mindfulness exercises, this rerouting reduces anxiety in the mind by promoting increased awareness and emotional control. Surat Shabd Yoga, however, incorporates this inward focus within a spiritual cosmology, striving not just for tranquilly but also for the soul's journey towards divine union, in contrast to secular or non-theistic forms of meditation. Thus, it offers a comprehensive route of inner transformation by fusing spiritual ambition with contemplative quiet. Individuals who meditate for at least 20 minutes every day report a 25% improvement in emotional well-being and a 30% decrease in perceived stress over a six-month period (Harris et al. ,2021).

Another study emphasises how crucial meditation is for improving mental health, especially in developed and urban areas. After adding meditation to their daily routines, 68% of the 450 Surat Shabd Yoga practitioners in India and the US reported notable increases in focus and productivity, and 54% reported improved interpersonal connections (Kabir & Sharma, 2022). Additionally, Singh (2021) emphasises that these techniques might be beneficial supplements to mental health therapies by reducing symptoms of anxiety and depression. Both mental and physical components of human life benefit from meditation. Over the course of 20 weeks, Ahuja and Vashishtha (2019) examined the effects of Surat Shabd Yoga meditation on mind-wandering and metacognition. Groups of novices, intermediate, and experienced meditators were the subjects of their study. The results showed that meditation improved participants' capacity to control their thoughts and increased their meta-awareness. Notably, prior to the trial, advanced meditators already showed fewer off-task thoughts, but following the intervention, intermediate meditators shown a significant decrease in mind-wandering, approaching the advanced group's levels. Through this technique, one of Radha Soami's gurus has provided a clear explanation of self-realization. Singh (2015) contends that everyone can have a spiritual journey and describes how meditation and introspection can lead to a deeper understanding of who we are.

Durkheim stated that, religion gives people emotional stability by assisting them in coping with existential fear and uncertainty. He stated that "the very act of religious communion strengthens the bonds between individuals and reinforces their moral and emotional resilience". Surat Shabd Yoga lends credence to this idea by providing practitioners with a systematic approach to cultivating inner peace and emotional

regulation via in-depth meditation on inner sound (Shabd) and divine energy (Surat). Surat Shabd Yoga, is consistent with Durkheim's functionalist view of religion as a tool for both personal control and social cohesiveness. He highlighted the function of group spiritual practices in fortifying communal ties when he contended that "religious rites are means by which the group periodically reaffirms itself" (Durkheim,1995). By practicing Nam Japna and Satsang, cultivate a communal spiritual experience that strengthens group identification. According to Durkheim, "religion shields individuals from anomie by offering a structured path to meaning and purpose" (Durkheim,1951). This practice not only promotes social cohesiveness but also psychological stability. In this sense, Surat Shabd Yoga promotes individual spiritual discipline while integrating people into a larger moral order, fulfilling a social as well as existential purpose.

### **Universalism and Inclusivity**

Radha Soami is not religiously affiliated. Additionally, there are no set regulations to abide by. Modern times are entwined with this heritage, and in order to address contemporary issues, they emphasise ethical living, inclusion, and meditation. Regardless of caste, creed, or religion, Radha Soami's teachings welcome everyone and encourage a spiritual journey that unites individuals beyond social and cultural barriers. This spiritual approach avoids the hierarchical and exclusive structures that are frequently connected to caste-based religiosity by intentionally making it available to people from all social, religious, and gender backgrounds (Juergensmeyer, 1991; Singh, 2004).

In this way, the Radha Soami path promotes a universal spiritual ideal that gives internal experience priority above institutional affiliation and ceremony. In the quest for greater spirituality, it all comes down to inclusivity and oneness. In a global study of 1,200 Radha Soami adherents, Ahmed and Khan (2019) found that 72% of respondents cited inclusion as a primary motivation for adopting the practice. Additionally, 85% of these participants reported that members of their satsang groups came from a variety of religious and cultural backgrounds, fostering an atmosphere of harmony and respect for one another. Inclusion and universalism aid in the tradition's growth in support. Over the past ten years, involvement in inclusive spiritual practices has increased by 65% worldwide, primarily due to younger people between the ages of 18 and 34, according to the Pew Research Centre (2021). Furthermore, Pew Research highlights the importance of inclusive spiritual movements in light of the global expansion of pluralism. Juergensmeyer (1991) emphasises the Radha Soami tradition's attraction to people of many faiths, pointing out its similarities to mystical elements in Buddhism, Sufism, and Christian mysticism. Instead of making exclusive claims to spiritual truth, the tradition emphasises experiential knowledge through meditation and situates itself within a universal mystical framework. Given its non-sectarian stance,

Radha Soami's teachings are able to transcend religious lines and provide a contemplative practice that can be used in conjunction with a variety of spiritual traditions. Its preference for inner experience above ritual or doctrine supports a pluralistic, inclusive, and universally applicable understanding of spirituality. A spiritual egalitarianism is reflected in the tradition's emphasis on direct mystical experience rather than external rites or clerical mediation.

According to the Radha Soami faith, every human being has the divine essence and, as a result, the ability to achieve inner realisation with focused effort. Anyone can seek oneness with the divine from any background because to this fundamental belief's support for an inclusive spiritual approach. The Radha Soami focus on inclusion and universalism is consistent with Durkheim's functionalist view of religion as a force that brings disparate people together under a common moral and spiritual framework. "Religion is an eminently social thing", who wrote that it serves to "bind men together, making them share the same thoughts, the same actions, and the same feelings". Radha Soami uses an inclusive strategy that welcomes followers from all origins, rejects rigid caste and sectarian divisions, and encourages spiritual equality in order to embody this philosophy. Radha Soami supports Durkheim's assertion that "religion does not merely express social solidarity, it creates it" by encouraging a sense of belonging transcending established social hierarchies. By incorporating people into a larger moral and ethical order, this universalist viewpoint guarantees that the sect operates as a unifying institution, enhancing social cohesiveness and stability.

### **Ethical Living**

The teachings of Radha Soami promote moral values including honesty, non-violence, and humility, away from intoxicants and vegetarianism. One of the main principles of the Radha Soami spiritual path is ethical life, which is closely related to Surat Shabd Yoga, the main meditation method of the tradition. Researchers point out that Radha Soami's ethical teachings are viewed as vital elements of spiritual growth rather than just moral precepts. While avoiding alcohol is seen as essential for preserving mental clarity and attention, which are crucial for successful meditation, vegetarianism is based on the peaceful coexistence principle and reflects a dedication to compassion for all sentient beings (Singh, 2004). A Study conducted by Singh et al. (2018), these ideas are in line with international movements for social justice and ecological living. According to sociological research, societies based on common ethical standards have greater levels of social cohesiveness, trust, and collaboration (Bennett & Cross, 2021). Religion acts as a moral compass, guiding people's behaviour to fit social norms, according to one of Durkheim's key arguments. He also claimed that "religious discipline teaches individuals to subordinate their personal desires to the greater moral order of the community". This is the context in which Surat Shabd Yoga functions since it calls for

rigorous discipline, such as a vegetarian diet, abstinence from alcohol, and moral behaviour.

Lastly, religious rites serve as unifying factors that keep society from disintegrating. Highlighted by Durkheim, "society cannot make itself a god without at the same time making itself a slave to it". This means that religious organizations impose rules that maintain social order. Again he stated that "society cannot exist without a certain degree of moral conformity among its members" (Durkheim, 1951), highlighting the role of ethical codes as group norms that obligate people to a common moral code. He stated that "religion is a system of ideas with which individuals represent to themselves the society of which they are members", emphasizing how moral behaviour within religious communities enhances social cohesion and group identity. His claim that "religious discipline constrains individuals, shaping them into moral beings by habituating them to a higher order of conduct" is supported by the Radha Soami tradition, which views ethical discipline as an institutionalized practice rather than just an individual choice. As a result, the ethical standards not only provide a route to personal spiritual development but also strengthen a sense of solidarity among practitioners, so promoting spiritual harmony. The Radha Soami tradition's emphasis on ethical living demonstrates its dedication to both individual and collective well-being, making it a comprehensive spiritual path that appeals to a wide range of seekers worldwide.

### **Community and Social Cohesion**

A defining feature of Radha Soami teachings, the satsang practice cultivates a sense of community and shared identity. Community-based spiritual practices that unite practitioners are highly valued in the Radha Soami philosophy. Satsang, which is the term for meeting for spiritual discussion, is essential to this. These meetings demonstrate Durkheim's idea of communal effervescence, in which social ties are strengthened by shared spiritual experiences. These meetings strengthen the bonds between followers and foster a feeling of purpose, which strengthens the group's dedication to the spiritual path (Singh, 2004).

The practice of satsang cultivates a feeling of community and shared identity. As people gather for concentrated spiritual practice, taking part in Naam Simran, the contemplative repetition of the divine name, also promotes a sense of unity. Juergensmeyer (1991) emphasises that these common practices foster a spiritually cohesive atmosphere where people have a sense of belonging to a wider, divinely directed community. When people sit together, they develop a spiritual bond that transcends individual differences and a stronger sense of belonging. In longitudinal research of 800 satsang participants in urban locations, discovered that after a year of attending satsangs, 78% of them reported feeling more socially engaged and 65%

reported having better mental health. Additionally, according to 48% of respondents, taking part in satsang helped them build solid social networks that supported them amid personal problems (Wilkinson et al., 2020). Satsangs play a crucial role in offering both spiritual guidance and social support to their followers. In their thorough anthropological investigation of Radha Soami groups throughout North America, Bhardwaj (2021), noted that these meetings function as lifelines for followers, establishing spaces where people can find comfort and camaraderie. Through the establishment of supportive networks, satsangs create a secure environment for spiritual development and the development of relationships that carry over into everyday life, providing both emotional and practical support. These networks frequently act as vital support systems, especially during tough times, giving members a sense of community and empowerment to deal with their social and personal challenges.

