



# A Comprehensive Review and Recommendation Of AI Tools For Women Safety (SheShield)

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## I. ABSTRACT

The rising number of harassment, violence and social insecurity against women has transformed their safety and empowerment into a key global prospect. Traditional safety measures like helplines and manual reporting systems can be ineffective at crucial moments. Although many intelligent technologies emerged due to the evolution of Artificial Intelligence (AI), which can prove dynamic in solving these issues at a large scale through predictive analytics, real-time monitoring, and automated emergency response systems.

This research work provides an in-depth analysis of AI-based tools and technologies that have been developed to enhance the safety modes for women. The research examines different AI-driven solutions such as face recognition systems, emergency alert apps, predictive crime analytics, therapy chatbots and tracking. In addition, the study suggests guidelines for developing a single safety platform where such AI tools can be integrated. And indeed, the results show that AI-powered security systems can greatly enhance response time in case of emergency, increase capabilities to prevent crime and awareness — notion of women's rights. However, challenges like data privacy, algorithmic bias, and its regulatory issues needs to be taken care of effective implementation.

## II. INTRODUCTION

Across many societies, women's safety continues to be a significant issue. Over the last few years, there has been a growing awareness of the difficulties women encounter in public spaces, at work and even in their community. While several laws and safety measures have been established, practical tech solutions that can assist immediately and improve proactive road safety are still lacking.

In recent years, Artificial Intelligence has provided new opportunities to solve societal problems which could be impacted by intelligent systems. AI technologies can analyze large datasets, recognize patterns and provide predictions based on the available information

Many governments and organizations are using Artificial Intelligence to make people safer. For instance Artificial Intelligence can look at what happened in the past to figure out where crimes are more likely to happen. Artificial Intelligence can also be used to recognize faces, which helps find people who may have committed a crime.

Also, Depression has become a leading mental disorder worldwide. Evidence has shown that subjects with depression exhibit different spatial responses in neurophysiological signals from the healthy controls when they are exposed to positive and negative. Depression is a common reason for an increase in suicide cases worldwide<sup>11</sup>. So we are trying to tackle this problem by giving mental health counseling.

. This study is about seeing how Artificial Intelligence can help keep women safe and finding the Artificial



Intelligence tools to add to online safety platforms.

This research proposes SheShield, a web-based application developed to provide a comprehensive digital safety environment for females. The system combined different features aimed at improving safety, awareness, and empowerment.

The key modules of the proposed system include: S – Safety & SOS Module

H – Health & Counseling Module I – Information & News Module

E – Empowerment & Rights Module L – Legal Assistance Module

D – Direction (Safe Route & Tracking) Module

### III. AI APPLICATIONS FOR WOMEN'S SAFETY

The use of artificial intelligence can greatly improve women's safety through its various technological means and applications.

- **AI-Based Emergency Alert System**

Electronic emergency alert systems allow users to send distress signals along cellular networks during dangerous times. AI algorithms can automatically detect anomalies such as sudden phone shaking, abnormal movement or abrupt changes of direction. When these signal abnormalities are detected they immediately trigger an emergency alert mechanism and forces web response.

- **Facial Recognition for Crime Prevention**

Facial recognition technology allows information systems to convert images and video feeds into computer-understandable databases. Using this technology, anti-theft monitoring can be carried out on a large scale by software or computers to notify the police when known offenders pass through certain areas.

- **AI and Chatbots for Counseling and Support**

Women who are in emotional distress or experiencing harassment can turn to AI chatbots for mental health counseling and guidance. These chatbots utilize natural language processing to understand user queries and provide appropriate answers.

- **Predictive Crime Analytics**

Predictive analytics uses past crime statistics to spot places of potential future risk or threat. Law enforcement agencies can use this information to allocate resources optimally and pre-empt crimes.

### IV. RESEARCH METHODOLOGY

This is a Review-based study which will focus on the methodology adopted in this study and if any other methodologies already exist that evaluates AI technologies used for women's safety.

- **Data Collection**

We collated relevant information from research journals, technology reports, government publications, and case studies available on safety applications and AI technologies. These sources offered glimpses into how different digital safety tools were built and used.

- **Comparative Study**

Various different challenges and AI-based safety solutions were investigated and compared through the means of effectiveness, response time, accessibility, and cost efficiency. This comparison aims to help determining the top scoring technologies towards the optimization of women's safety systems

- **Conceptual System Design**



On the basis of analysis, a conceptual framework for an AI-based safety platform was proposed by us. Our framework integrates different technologies including emergency alerts, AI chatbots assistant, predictive analytics, informational section and location-tracking systems.

- Technologies Used
- Frontend Technologies
  - HTMT and CSS
    - JavaScript
  - ReactJS
- Backend Technologies
  - Flask Framework
  - Python
- Database
  - MySQL / SQLite
- Additional Tools
  - Google Maps API for route tracking
  - NLP-based chatbot for assistance

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## V. ANALYSIS OF EXISTING WOMEN SAFETY APPLICATIONS

• During the research we personally use different existing women safety application such as **SHAKTHI App, Abhivyakti – Women Safety App, SHESafe, SHIELD INDIA - Women Safety, and Pink Shakti Women Safety App.**

• All these applications mainly focus on SOS alerts, location tracking, and emergency contacts. While they provide basic safety services, many of them lack awareness, legal support, mental health resources, and combined solution for major issues in field of women's safety, awareness and empowerment.