The guru is essential to maintaining the organisational cohesion of the Radha Soami community in addition to providing spiritual and moral guidance. The Sant Satguru becomes a focal point for communal identity and togetherness, particularly in a movement that is known for its openness and non-sectarian stance. A living guru's presence fosters a sense of continuity and connection among followers across generations and geographical boundaries. The guru helps the community stay rooted in common values and customs by his leadership, community service projects, and Satsang and Pravachans. According to Bennett and Cross (2021), people who regularly attended satsangs had 30% higher levels of confidence in others and participation in group activities. This implies that satsangs support a strong sense of community and trust in urban settings in addition to spiritual development. Satsangs build deeper connections between members by fostering chances for group participation and meaningful interpersonal interactions, which can improve cooperation and mutual support. These results demonstrate how satsangs can improve people's lives and the social cohesion of multicultural metropolitan populations. The Radha Soami promotes social cohesiveness and community, which is consistent with Durkheim's theory that religion binds people into a shared moral order. He said that "religion creates social solidarity, it does not merely express it". Radha Soami enhances group identification and mutual support through satsangs, Seva, and ethical living. Durkheim's theory that "the more strongly the collective life is affirmed, the more individuals feel connected to one another" is reflected in its inclusive framework, which cuts over caste and socioeconomic boundaries. Followers uphold a stable and cohesive community by participating in shared spiritual and ethical commitments.

## Conclusion

The core tenets of the Radha Soami sect—"Surat Shabd Yoga, ethical living, universalism, and social cohesion" allow it to serve as a social institution and a spiritual tradition that promotes moral discipline, togetherness, and a feeling of purpose. This tradition offers its adherents a framework for both social stability and personal growth by fusing organised spiritual activities with moral and group obligations. In order to create stability in followers' lives, the practice of Surat Shabd Yoga cultivates inner growth, self-discipline, and psychological resilience. Similarly, ethical living, which includes vegetarianism and abstinence from intoxicants, ensures consistency in behaviour and commitment to higher values by reinforcing a common moral code. This promotes integration and belonging by embracing universalism and inclusivity, which go beyond social divisions. Additionally, Satsang and Seva strengthens solidarity within the community and beyond by encouraging communal responsibility, and mutual support. From a sociological perspective, the Radha Soami exemplifies Durkheim's functionalist theory, which views religion as a mechanism for social integration and moral regulation. By establishing shared norms, reinforcing collective identity, and reducing social fragmentation, the sect functions as a stabilizing force that nurtures both individual well-being and societal harmony. This study highlights how religious traditions like Radha Soami extend beyond personal faith, shaping social structures and sustaining communal resilience, reaffirming Durkheim's assertion that religion is a fundamental pillar of social cohesion and moral order. Durkheim (1995) stated, "Religion is the collective consciousness of society" and also stressed that, "Religion serves as the foundation of society's moral framework", a fact that is reaffirmed throughout the study's examination of the actions of Radha Soami practitioners.

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# Effect of Vision Training on Eye-Hand Coordination and Lower Extremity Motor Coordination of Young Cricketers

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## Abstract

In the realm of modern sports science, visual function has emerged as a pivotal factor influencing athletic performance, particularly in sports demanding rapid reactions and precise motor coordination. This study aimed to examine the effects of an 8-week structured vision training program on eye-hand coordination and lower extremity motor coordination among young, state-level cricketers in Rohtak, Haryana. A total of 40 right-handed male cricketers, aged between 14 and 17 years, were selected through simple random sampling and equally divided into experimental (n=20) and control (n=20) groups. The experimental group received thrice-weekly vision training for visual tracking, saccadic movements, dynamic acuity, depth perception, and peripheral awareness; the control group maintained regular cricket practice. Eye-hand coordination (Alternate Wall Toss Test) and lower limb coordination (Lower Limb Coordination Test) performance were measured. ANCOVA, adjusting for pre-test scores, was used for data analysis to accurately assess post-intervention differences. The experimental group showed significant improvement in both dependent variables compared to the control group. ANCOVA showed a significant treatment effect for eye-hand coordination ( $F=37.49$ ,  $p<0.001$ ) and lower extremity motor coordination ( $F=28.12$ ,  $p<0.001$ ). Bonferroni tests confirmed significant improvements in visual-motor performance among young cricketers following vision training, indicating its effectiveness. Integrating structured vision training into regular coaching programs for adolescent athletes is recommended to enhance coordination skills vital for cricket performance.

**Keywords:** Vision Training, Eye-Hand Coordination, Lower Extremity Motor Coordination, Cricket, Visual Function,

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## Introduction

In the dynamic realm of sports, visual function is increasingly recognized as a crucial determinant of athletic performance. Among various disciplines, cricket—a sport requiring rapid reaction, precise timing, and coordinated movements—relies heavily on visual input. Batsmen, in particular, must interpret high-speed deliveries, judge distance and trajectory, and make split-second decisions to execute their shots. As such, enhancing the visual system's efficiency through vision training is gaining attention as a method to improve performance outcomes (Appelbaum & Erickson, 2016; Gautam & Kumar, 2018).

Vision training comprises systematic exercises aimed at improving specific visual skills such as visual reaction time, eye-hand coordination, dynamic visual acuity, and motor coordination. Eye-hand coordination, the synchronized control of eye movement with hand movement and the processing of visual input to guide reaching and grasping, is especially important in cricket, where a batsman must respond accurately to a fast-moving ball. Lower extremity motor coordination refers to the ability to control leg movements with precision and timing—an essential component for maintaining balance, executing footwork, and adjusting to different types of deliveries (Nandal & Kumar, 2024; Kumar & Jhaharia, 2020). These physical qualities, closely linked to muscle architecture and neuromotor integration, contribute significantly to overall sports performance (Khare et al., 2023; Kumar, 2022; Kumar, 2023a; Kumar, 2023c).

Over the years, research has expanded our understanding of how vision training can influence performance in various sports. Studies have demonstrated that athletes across disciplines such as baseball, basketball, and tennis can benefit from improved visual skills (Clark et al., 2012; Laby et al., 2019). These findings have spurred interest in applying similar interventions in cricket, especially for young athletes in their formative stages. Notably, prior research has also linked sleep deprivation to impaired visual-motor coordination, further emphasizing the need for specialized training to optimize performance (Gautam & Kumar, 2018; Kumar, 2018).

In cricket, vision provides over 85% of the sensory input necessary for performance (How Important Are The Visual Training Skills For Cricketers?, 2012). From anticipating the type of delivery to executing an appropriate batting stroke, the visual system orchestrates every aspect of a batsman's interaction with the ball. Given this crucial role, structured vision training programs could be instrumental in enhancing performance variables such as eye-hand coordination and lower extremity motor coordination.

The development of these visual-motor skills is especially critical during adolescence. Athletes between the ages of 14 and 17 are in a sensitive period of neuroplasticity,

meaning their nervous systems are more responsive to training stimuli (Kohmura et al., 2019). This makes them ideal subjects for interventions designed to enhance visual and motor coordination. Despite the growing relevance of vision training, empirical evidence specifically targeting its effects on young cricketers remains limited. Most existing studies focus on adult athletes or other sports domains (Jadaun et al., 2021; Kumar et al., 2021; Jain et al., 2023). Furthermore, recent findings from neuromuscular and physiological studies suggest that visual training, in conjunction with neuromotor skill development, can contribute significantly to performance improvements in youth sports (Aakash et al., 2023; Kumar & Jhajharia, 2022; Kumar, 2023b).

This study aims to bridge this gap by assessing the effects of an 8-week vision training intervention on eye-hand coordination and lower extremity motor coordination among young, state-level male cricketers in Rohtak, Haryana.

## **MATERIALS AND METHODS**

**Selection of Subjects:** A total of 40 right-handed male cricketers, aged between 14 and 17 years, were selected from various cricket academies in Rohtak, Haryana. Subjects were chosen using simple random sampling to ensure unbiased representation. Participants were divided equally into two groups: an experimental group (n=20) and a control group (n=20).

**Training Intervention:** The experimental group underwent an 8-week vision training program focusing on improving visual function skills. The control group continued with their regular cricket practice without any specialized visual training. The vision training sessions were held thrice a week and included exercises to enhance visual tracking, dynamic visual acuity, saccadic eye movements, depth perception, and peripheral awareness.

### **Selection of Variables:**

- **Independent Variable:** Vision Training
- **Dependent Variables:**
  - Eye-Hand Coordination
  - Lower Extremity Motor Coordination

### **Criterion Measures:**

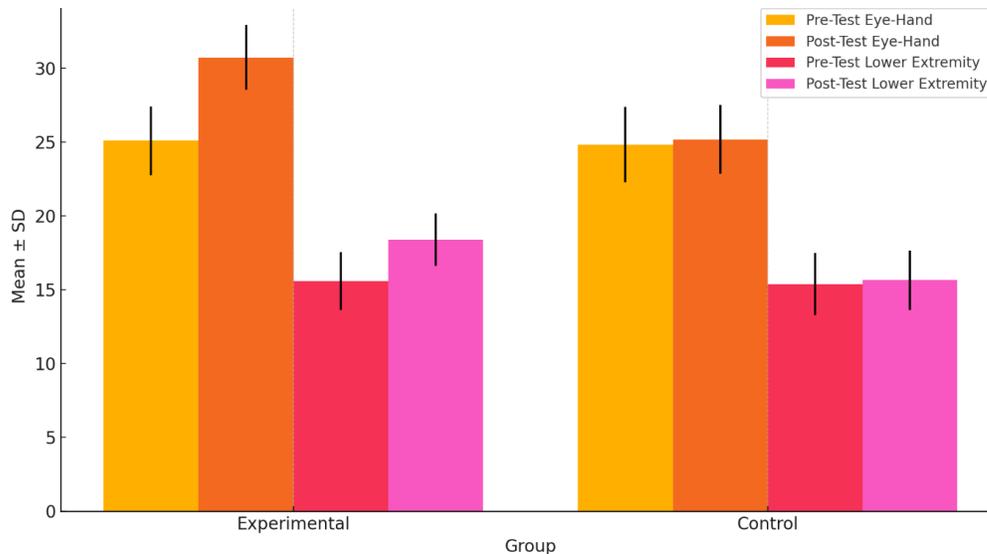
1. **Eye-Hand Coordination:** Assessed using the Alternate Wall Toss Test developed by Mackenzie (2009).
2. **Lower Extremity Motor Coordination:** Measured using the Lower Limb Coordination Test as outlined by Desrosiers, Rochette, and Corriveau (2005).

**Statistical Analysis:** Analysis of Covariance (ANCOVA) was used to analyze the post-test scores between the experimental and control groups, adjusting for pre-test scores as covariates. This method was selected to control for any baseline differences and to more accurately assess the effect of the vision training intervention.

## RESULTS

Group	Variable	Pre-Test Mean $\pm$ SD	Post-Test Mean $\pm$ SD
Experimental	Eye-Hand Coordination	25.10 $\pm$ 2.34	30.75 $\pm$ 2.18
Control	Eye-Hand Coordination	24.85 $\pm$ 2.55	25.20 $\pm$ 2.33
Experimental	Lower Extremity Motor Coordination	15.60 $\pm$ 1.96	18.40 $\pm$ 1.78
Control	Lower Extremity Motor Coordination	15.40 $\pm$ 2.10	15.65 $\pm$ 2.02

**Table 1: Descriptive Statistics Table for Eye-Hand Coordination and Lower Extremity Motor Coordination**



**Fig 1: Bar graph Statistics Table for Eye-Hand Coordination and Lower Extremity Motor Coordination**

The descriptive statistics in table 1 reveal that the experimental group experienced notable improvements in both eye-hand coordination and lower extremity motor coordination from pre-test to post-test. Eye-hand coordination scores increased by approximately 5.65 sec, while lower extremity coordination improved by 2.80 sec. In

contrast, the control group exhibited minimal change in both parameters. These initial descriptive observations support the hypothesis that vision training has a positive effect on motor coordination abilities among young cricketers.

Source	SS	df	MS	F	p-value
Pre-Test Score	18.45	1	18.45	6.12	0.018*
Group (Treatment)	112.90	1	112.90	37.49	<0.001*
Error	112.40	37	3.04		
Total	243.75	39			
*Significant at p < 0.05					

**Table 2: ANCOVA Summary for Eye-Hand Coordination**

The ANCOVA results in table 2 for eye-hand coordination indicate a statistically significant difference between the experimental and control groups after controlling for pre-test scores (F=37.49, p<0.001). The vision training intervention had a significant effect on improving eye-hand coordination in young cricketers. The pre-test score was also a significant covariate (p=0.018), suggesting some influence on the post-test results.

Group Comparison	Mean Difference	Std. Error	p-value
Experimental vs Control	5.55	0.91	<0.001*

**Table 3: Post Hoc Test (Bonferroni) for Eye-Hand Coordination**

The post hoc Bonferroni test in table 3 confirms a statistically significant difference in eye-hand coordination between the experimental and control groups, reinforcing that vision training had a substantial positive effect compared to regular practice alone.

Source	SS	df	MS	F	p-value
Pre-Test Score	15.62	1	15.62	5.21	0.029*
Group (Treatment)	84.30	1	84.30	28.12	<0.001*
Error	110.90	37	2.99		
Total	210.82	39			
*Significant at p < 0.05					

**Table 4: ANCOVA Summary for Lower Extremity Motor Coordination**

ANCOVA results in table 4 for lower extremity motor coordination show a statistically

significant effect of vision training ( $F=28.12$ ,  $p<0.001$ ). The pre-test score was also a significant covariate ( $p=0.029$ ), indicating that baseline motor coordination levels influenced post-test outcomes. The findings suggest that vision training not only improves visual-motor responses involving the hands but also positively affects coordination of the lower limbs.

Group Comparison	Mean Difference	Std. Error	p-value
Experimental vs Control	2.75	0.52	<0.001*

**Table 5: Post Hoc Test (Bonferroni) for Lower Extremity Motor Coordination**

The post hoc Bonferroni test in table 5 further confirms that the improvement in lower extremity motor coordination was significantly greater in the experimental group than in the control group. This substantiates the effectiveness of vision training in enhancing not just upper limb coordination but also lower limb motor control.

## DISCUSSION ON FINDINGS

The current study aimed to assess the effectiveness of an 8-week structured vision training program on eye-hand coordination and lower extremity motor coordination among young, state-level cricketers aged 14–17 years in Rohtak, Haryana. The results of the study demonstrated statistically significant improvements in both eye-hand coordination and lower extremity motor coordination in the experimental group as compared to the control group, with ANCOVA confirming the effectiveness of the intervention even after adjusting for pre-test differences. These findings provide compelling evidence for the incorporation of vision training into athletic development programs, particularly for adolescent cricketers.

The enhancement in eye-hand coordination in the experimental group corroborates earlier findings across various sports domains. Appelbaum and Erickson (2016) reported that structured visual training interventions, particularly those targeting saccadic eye movements and dynamic visual acuity, lead to significant improvements in reaction time, tracking ability, and hand-eye synchronization. These improvements are essential in cricket, where the batsman must rapidly interpret the bowler's delivery and synchronize the bat swing in a fraction of a second.

Similarly, Clark et al. (2012), in their study on baseball players, found that vision training not only improved batting averages but also significantly enhanced eye-hand coordination, which is functionally analogous to a batsman's performance in cricket. Their use of stroboscopic training and visual cueing was particularly effective in sharpening visual-motor response timing. Although their study was sport-specific to baseball, the parallels with cricket are significant, especially in terms of the cognitive perceptual demands placed on athletes.

Further supporting evidence is provided by Laby et al. (2019), who investigated the effects of vision training in professional athletes, including tennis and ice hockey players. They found that athletes who underwent visual training demonstrated significantly improved performance in visual reaction time and object tracking. While their population was primarily adults, the neuroplasticity in adolescent athletes, as discussed by Kohmura et al. (2019), might suggest even greater susceptibility to performance gains in younger populations, as was evident in the present study.

Moreover, Jadaun et al. (2021) reported similar findings in their research on adolescent volleyball players, concluding that visual-motor training drills significantly improved hand-eye coordination and dynamic visual tracking. This supports the applicability of vision training across multiple sports, reinforcing the generalizability of our results.

The significant improvement in lower extremity motor coordination among participants in the vision training group expands the scope of visual training benefits, which have traditionally been associated more with upper limb coordination. This result aligns with findings by Kohmura et al. (2019), who emphasized that visual stimuli play a crucial role in preparing and executing motor actions involving the entire body. Visual inputs assist in spatial orientation, postural control, and precise foot placement—all of which are vital in cricket for shot adjustment, running between the wickets, and maintaining balance during dynamic play.

Desrosiers et al. (2005), whose test was employed in this study, argued that lower limb coordination is inherently tied to perceptual-motor function, particularly in sports contexts where quick responses and stability are required. Although their work focused more on aging populations, the principles of visual-motor integration are applicable across age groups, especially in complex motor activities such as cricket footwork.

Aakash et al. (2023) reported that visual training could influence proprioceptive control and lower limb coordination, especially when integrated with neuromuscular training protocols. While their study involved a different sport, their conclusion supports the notion that visual input plays a pivotal role in dynamic balance and foot placement accuracy.

Notably, our findings challenge the traditional perception that vision training predominantly affects upper limb coordination. Instead, the significant improvement in lower limb coordination post-intervention indicates that structured visual exercises can stimulate neuro-motor integration holistically. This is particularly meaningful in cricket, where dynamic footwork often dictates batting success.

Despite the growing support for vision training, some researchers have expressed skepticism about its efficacy in improving actual performance metrics. For example, Abernethy and Wood (2001) argued that many visual training programs fail to translate

into on-field performance gains, especially when the training lacks task specificity. They suggested that unless the training stimuli closely resemble the sport-specific environment, the transfer of visual skills to actual performance might be limited. This critique calls for caution in generalizing vision training results and emphasizes the importance of sport-specific integration.

In our study, the vision training program was designed with exercises such as dynamic visual tracking, peripheral awareness drills, and saccadic shifts—elements that, while not exact replicas of on-field cricket scenarios, mimic the cognitive load and sensory processing demands of match play. This might explain the positive outcomes observed in our participants. Nevertheless, future protocols might benefit from including cricket specific simulation tasks to further enhance transferability.

Another contrasting viewpoint comes from Simons et al. (2016), who conducted a meta-analysis on cognitive training and concluded that while perceptual and cognitive tasks improve task-specific performance, the evidence for far-transfer (i.e., improvements in sport-specific performance) remains weak. However, it's important to distinguish between generalized cognitive training and structured sports vision training, which often involves integrated neuromotor and perceptual tasks, as was the case in our intervention. Also, Hitzeman and Beckerman (2015) found no significant improvements in performance metrics after a visual training intervention among collegiate football players. They attributed the null results to the short duration of their training (only 4 weeks) and low training intensity. Compared to that, our study implemented an 8-week program with three weekly sessions, potentially accounting for the more robust results. Additionally, Kumar (2018) emphasized that visual-motor coordination can be negatively influenced by lifestyle factors such as sleep deprivation and stress. While our study did not control for these variables directly, participant age and structured training environments at cricket academies might have minimized such external influences.

One of the most critical factors supporting the success of the intervention in this study is the neuroplastic adaptability of the adolescent brain. Between the ages of 14 and 17, athletes experience significant growth in cognitive, perceptual, and neuromuscular domains. Kohmura et al. (2019) noted that this stage of development is marked by heightened responsiveness to sensory and motor stimuli, making it an ideal window for interventions like vision training.

Our findings align with this developmental perspective. The statistically significant improvements in both dependent variables suggest that the participants' visual systems were highly responsive to the structured stimuli presented during the vision training sessions. This further strengthens the rationale for targeting visual skill development during adolescence, particularly in sports that demand rapid sensorimotor integration, such as cricket.

### **Practical Implications**

The present study carries several practical implications for coaches, trainers, and sports academies. Vision training is a low-cost, high-impact intervention that can be incorporated into regular training routines without significant infrastructural investment. Its benefits, as demonstrated in our study, extend beyond hand-eye coordination to include lower body coordination, which is often overlooked in vision training literature. Moreover, the use of objective measures such as the Alternate Wall Toss Test and Lower Limb Coordination Test ensures the replicability of our assessment methods. Coaches can use these tests not only to monitor progress but also to identify athletes who might benefit most from visual training interventions.

While the results of this study are promising, they also open up new avenues for future exploration. Longitudinal studies could assess the sustainability of vision training benefits over extended periods, particularly through different phases of the competitive season. Furthermore, it would be valuable to investigate whether similar effects can be observed in female cricketers, different age brackets, or athletes in other sports such as hockey, kabaddi, or football. Additionally, further studies could examine the neural correlates of improved coordination through vision training by incorporating neuroimaging or electrophysiological tools such as EEG. Understanding the neurological mechanisms underlying improved visual-motor integration would provide deeper insight into the efficacy and optimization of vision training. Lastly, comparative studies between cricket-specific and general vision training protocols could determine the degree of transferability and guide the development of sport-tailored visual training modules.