### 1. Common Limitations in Existing Applications

- Emergency-only approach
- Lack of legal assistance
- No mental health support
- Limited coverage
- Complex user interface
- Dependence on internet connectivity

### 2. Comparison of Existing Women Safety Apps

App Name	Key Features	Quality / Advantages Demerits	Demerits
SHAKTHI App	SOS alert, travel tracking, complaint filing, nearby police stations	Government supported, strong emergency response system	Limited awareness material and complex interface, focused only on emergency situations



Abhivyakti – Women Safety App	SOS button, video/audio recording, guardian alerts	Direct communication with police, useful for emergencies	limited educational content
SHESafe	Safety tips, verified hostels, police integration	Good awareness programs and community initiatives	Limited geographical coverage (mostly in Hyderabad)
SHIELD INDIA - Women Safety	Voice-triggered SOS, SMS alerts with location	Easy emergency alert system	Very limited features, no legal or counseling support
Pink Shakti Women Safety App	Crime reporting, awareness about schemes, counseling	Focus on empowerment and awareness	Security concerns ,fewer downloads, limited real-time safety tools



### 3. Why Our Application is Better

- Comprehensive Safety Platform
- Empowerment Through Knowledge
- Mental Health Support
- Legal Assistance
- Safe Route and Tracking
- Integrated Awareness System

### 4. Comparison with our Proposed Idea (SheShield)

Feature	Existing Apps	SheShield App
Safety News Updates	No	Yes
Women Rights Awareness	Limited	Detailed rights module
Mental Health Support	Mostly absent	Counseling and support
Legal Complaint Assistance	Rare	Dedicated legal help module
Safe Route Tracking	Available in few apps	Included
Educational Awareness	Limited	Comprehensive awareness system
Emergency SOS Alert	Yes	Yes
Multi-module platform	No	Yes

## VI. DATA AND STATISTICS ANALYSIS OF WOMEN SAFETY ISSUES

### 1. Crime Statistics Against Women in India

According to the National Crime Records Bureau (NCRB) report Crime in India 2023, crimes against women remain a major social issue in India.

- 4,48,211 cases of crimes against women were reported in 2023 across India.
- The national crime rate was 66.2 cases per lakh female population.
- The number of reported crimes increased from 4,28,278 in 2021 to 4,45,256 in 2022, and further in 2023.

### 2. Safety Perception Survey (2025)

According to the NARI 2025 Women Safety Report:

- 40% of women reported feeling unsafe in their cities.
- Many women do not report harassment due to lack of trust in authorities.
- Urban safety depends on factors such as public transport security, surveillance systems, and digital reporting tools

This clearly highlights the gap between legal systems and real safety experience of women.