### **CONCLUSION**

The present study conclusively demonstrates that an 8-week vision training program can significantly enhance eye-hand coordination and lower extremity motor coordination among young, state-level cricketers aged 14 to 17 years. The experimental group that underwent structured vision training exhibited statistically significant improvements in both parameters when compared to the control group, which continued with regular practice alone. These findings underscore the critical role of visual function in athletic performance, particularly in a visually demanding sport like cricket, where precise timing, quick reactions, and coordinated movements are essential for success. The study highlights the value of incorporating vision training as an integral component of athletic development programs, particularly for adolescent athletes who are at a neurologically receptive stage of growth. Given the positive outcomes observed, coaches and sports practitioners are encouraged to adopt vision training techniques to enhance performance outcomes in young cricketers. Future research may explore the effects of prolonged vision training, its impact on other

visual-motor skills, and its applicability across different levels of play and sporting disciplines.

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## **Meaning in life and Work related quality of life: A study on private bank professionals**

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### **Abstract**

The banking sector is one of the most vulnerable areas to the stresses in our society. Due to demanding schedules, deadlines, workload and long working hours, private bank employees feel more stressed. They have no time to relax. This stress makes them unable to adjust with their working conditions. As a result, they experience poor work-related quality of life where quality of work life (QWL) can be defined as "the quality of relationship between employees and the total working environment." But if there is meaning in life, it can be helpful in coping up with this stress. Thus, this paper proposes to examine the association between meaning in life and work-related quality of life. For this purpose, a total sample comprising of 100 private bank employees within the age range of 30-50 years with at least 5 years of experience from private banks was selected on the basis of their availability and informed consent. Tools utilized were Meaning in life questionnaire and work-related quality of life questionnaire. Results indicate that presence of meaning in life is a positive and strong predictor of work related quality of life. Thus, present study implicates that presence of meaning in life is a very important positive characteristic to help bankers across situations to function better in the banking industry.

**Keynotes:** Presence of meaning in life, Search for meaning in life, Work related quality of life and private bank employees

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### **Meaning in life**

Meaning of life can be defined as “Why are we here?”, “What is life all about?”, “What is the purpose of existence?” Reker and Wong (1988) define meaning in life as, “the cognisance of order, coherence, and purpose in one's existence, the pursuit and attainment of worthwhile goals, and an accompanying sense of fulfilment.” Meaning always connects thoughts, ideas, and things to each other in an anticipated and stable way. It is a shared association of a specific part of the information and is the basis of an organized group of ideas. If a person has some purpose in life, and to attain that purpose or goal, he/she is making efforts and investing energy into it, then it is called meaning in life (Ryff and Singer, 1998). Reker and Wong (1988) infer that those individuals can experience meaning in life who feel that their life is coherent. Meaning can happen through individual achievements, experiences with others, or experiences with nature and art (Frankl, 1984).

Steger, Frazier, Oishi and Kaler (2006) proposed that there are two dimensions of meaning in life. The first dimension, *Presence of meaning* is a static dimension. Persons having a presence of meaning are self-fulfilled. They perceive their life as satisfying and worthwhile. According to Steger, Frazier, Oishi and Kaler (2006) individuals having greater meaning in life are less anxious and less depressed. According to Reker, Peacock and Wong (1987), persons having higher meaning in life have more life satisfaction. Davis, Wortman, Lehman and Silver (2000) found that “for positive functioning, the perception of meaning in life's difficulties was of paramount importance.”

The second dimension, *Search for meaning* is a dynamic dimension. Frankl (1959) distinguished between the search for meaning and meaning. He pointed that search for meaning is something that an individual can search, understand or supply to life. Individuals who scored high on ‘search for meaning’ are mostly “negatively past-oriented as well as fatalistic and present-oriented”. They are not future-oriented and are more thoughtful (Steger, Kashdan, Sullivan & Lorentz, 2008). Mascaro and Rosen (2005, 2006) found that the absence of meaning in life is related to negative consequences. According to Victor Frankl (1985, 1988) “search for meaning is a primary motivating force.” Individuals who discover and maintain meaning or purpose in life are healthy individuals. It also affects the quality of work life.

### **QUALITY OF WORK LIFE**

Quality of work life (QWL) can be defined as "the quality of relationship between employees and the total working environment." It refers to the favourableness or unfavourableness of a job environment for people. It is a suitable work situation within the company or it can be described as the degree to which members of a work

organization can satisfy important personal needs through their experience in the organization. Quality of work life is a philosophical concept which hinges on an arrangement of rules that employees are the essential asset in the organization as they are “reliable, capable and equipped for making commitments and that they ought to be treated with pride and regard”. The main goal of quality of work life is to increase employee's satisfaction and to enhance the effectiveness of an organization and so, it is the main asset of an organization.

### **RATIONALE**

Stress is an inevitable challenge in the banking sector, with many employees experiencing severe stress-related ailments and psychological difficulties. Given this reality, understanding the relationship between meaning in life and quality of work life (QWL) is essential for multiple reasons. A strong sense of meaning in life—particularly in one’s work—significantly enhances overall well-being and fulfilment. When employees perceive their work as meaningful, they tend to experience higher job satisfaction, engagement, and motivation. This sense of purpose encourages dedication, fostering greater investment in work-related tasks, ultimately leading to improved productivity and organizational success.

Moreover, meaningful work strengthens employees' commitment and loyalty to an organization. When their work aligns with their values and provides a deeper sense of purpose, they are more likely to remain with the organization for extended periods. Understanding this connection can help organizations develop strategies to reduce turnover and enhance employee retention.

Another critical aspect is the link between meaningful work and mental health outcomes. Employees who find significance in their work often report lower levels of stress, burnout, and psychological distress. They also demonstrate greater resilience when encountering workplace challenges or setbacks. By prioritizing meaningful work, organizations can cultivate environments that support positive mental health, creativity, and innovation, which, in turn, boost overall productivity and organizational performance.

Studying the relationship between meaning in life and QWL is therefore crucial for developing evidence-based strategies that promote employee well-being, engagement, and satisfaction. Such insights can guide interventions and practices aimed at enhancing work environments—benefiting both individuals and organizations.

This study focuses on understanding how meaning in life influences QWL among private bank employees, offering valuable implications for organizational policies and employee well-being initiatives.

## **PROBLEM**

To study meaning in life as a correlate of quality of work life amongst private bank employees.

## **OBJECTIVES**

1. To study the relationship between meaning in life and quality of work life.
2. To identify the contribution of meaning in life towards quality of work life.

## **HYPOTHESES**

1. There would be a significant relationship between meaning in life and quality of work life.
2. Meaning in life would have a significant contribution towards quality of work life.

## **METHOD**

### **DESIGN**

A correlational design would be used for present study.

### **SAMPLE**

For the purpose of the present study, a total sample comprising of 100 private bank employees within the age range of 30-50 years with at least 5 years of experience from private banks were selected on the basis of their availability and informed consent.

### **TOOLS**

**MEANING IN LIFE QUESTIONNAIRE** (Steger, Frazier, Oishi and Kaler, 2006). The 10-item self-report Questionnaire has two dimensions of meaning in life: (1) Presence of meaning and (2) Search for meaning. Subjects have to respond for each item on a 7-point Likert type scale. Responses range from 1(Absolutely true) to 7(Absolutely untrue).The internal consistency for the presence subscale is .80, and for the search subscale, it is .90.The validity of the scale was found with the other measures of Meaning-Making Strengths like 'Religious Meaning- Making' ( $r=.42$ ) and 'Meaning Making-Morals' ( $r=.45$ ) and with Wellbeing measures, like 'Subjective wellbeing' ( $r=.71$ ) and 'Post Traumatic Growth' ( $r=.59$ ).

**WORK RELATED QUALITY OF LIFE QUESTIONNAIRE (WRQoL)** (Van Laar, Edwards, and Easton, 2007). WRQoL has six factors, i.e., Job and Career Satisfaction (JCS), General Well-Being (GWB), Home-Work Interface (HWI), Stress at Work (SAW), Control at Work (CAW) and Working Conditions (WCS) which are based on responses to 23 items. A 24<sup>th</sup> item is usually included to provide an outcome

variable for measuring the reliability and validity of the items. Respondents answer on a five- point scale comprising of: Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree. On the Stress at Work subscale higher value indicates better work related quality of life and it is negatively scored. The scale has a good test-retest reliability ( $r=.87$ ), and Warr Job Satisfaction Scale is correlated .83 with overall Work related Quality of Life (Criterion adjusted correlation= $.87$ ), an indication of ‘excellent’ convergent validity.

## PROCEDURE

First, the purpose of study was explained to the subjects that helped to establish a proper rapport with them. After establishing rapport, both the scales were given to the subjects. Respondents were asked to fill the scales according to instructions, with the request to respond honestly and truly. They were assured that their responses would be kept confidential. Scoring was done as per the manuals. The scores were tabulated to compute the mean, SDs, Pearson’s ‘r’ correlation and stepwise multiple regression values.

## RESULTS AND DISCUSSION

The present research was conducted to assess the relationship between meaning in life and work-related quality of life amongst private bank employees. After computing the mean and SDs for the two parameters the data was subjected to correlational analyses. Table I indicates the descriptive statistics for the total sample which includes mean scores and standard deviations for variables under present study i.e., Presence of meaning, search for meaning and work-related quality of life.

**Table I**

*Descriptive Statistics (Mean scores and SDs) for Meaning in Life and Work-related quality of life (N=100).*

<b>Variables</b>	<b>Mean</b>	<b>S.D.</b>
<b>Presence of Meaning</b>	26.65	5.09
<b>Search for Meaning</b>	24.66	5.99
<b>Work-related Quality of Life (WRQoL)</b>	79.29	11.42

To achieve the first objective of the study, Pearson’s r was computed. The correlation matrix (Table II) indicates that presence of meaning in life has a positive and significant correlation with three dimensions of quality of work life (i.e., General well-being ( $r= .333$ ;  $p>.01$ ); job and career satisfaction ( $r=.361$ ;  $p>.01$ ) and working conditions ( $r=.280$ ;  $p>.01$ ). Steger (2017) also mentioned in his book named “Wellbeing, Recovery and Mental Health” that finding or pursuing meaning in life may

help promote wellbeing. Steger, Fitch-Martin, Donnelly and Rickard (2015) also stressed on a psychological point of view that meaning in life promotes wellbeing or health because those who find that their life has some purpose or meaning, are better able to take care of themselves. A study by Lee, Cho and Suh (2017) indicates that purpose and meaning in life is highly correlated with job satisfaction among aged. Thus, persons who understand the purpose of their life, they enjoy their job, feel comfortable with their workplace environment and report higher job satisfaction. In a nutshell, persons who have some purpose in their lives are satisfied with their jobs and as well as working conditions.

Table II also indicates that search for meaning in life has a positive and significant correlation with two dimensions of quality of work life i.e., job and career satisfaction ( $r=.214$ ;  $p>.05$ ) and working conditions ( $r=.234$ ;  $p>.05$ ). It indicates that when employees search meaning at their workplace they try to utilize their skills and abilities, it keeps them motivated towards their goals and the person feels satisfied with their job and working conditions. O'Connell (2019) indicates that employees who say they find meaning at work also express higher levels of job satisfaction, which links directly to greater productivity. It indicates that search for meaning is positively related with job satisfaction as well as working conditions. Thus, the first hypothesis is accepted that meaning in life has a positive relationship with work related quality of life.

**Table II**

*Inter-correlation matrix between Meaning in Life and Work-related quality of life (N=100).*

<b>Variables</b>	General Wellbeing	Home Work Interface	Job and Career Satisfaction	Control At Work	Working Conditions	Stress At Work	Work related Quality of Life
<b>Presence of meaning</b>	<b>.333**</b>	.190	<b>.361**</b>	.196	<b>.280**</b>	.070	<b>.395**</b>
<b>Search for meaning</b>	.044	.118	<b>.214*</b>	.079	<b>.234*</b>	-.110	.162

\* Significant at the 0.05 level

\*\*Significant at the 0.01 level

To achieve the second objective of the study, stepwise multiple regression was computed. Table III indicates that presence of meaning in life is a strong and positive predictor of quality of work life with 15.6 % ( $\beta =0.39$ ) of variance. It shows that presence of meaning in life contributes significantly towards quality of work life.

Studies show that individuals having higher meaning in life have better psychological health. (Kleftaras & Psarra,2012). Wolfram (2022) also found meaning

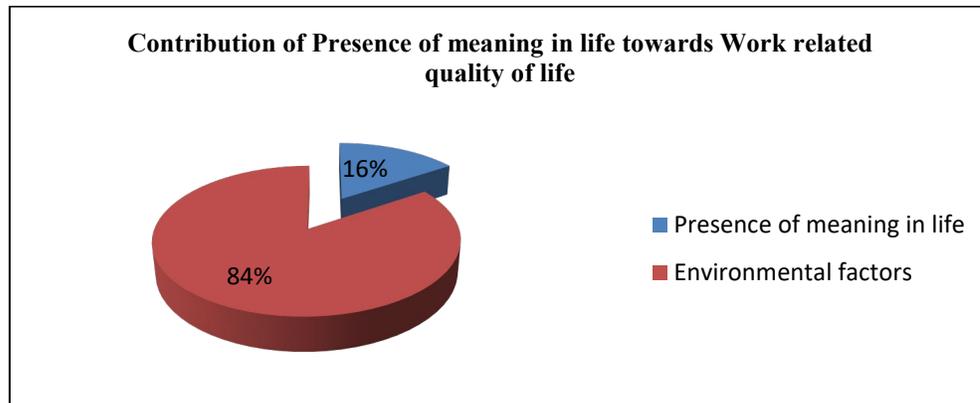
in life as a source, a contributing factor, and a protective factor of life satisfaction. Research suggests that individuals who perceive their work as meaningful tend to experience higher levels of job satisfaction and work engagement (Steger, Dik, & Duffy, 2012).

**Table III**

*Stepwise Multiple Regression analysis for predicting quality of work life from meaning in life.*

	<i>a</i> coefficient	<i>b</i>	$\beta$	$R^2$	<i>F (for R<sup>2</sup>)</i>	<i>p level</i>
<i>Presence of meaning in life</i>	55.654	.887* *	.395	.156	18.130**	.001

\*\* Significant at  $p < .01$



Thus, persons having presence of meaning are self-fulfilled. They perceive their life as satisfying and worthwhile (Steger, Kashdan, Sullivan, and Lorentz, 2008). According to Steger, Frazier, Oishi and Kaler (2006) individuals having greater meaning in life are less anxious and less depressed and have more life satisfaction (Reker, Peacock and Wong, 1987). According to Frankl (1947/1994), when people find meaning in life, miserable circumstances may become less important, reducing the negative effects of such experiences on life satisfaction.

Ryff and Singer (1998) also found that a meaningful life is one of the main factors related with psychological/mental well-being. Duffy and Sedlacek (2007) found that individuals who reported higher levels of meaning in their work also reported lower levels of depression and greater overall psychological well-being. Thus, the present study implicates that presence of meaning in life can lead employees to a greater sense of fulfilment and motivation in their role within the private bank. They may feel more connected to their work and be more willing to invest their time and effort into their job

responsibilities. This can benefit both the individual employee and the overall effectiveness and success of the private bank.

In a nutshell, we can say that there is a need that humans have some sense of significance of their own life. A meaningful life enhances the mental wellbeing of an individual, and the person feels self-fulfilled. In the banking sector, employees should have a meaningful life because then employees would feel that their daily activities are meaningful, they have some purpose and thus they can overcome their sufferings and hardships and become more self-efficient.

To leverage these implications, private banks can focus on promoting a sense of meaning in employees' work by providing opportunities for professional growth and development, fostering a positive work culture that values employee well-being, and encouraging employee autonomy and decision making. Additionally, offering programs and initiatives that support work life balance and recognising and rewarding meaningful contributions can further enhance the relationship between meaning in life and quality of work life for private bank employees.

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# Countering Forthcoming Threats by Terrorism-Insurgency Fusion: India's Strategy for Safeguarding National Security

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## **Abstract**

*India has been struggling to win over the unified threat of terrorism and insurgency on its national security for many decades. Since it involves asymmetric warfare and little conventional fighting, it becomes challenging for security stakeholders to assess, prepare, and respond to these threats. This study highlights the difficulties that the relationship between terrorism and insurgency presents for India's national security by posing new and upcoming threats from the Khalistan movement and the increasing influence of Tehrik-e-Taliban Pakistan, and also the strategies India has employed to counter these threats are examined. The main change has been the policy's transition from defensive to defensive-offence. However, India's adversaries do everything in their power to counter the counterstrategy and checkmate India.*

**Keynotes:** Terrorism-Insurgency Fusion in India, Asymmetric Warfare, Rising Khalistan Movement and Tehrik-e-Taliban Influence, India's Strategy for CI-CT operations

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## Introduction

The terms "terrorism" and "insurgency," which are frequently used in India, have not, however, been thoroughly studied. Both of these terms have occasionally been used concerning the Khalistan issue; the same is true for Jammu and Kashmir and the states in the northeast. However, this transition from insurgency to terrorism, or a combination of the two, has not been denied. There is enough research on terrorism and insurgency separately, but regrettably, scholars have not given much thought to how they can combine and have occasionally become very similar, which has complicated India's national security. This paper aims to examine future threats associated with this nexus, primarily focusing on the Khalistan movement and Tehrik-e-Taliban Pakistan. Nonetheless, a few well-known groups have occasionally switched from insurgency to terrorism.

## Research Questions

1. What are the emerging threats that this nexus may pose in the future?
2. What is the strategy adopted by the Indian government to counter this nexus?

Analysing the forthcoming challenges of the terrorism-insurgency fusion on India's national security and the countermeasures it has taken to combat potential threats from the past, present, and future is the goal of this paper. Furthermore, enhancing its counterstrategy has been prioritised.

## The Terrorism-Insurgency Fusion and Challenges to India's National Security

Insurgency and terrorism can have both tangible and intangible effects on a country's security; the former can result in physical violence, military conflicts, and economic devastation, while the latter can have psychological, political, and ideological effects. To comprehend how terrorism impacts India's national security, we must look at both sides of this debate. The term "terrorism" has no universally recognized definition. But the US Marine warfighting doctrine says, "*The organized use of subversion and violence to seize, nullify, or challenge political control of a region*" is called terrorism. (US DOD, 2017) On the other hand, insurgency is "*a violent attempt to oppose a country's government that is carried out by citizens of that country*". (NIOS, 2018) The prevalence of the fight against the political establishment and the use of force (through guerrilla warfare tactics) to accomplish the goal are still evident when comparing these definitions. There are certain parallels between these two campaigns. (Thompson, 2002) There have been sporadic mergers of certain movements throughout Indian history. The Khalistan movement began in Punjab and, with the help of the local populace and the federal government, grew until it turned into an insurgency. When the

central government intervened, however, it demonstrated its terrorist nature by starting mass and VIP killings, plane bombings (Kanishka, AI-182 in 1985), and other atrocities. Last but not least, the Maoist and insurgency issues in the eastern and northeastern states have frequently demonstrated their terrorist nature. In Jammu and Kashmir (J&K), too, the insurgency began as an insurgency at first, but by the time law enforcement agencies took action, it had both a nature and a fusion with manpower and supplies available from Pakistan's side.

The Tehrik-e-Taliban Pakistan (TTP) and Khalistan pose the biggest asymmetric threats to India's national security in the near future. The TTP is eager to fight the Pakistani Army and seize control of Khyber-Pakhtunkhwa province, while the Khalistani movement is similarly motivated to seize some portion of India and declare it an independent country. But in order to achieve their goals, both of these movements have a tendency to combine insurgency and terrorism, which can seriously jeopardize India's security, as this paper examines.

### **The Tehrik-e-Taliban Pakistan**

The Tehrik-e-Taliban Pakistan (TTP) is an Islamic militant group that operates in Pakistan, primarily along the Afghanistan-Pakistan border. Though it was established later in 2007 (Sayed, 2021), its record of bravery spans centuries, and it shares a close relationship and history with Tehrik-e-Taliban Afghanistan (TTA). Similar to the TTA, the TTP wants to use militancy to establish a Sharia-based government. It is closely associated with Al-Qaeda and the Islamic States in Khorasan Province (ISKP) in addition to the TTA. The TTP has grown stronger, and its involvement in violence has increased since the TTA took over Afghanistan. About 1000 people died in 2023, and it is shocking to learn that 2526 people died in Pakistan in 2024 alone, including 700 security personnel, 900 civilians, and roughly 900 militants. (Kumar, 2025) It killed 16 Pakistani soldiers in South Waziristan, which is near the Afghan border, on December 21, 2024. To what extent the rise of the TTP threatens India's national security is now a matter of discussion. We have stopped all diplomatic relations with Pakistan because, while it is a democratic country, it has been funding terrorism and insurgency in India. The discussion is whether an internally disturbed Pakistan is good for India or not, and to what extent. Indeed, Pakistan has always experienced internal turmoil. Since 1947, Pakistan has elected 29 prime ministers, but none of them have completed their terms. (Al Jazeera, 2022) There have been three successful military coups in Pakistan. Militant organizations like the TTP have joined the power struggle, which was dominated by political and military elites until the twenty-first century. The TTP wants to attract the attention of the Pakistani army by conducting these kinds of ambushes and attacks. Although the TTP's Indian policy is currently unclear, once they impose Sharia in Pakistan, there is a chance that they will launch a jihad in India. (Behuria,

2021, pp. 90) Its ties to organizations like Al-Qaeda, which David Headley has revealed had a role in 26/11 (the Mumbai Attack), have a direct influence on its policymaking. One of the TTP's founding members and a senior leader, Baitullah Mehsud, told The News soon after the 26/11, when there was mounting concern that Indian forces might invade Pakistan. He said, "*The mujahideen will foil all such nefarious designs of our enemies... hundreds of would-be bombers were given suicide jackets and explosives-laden vehicles on Monday*" to defend the border against an Indian military attack. (Behuria, 2021, pp. 96) It illustrates how the TTP was ready to back suicide and terrorist attacks if needed and had previously defended Pakistan's army against Indian forces.

India needs to allow a stalemate kind of thing where neither the Pakistani government nor the TTP wins the game. That is the best and most efficient course of action, and India cannot afford for the TTP to rule Pakistan. Additionally, it is understood that the TTP and TTA share the same ethnicity, ideology, and goals; if these two groups come together, Pakistan (or parts of Pakistan) would merge with Afghanistan and become a single, merged state. In neighbouring states like Punjab and J&K, the TTP may then collaborate with insurgent groups to achieve their goals in the insurgency.



*The flag of Tehrik-e-Taliban Pakistan (TTP)*

(Image Source: [https://commons.m.wikimedia.org/wiki/File:Flag\\_of\\_Tehrik-i-Taliban.svg#](https://commons.m.wikimedia.org/wiki/File:Flag_of_Tehrik-i-Taliban.svg#))

### **Re-emerging Khalistan movement in Punjab**

Since before independence, Punjab (including modern-day Haryana) has been actively involved in campaigns against foreign powers, such as the British and Mughals. Geographically, this route was used for the majority of attacks on India's integrity before they reached Delhi. So, it justifies the highly polarised, romantic heroism and a feeling of separatism among the people, (Mujtaba, 1989) as they were left to choose to be either friends or foes. It is a conceived land (consisting of Punjab, Himachal Pradesh, Haryana, and parts of Rajasthan) demanded by these separatists, who want to establish it as an independent country. The political parties have also used it as a tool to

destabilize the state government for rivalry, and sometimes things get out of control; that is why we had Operation Blue Star in 1984. The saddest incident in Indian military history occurred when the saviours or protectors endangered their own nation's security. Psychological warfare now plays a part. The National Security Guard (NSG) was established to carry out counter-terrorist operations in order to prevent such accidents in the future. They proved their worth in the same field in 1986 and 1988, dealing with religious, ethnic, or any other kind of advanced art that was required. It was referred to as Operation Black Thunder. When farmers demonstrated against the three farm laws, the current resurgent Khalistan threat regained its resources. (ETV Bharat, 2024) Those in Western nations, such as the United States of America and Canada, have been in charge of command and control. In order to dismantle this threat, an alleged (not accepted by the GoI) large-scale elimination process has been initiated by Indian security agencies to combat it, and some of its leaders, such as Hardeep Singh Nijjar, have been eliminated. Gurpatwant Singh Pannu, the chief of Sikhs for Justice (SFJ), also attempted to be eliminated, but it was unsuccessful and exposed the former R&AW officer Vikas Yadav (who was initially designated CC-1 by the US authorities) and his ally Nikhil Gupta. There is news of Yadav carrying out extortion, kidnappings, etc., both inside and outside of Indian Territory with the assistance of the Lawrence Bishnoi gang. (TOI, 2024) For his alleged involvement in the kidnapping and extortion of a businessman under the alias Bishnoi, he was taken into custody by the Delhi Police. Additionally, the security services have taken significant internal measures to stifle the separatist ideology of Khalistan. Three Khalistan Zindabad Force (KZF) members were slain in an encounter in Uttar Pradesh on December 23, 2024. They had attacked a Punjabi police station with a grenade. (Tewari, 2024) It is indisputable that these groups can communicate with each other and come together at any time because they have the same objective of uniting Punjab, Himachal Pradesh, Haryana, and parts of Rajasthan into a single, autonomous country or region known as Khalistan. Goons also show a desire to become powerful and support these initiatives by using force; one such gangster, Sukhdool Singh, a Canadian "A" gangster, was assassinated after it was revealed that he was backing this movement. The pattern and countries they were operating in before being killed or attempting to kill, other than India, are Canada, the US, the UK, and Pakistan. This clearly illustrates their areas of command and control and India's defensive-offense strategy to counter this threat.

Moreover, drones and unmanned aerial vehicles (UAVs) have been used in the delivery/trafficking mechanism for Pakistan's money, weapons, ammunition, and drugs, which provide all the supplies, required carrying on this unconventional war against India. Punjab is located along the 553-kilometer international border between India and Pakistan. The number of drone sightings is alarming: more than 200 in 2024, 107 in 2023, 311 in 2022, and 104 in 2021. A report in 2022 says that there have been a

total of 492 drone sightings in India during 2020-22, and 369 of these occurred in Punjab only; 75. (Rajnish, 2022) This trend led to a meeting between Prime Minister Narendra Modi and Punjab Chief Minister Amarinder Singh. He stated, "*I had always been warning against Pakistani designs, and now the frequency of infiltration of weapons and drugs is quite high*". (ANI, 2022) Now, a debate arises as to whether they have been reserved for use in forthcoming events in Punjab or have been supplied to the rest of India as per requirements. However, one thing is fairly obvious: Punjabis have been employed in supply chain management and logistics.

Internationally, especially in Canada, several Hindu organisations have confronted with the Khalistani extremists, after these Khalistanis began attacking Indian embassies, Hindu temples (in Mississauga and Brampton, Canada), etc., this development took place. (ANI, 2024) and there have been articles and videos of their clashes all around. Indian intelligence officials claim that the second phase of the Khalsa Waheer campaign, which was started by Khalistani separatist Amritpal Singh to reach out to villages on the day of Moosewala's death anniversary, was a conscious effort to expand influence in the Malwa region. (HT correspondent, 2023) Amritpal Singh, a current Khadoor Sahib MP, is cast as Bhindranwale 2.0, who has all the qualities required to lead this movement in order to increase its viability, since no such objective could be achieved without the revival of local Khalistani leadership in Punjab. Before 2022, he worked as a truck driver in Dubai. To revive the militancy, Indian intelligence agencies claim that Pakistan's Inter-Services Intelligence trained him in Georgia before forcing him into India. He also has ties to Gurpatwant Singh Panu, a terrorist under the Unlawful Activities Prevention Act who leads the outlawed group 'Sikhs for Justice'. (PTI, 2023) It suggests that the Indian government has taken all precautionary and advance level of actions through the use of defensive-offence strategy by aligning intelligence, force, and law and order in place to counter it.

### **India's Counter-Strategy to Terrorism-Insurgency Nexus**

India has been attempting to counter the threats posed by the terrorism-insurgency nexus by implementing several strategies derived from the evolving strategy for its counterbalances. As was previously mentioned, the security stakeholders have not sufficiently addressed this nexus; however, there is always an understanding to counter such threats by tying these outfits together. The counter-strategy can be defensive, offensive, defensive-offence, or a mix of all three, depending on the circumstances. There has been no discussion or reconsideration of the fact that these elements must use the old-fashioned guerrilla warfare techniques in hot regions. To end this threat, the government must restrict all facets of its existence and endeavour to destroy the others. To counter this threat, a country must work together and possess the necessary national power;  $Pp = (C+E+M) \times (S+W)$ , where Pp stands for perceived power, C for critical

mass, E for economic capability, M for military capability, S for strategic purpose, and W for will to work toward national strategy. (Cline, 1975) These aspects need to be examined each to identify India's counterstrategy.

According to Mao Tse-Tung, political convictions, local support, fighting prowess, financial support, and, lastly, favorable terrain are the most important elements for sustaining guerrilla warfare. (Thompson, 2002, p. 17) Regardless of the approach, the method relies on similar elements, including obtaining intelligence, using force, establishing international pressure, and—above all—protecting our weaknesses and upsetting adversaries in these areas. The counter-terrorism-insurgency nexus planning can be of mainly three stages: 1. preincident, 2. incident, and 3. Postincident. (Bolz, Dudonis, Schulz, 2012, p. 50) When formulating its counter-strategy, the strategists remember that they must consider political, diplomatic, military, economic, and psychological aspects in addition to the two or three dimensions they must work in. (Thompson, 2002, p. 11) Reducing the potential risk is the ultimate goal of the CI-CT approach. Simply put, risk analysis is the possibility of occurrence and capacity for loss;  $L = D + R + I - IC$ , where 'L' is the total loss, 'D' is the direct loss, 'R' is the cost of replacement, 'I' is the indirect loss, and 'IC' is the insurance claim. (Bolz, Dudonis, Schulz, 2012, pp. 67)

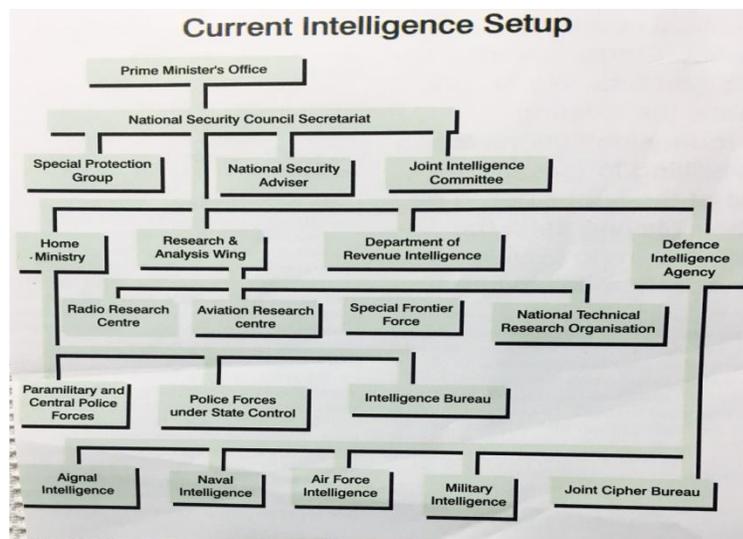
### **Political and Diplomatic Mechanism**

Only through political means can the link between insurgency and terrorism be permanently broken. The state's political failure is the cause of any such threat. Security forces are undoubtedly one of the tools the government uses, but they are only employed when other tools—politics as a tool—are unable to resolve the issue. Both insurgency and terrorism require politically unstable regions to thrive and persist. When politicians are unable to solve citizens' issues, they use it as a means of subverting the government's will. The center, state, and local authorities must work together to counter this threat using a national strategy and a wide range of political, social, economic, and military tools in order to restore normalcy. (Bolz, Dudonis, Schulz, 2012, p. 49) Since ceasefires and agreements with active terrorists and insurgent groups are the only long-term solutions to this issue, the government is in charge of putting them into effect. By using force and other methods, it cannot be accomplished. This is because political goals are the focus of these forces. This goes beyond the Indian subcontinent to the global arena as well; India and the Taliban government recently met, for instance.

### **Advanced Intelligence**

It is the most important factor in dealing with intelligence gathering internally as well as externally. All prominent strategists, including Kautilya, known as "the first theorist

in Intelligence", (Liebig, 2013) have placed a high value on using spies to obtain intelligence as a tool of good governance. Due to their superior access to ground level, he used Sudras for HUMINT (human intelligence). (Chaya, 2023) Now, TECHINT (technical intelligence) has also been in the picture for this role, but the basics of intelligence gathering remain similar. According to the US Army's Manual of Counterterrorism Operations (FM31-16), "*Success in counterterrorism operations almost invariably goes to the force that receives timely information from the local population*". Working on terrorist and insurgent groups has the advantage that they usually do not have counterintelligence operations underway. Instead, they receive regular intelligence from outside organizations, like Pakistan's ISI in the Indian context, which provides and manages these groups through proxies. India's intelligence structure is a component of the national security apparatus, of which the National Security Council (NSC) is the highest authority. It includes every intelligence organization that works with the CI-CT. Internal and external intelligence agencies are the two main categories into which they fall. The Intelligence Bureau (IB) is in charge of gathering internal intelligence, while the Research and Analysis Wing (R&AW) is in charge of gathering external intelligence. Nonetheless, some organizations, such as Military Intelligence (MI), operate both internally and externally.



(Source: <https://blitzkrieg974.wordpress.com/2017/05/31/the-ntro-and-the-nctc/> )

No operation can succeed without actionable, valuable intelligence, which is why intelligence organizations are essential to CI-CT. Intelligence agencies should fill in the necessary details, such as whether a militant is present, where he is, his objective, his supplies, communication, command and control, and—most importantly—his standard operating procedures (SOPs). Contact intelligence and background intelligence are two

additional categories into which these factors can be separated. The latter is used by the forces that started the operations to physically confront and destroy the threat. According to the US MCWP (1999), "contact intelligence provided by constant close surveillance of suspected persons and their supporters is the basis of a successful attrition." This information can be obtained in three ways: first, by patrolling to watch their behaviour and look for physical evidence, such as their movements, camps, posts, and any suspicious items; second, by depriving them of the local supply chain, which would expose their general SOPs; and third, by using informants to gather information about the terrorists and insurgents, including their availability in a particular area, close relationships, plans, weaknesses, etc. (ATP 3-05.2, 2015)

After the 26/11 attack, the Indian government created the National Counter Terrorism Centre (NCTC) to integrate C4I2SR (Command, Control, Communications, Computers; Intelligence, Interoperability; Surveillance; Reconnaissance) among the national-level intelligence and security agencies pertaining to terrorism. Its purpose is to transmit intelligence to executive agencies and guarantee that they take action on these inputs. The National Technical Research Organization was created by the government to address the TECHINT. Its purpose is to collect intelligence, and it can intercept all communications. The lack of integration among the intelligence agencies was another issue. To tackle this problem, there are specialized organizations like the NTRO for TECHINT, the Defence Intelligence Agency (DIA) for tri-services, and the NCTC for terrorism. Furthermore, all of the intelligence services work together at NCTC's Multi-Agency Centre (MAC) to provide their C4I2SR capabilities for counterterrorism. (Simlai, 2017)

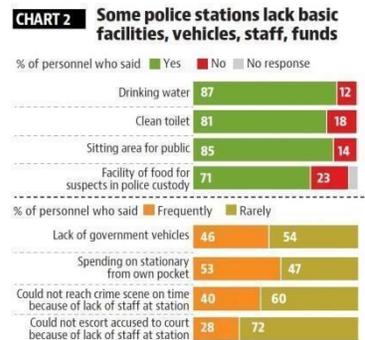
### **Power to Prevent**

While timely intelligence transfer is important, it is also crucial to have the ability to stop an attack. In India, state police forces and the Central Armed Police Forces (CAPFs) have the primary responsibility for dealing with internal threats such as terrorism and insurgency. But sometimes things get out of hand, and the military must be used to help civil authorities restore law and order in places like J&K, Punjab, the northeastern states, etc. These take place in places that are known to be "disturbed" by nature. Therefore, one component of the strategy is the identification of disturbed areas. The necessity of identifying the unstable areas where terrorism and insurgency have reached an uncontrollable level and where police and CAPF forces are either losing battles or coming to a halt. The Armed Forces Special Powers Act (AFSPA) gives the military the authority to assume control of the law and order situation. But without the support of CAPFs and state police, the army cannot operate independently. There have been SOPs with each force of their own for CI-CT operations. In order to eliminate this threat, the forces also develop their guerrilla action tactics and fight on the same ground

because the fighting is unconventional (guerrilla warfare). These include severing their supply chains, apprehending or expelling their important personnel, gaining local support for the government, etc. To do that, we must draw lessons from the force deployment's prior experiences.

### **Role of State Police**

Since police are the first line of defence, their role in CI-CT operations and areas is crucial. It can be done in a number of ways, such as maintaining public relations, conducting patrols, obtaining intelligence, focusing on the insurgents' war effort mechanism, planning government operations to carry out such operations, etc. These operations supplement their already-existing responsibilities, which include keeping law and order in check and resolving local crimes, robberies, traffic control, etc. However, it is unfortunate that police in other states have been overlooked in similar circumstances. In the Indian context, the best examples of the role of police in CI-CT operations are Punjab, Andhra Pradesh, West Bengal, and Tripura. (Jha, G., 2022, pp. 65) To effectively perform this role, the majority of Indian state police forces still need to enhance their leadership, discipline, and training. (Epstein, 1968, pp. 150) These states' police forces, particularly the then-DG of Punjab Police, Shri KPS Gill, showed unparalleled leadership in neutralizing this threat. To better coordinate efforts to eradicate the Khalistan insurgency-terrorism from the state, he led and carried out the first-ever unified command of the Indian Army, the Border Security Force, and the state police in Indian history. The action in Tripura, initiated by the then-DGP Shri B. L. Vohra, comes next. He began by opening up remote and outlying areas. In order to secure sufficient resources, he then maintained friendly relations with the chief minister and other pertinent officials. Shri G.M. Srivastava, his successor, even went one step further. Remarkably, he used some Bangladeshi mafias and former insurgents to help him carry out cross-border raids on the insurgent groups. Many of them were killed by his well-trained and efficient Tripura police, while the rest were forced to flee to Bangladesh. (Jha, G., 2022, pp. 66) Such leadership has filled the gaps and motivated the police forces to achieve success. These forces not only conducted direct attacks but also intelligence gathering, psychological operations, maintaining law and order, reversing local support for the administration, and preventing widespread support for terrorists and insurgents.



(Source: Hindustan Times)

As of January 1, 2022, the authorized police-to-public ratio in India is 196.23 police officers per lakh people; however, the actual ratio is 152.80; (PTI, 2023) this places a significant additional burden on the available force and also results in subpar work. According to surveys by Common Cause and Lokniti-Center for the Study of Developing Societies (CSDS), the majority of Indian police officers are under stress from their excessive workload. They work an average of 14 hours a day, which is six hours more than the legal limit, (Kawoosa, 2020) and the police-to-population ratio should be one officer for every 520 citizens, but it is currently 720. The number of police officers is down 24% nationwide. (CARRIÈRE, 2020) This significantly affects policing capabilities, which is one of the reasons state police forces are unable to handle problems like terrorism and insurgency.

**Role of the CAPFs**

The Central Armed Police Forces, whose primary duty is to handle any internal security threats to India, are crucial to CI-CT. India has specific task forces in CAPFs, designed for specific deployment as per the requirements, like NSG, CRPF, CISF, etc. To examine in detail, let us begin:

**The National Security Guard (NSG)**

It is India's most successful paramilitary counterterrorism force. It was established shortly after Operation Blue Star, in which the Indian Army's actions backfired and harmed the country's social cohesion. Under the National Security Guard Act of 1986, the Indian government established the NSG to allay such criticism. Special Action Group (SAG) and Special Rangers Group (SRG) are its two complementary components. All members of the SAG's other two groups, 51 SAG and 52 SAG, are provided by the Indian Army. One group handles various CI-CT operations, primarily on the Indian mainland, while the other group handles anti-hijacking operations for Indian airlines. Furthermore, the three SRG groups—11, 12, and 13 SRG—all contain members from CPOs. (Kasturi, 2006)

### **51 Special Action Group**

It is purely a counter-terrorist and counter-insurgency unit raised in December 1984. Participating in numerous operations in India and abroad, beginning with Op Black Thunder I & II in 1986 and 1988, respectively, has allowed this unit to become well-versed in such tasks. To defeat terrorism and insurgency during the long-term operations in Punjab and J&K, the 51 SAG successfully collaborated with other agencies. Meanwhile, the 51 SAG has consistently been ready for CI-CT missions, including the 2008 Operation Black Tornado, the 2002 Akshardham operation, the 1992 Ayodhya crisis, and others. This unit has been actively involved in all CI-CT operations, both short- and long-term, with positive results.

### **52 Special Action Group—the counter-hijacking force of India**

Hijacking is defined as an unlawful and intentional seizure by force or any technological means. Terrorists and insurgents have been targeting the civil aviation security of India by hijacking airplanes to pressure the government to accept their demands. From the first in 1971 to the last in 1999, there have been sixteen such incidents in Indian history. (Sheikh, 2023) The first such law, known as the Anti-Hijacking Act, 1982, was introduced by the Indian government in response to such circumstances. It stipulates that hijackers would face life in prison and a fine if found guilty. The government was forced to free Maulana Masood Azhar, the founder of the terrorist group Jaish-e-Mohammed, and two other prominent terrorists in IC-814 (1999) because the law was ineffectual. A strict anti-hijacking policy was later implemented by the Government of India (GOI) in 2005 and was later dubbed the Anti-Hijacking Act of 2016. This policy set forth explicit rules for situations involving hijacking, including refusing permission for foreign hijacked planes to land in India, forcing hijacked Indian planes to return to India, shooting down aircraft that were acting as missiles (as in the 9/11 cases), and punishing hijackers with death if any passengers or security personnel perished. (Singh, 2012) Another important decision was to give NSG anti-hijacking training in the 1990s. In 1993, when the hijackers of IC-427 were successfully neutralized, the Limca Book of Records recorded the fastest commando operation (five minutes) as "Operation Ashwamedh". (Mukul, 2024) However, in 1999, the NSG's indecision prevented them from intercepting another plane, IC-814, in time. (Kasturi, 2006) Following this incident, the GOI launched an Air Marshal program in February 2000 to install onboard lights for 52 SAG commandos. They are known as "Sky Marshals" and are involved in internal hijacking interventions. In this capacity, at least two commandos covertly board commercial aircraft equipped with gadgets and concealed weapons, (Web-post, 2024) including plastic handcuffs, pepper sprays, a dagger, a Glock-17 pistol with two extra magazines, and other items that might be required to handle such situations. (GOI, 2010) The government took the initiative to

take the necessary steps, such as deploying 110 Sky Marshals last year, up from 40 the previous year. (Web-post, 2024) Instead of an external intervention, the sky marshals' internal intervention will be a game-changer in counter-hijacking operations.

### **Central Reserve Police Force**

Apart from guarding the border areas, the CRPF plays a critical role in CI-CT operations. It has been used in Punjab, J&K (where it replaced the BSF in 2005), the northeastern states, and central India, among other places. It has the Commando Battalion for Resolute Action (CoBRA) for various anti-guerrilla operations and the Rapid Action Force (RAF) to handle any kind of communal riot-like situation. Without the assistance of the Army, it manages all operations in Maoist-affected regions (the "red corridor"), such as Chhattisgarh and Orissa. The CRPF has the potential to lead CI-CT operations in other areas like J&K (India Today, 2023) and replace the IA.

### **Central Industrial Security Force**

It is tasked to protect the sensitive infrastructure (i.e., governmental, industrial) of India; also called vital areas (VAs) and vital points (VPs). The VAs and VPs, like nuclear power plants/grids, the VVIP buildings, dams, ports, airports, metros, etc., are the primary targets of attacks by terrorists and insurgents, whether they take the form of bombings, armed assaults, hostage situations, etc. The CISF is designed to protect such vital infrastructure from threats of any kind.

### **The Border Security Force**

It possesses many of the elements that make it a comprehensive force, including artillery, light aviation for transportation, seaboats for patrolling in water, and regular infantry troops on the ground for patrolling and initiating land-based operations. The other CAPFs are unlikely to have these facilities. It is mostly used along India's border with Bangladesh and Pakistan. In addition to preventing illegal infiltration by terrorists and other elements, it has been used in CI-CT operations in J&K (since 1989), Punjab, and the northeastern states. There are currently about ten BSF regiments on these missions, (CARRIÈRE, 2020) and they have been fighting alongside the IA in this proxy war. It has also been crucial in taking down Pakistani drones that were delivering money, weapons, ammunition, drugs, and other supplies to these terrorists and insurgents in Punjab and J&K.

### **Assam Rifles**

It is the oldest paramilitary force of India, raised in 1835. It was first created to prevent tribal raids on British tea gardens in Assam. Currently, the MHA has administrative control, and the IA (MoD) has operational control. It was stationed in J&K for a while in the CI-CT role and has done a commendable job of eradicating terrorism and

insurgency from northeastern states.

### **Role of the Armed Forces**

Whether in J&K or the northeastern states, the armed forces' internal security responsibilities are not mentioned in the Raksha Mantri's Operational Directive, which provides the military with political instructions. (Singh, 2022) It is not their role to be deployed in CI-CT operations because they have two fronts to manage: China and Pakistan. They are only operationally deployed when the state governor restores law and order to the areas that have been disrupted (as stated in Section 3) by using the Armed Forces (Special Powers) Act (AFSPA). They require specific authority (under Section 4) to operate, including the power to enter and search any location, shoot anyone they suspect, and make an arrest without a warrant. By providing military support to CAPFs and state police forces, AFSPA aims to restore order (AFSPA, 1958). Because of the nature of warfare, which is mostly fought on land, the Indian Army is the armed forces' primary performer of this role. In order to prevent militants from receiving outside support, it entails border guarding, patrolling, surveillance, attacking militants, breaking into enemy territory's terror camps, cutting off their supply chains, and establishing strategic deterrence (conducting cross-border raids using special forces, air strikes, artillery/rocket/drone/RAV attacks, etc.). When AFSPA was first implemented in 1958, the Indian Army made its first deployment in CI-CT operations at the Naga Hills in Assam. Since the IA's operational strategy was founded on traditional methods of warfare, it was initially a difficult battle that would not be resolved until the Malayan model of counter-insurgency was implemented. The creation of India's asymmetric warfare doctrine was made possible by this model (Jha, G., 2022, pp. 61, 62). Since then, the IA has been applied in all regions—Assam, Punjab, Manipur, Tripura, and so forth—where the situation has gotten out of control. In reaction to terror attacks, the doctrine of the armed forces has evolved from being purely defensive to being defensive-offence. The IA's 21 Para SF entered Myanmar in "Operation Hot Pursuit" (2015) to destroy the elements involved; India launched a surgical strike on JeM training camps in PoK in response to the Uri attack (2016); and India used its Air Force (Operation Bandar) for aerial strikes to target in Balakot for the first time after the Pulwama attack (2019).

The forces' response must be timely, efficient, and effective in order to ensure prevention. The security forces must be well-trained, always ready, and equipped with state-of-the-art weapons, ammunition, and equipment to accomplish this. Above all, they must possess the political will to constantly outmaneuver their adversaries. However, more authority must be granted to the CAPFs and State Police Forces to replace the Armed Forces in CI-CT Operations. It has been conducted in many areas under the jurisdiction of CAPFs, such as the BSF, CRPF, NSG, and others.

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**Effective flow of mainstream and nationalism**

The government's indifference to the political, social, cultural, and economic discrimination that led to that region's isolation from the mainland is the main cause of the terrorism-insurgency, even though there have been several contributing factors. The opponents broaden the gaps and try to fill them in order to help them and control the situation in order to further their interests. These bordering states should be more prosperous than the non-bordering states because of the substantial influence that opponents' policies have on them. It is imperative that locals have zero tolerance for foreigners and extremists to keep them from seeking sanctuary in our country and to stop local youth from being tricked into joining these groups and acquiring weapons from our security forces. The locals' distaste for nationalism and their sympathy for terrorists and extremists were the only factors that contributed to the success of terrorism in J&K in previous decades. Realizing this, the Indian Army launched "Operation Sadbhavana" to foster a sense of patriotism in the populace by providing rewards for learning new skills in sports and education, among other areas. Numerous UT boys and girls are excelling in NCC, sports, and other endeavours. Articles 370 and 35A were repealed on August 5, 2019, allowing for effective governance and outcomes that are under our control, which allowed the central government to integrate Jammu and Kashmir into the rest of India. The terror rate has decreased, and the UT has been successfully mainstreamed.

**International pressure on terror-sponsoring bodies**

Pakistan is a country that has been working die-heartedly to sponsor insurgency and terrorism in India. In the past, India and Pakistan held discussions and came to numerous agreements, but Pakistan has never supported them. Since the Modi administration came to power, India has stopped talking to Pakistan about these issues and has instead adopted a new approach of presenting evidence against Pakistan in international forums like the United Nations and the Paris-based Financial Action Task Force (FATF). Since India's influence was still greater than Pakistan's, Pakistan was put on the "grey list" with particular sanctions and pressure to cease funding and aiding terrorism in India. But after the Pahalgam attack, India is making efforts to re-facilitate Pakistan back into this list and The Resistance Front, which executed it, a UN-designated terrorist group. Additionally, India set up anti-Pakistan fronts that regularly accused Pakistan of this heinous act. It could be immediately reduced, if not stopped, thanks to Indian diplomacy. Although Pakistan still has time to perform well in this area, its current economic crisis, low foreign exchange reserves, and high inflation have left it with no option but to plead with wealthy countries for assistance and to cease endorsing such measures.

## Conclusion

This is an era of proxy war, where belligerents are either stalemated by nuclear arms or by unequal powers. Therefore, the asymmetric warfare is commonly adopted. The incoming terrorism-insurgency fusion threats of TTP and Khalistan are showing their roots and can severely impact India's national security. Meanwhile, India has adopted a defensive-offence as a counter-strategy. There is a chance of conflict between the different groups and identities in India because each ethnic group has its own means of subsistence. In order to resolve issues early on and prevent them from getting to the point of terrorism and insurgency, it is necessary to properly consider the people and their problems as part of the CI-CT doctrine. The doctrine for handling this nexus needs to be updated in order to address the new and upcoming threats. A comprehensive national strategy that incorporates diplomatic initiatives, security agencies, political action, economic advantage, etc., is needed to counter this relationship. It is critically necessary to restructure CAPFs and state police forces to fulfil CI-CT duties and relieve the armed forces of them.

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