### 3. Long-Term Trend of Crimes

Crime data shows a significant increase over the last decade. Year

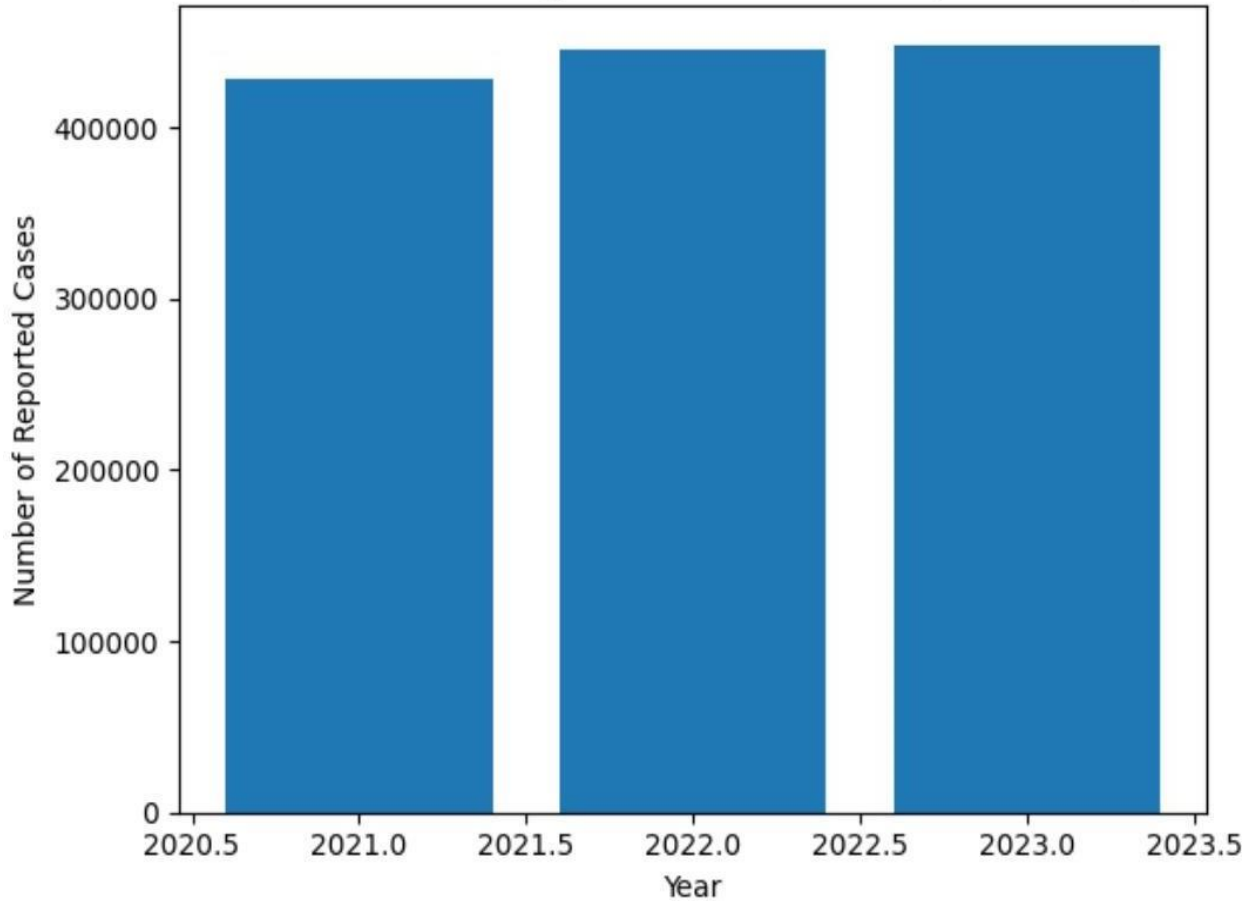
Total	Cases
2017	359,849



2019. 405,326  
 2021. 428,278  
 2022. 445,256  
 2023. 448,211

On average, more than 1,200 crimes against women are reported every day in India.

Trend of Crimes Against Women in India (2021-2023)



4. Major Categories of Crimes Against Women

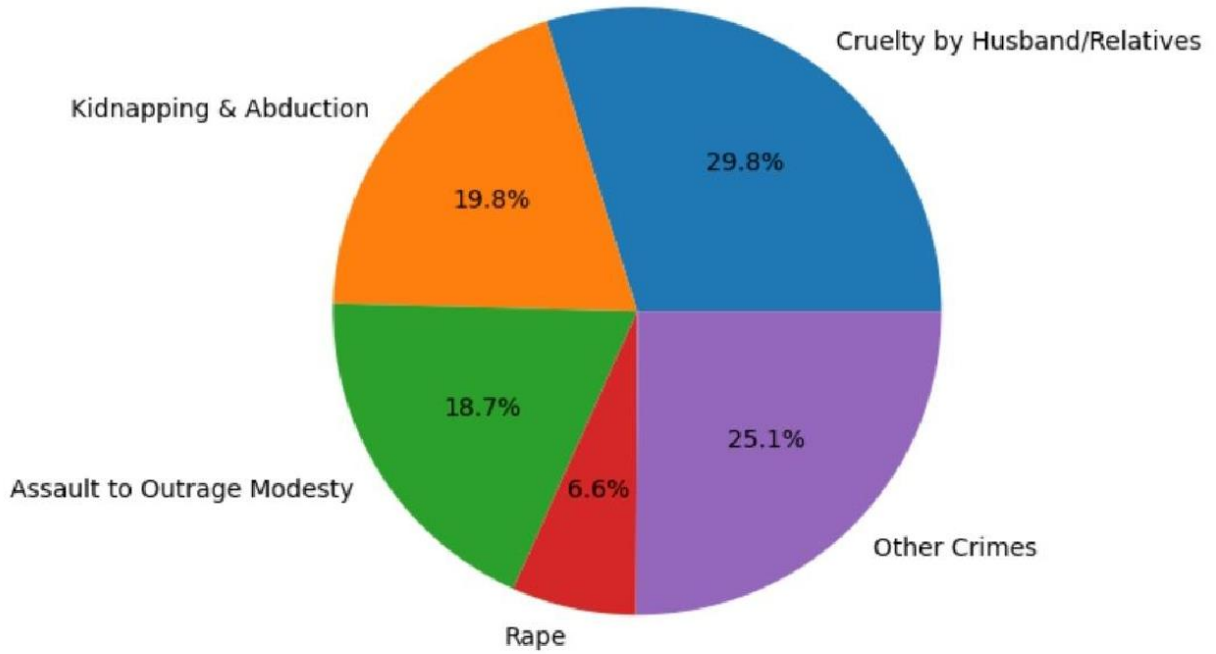
The NCRB report identifies the following major categories of crimes

Crime Category	Number of Cases	Percentage
Cruelty by husband or relatives	1,33,676	29.8%
Kidnapping and abduction	88,605	19%
Assault to outrage modesty	83,891	18%
Rape	29,670	7%
Dowry deaths	6,000+	1-2%



Distribution of Major Crimes Against Women in India

4. The

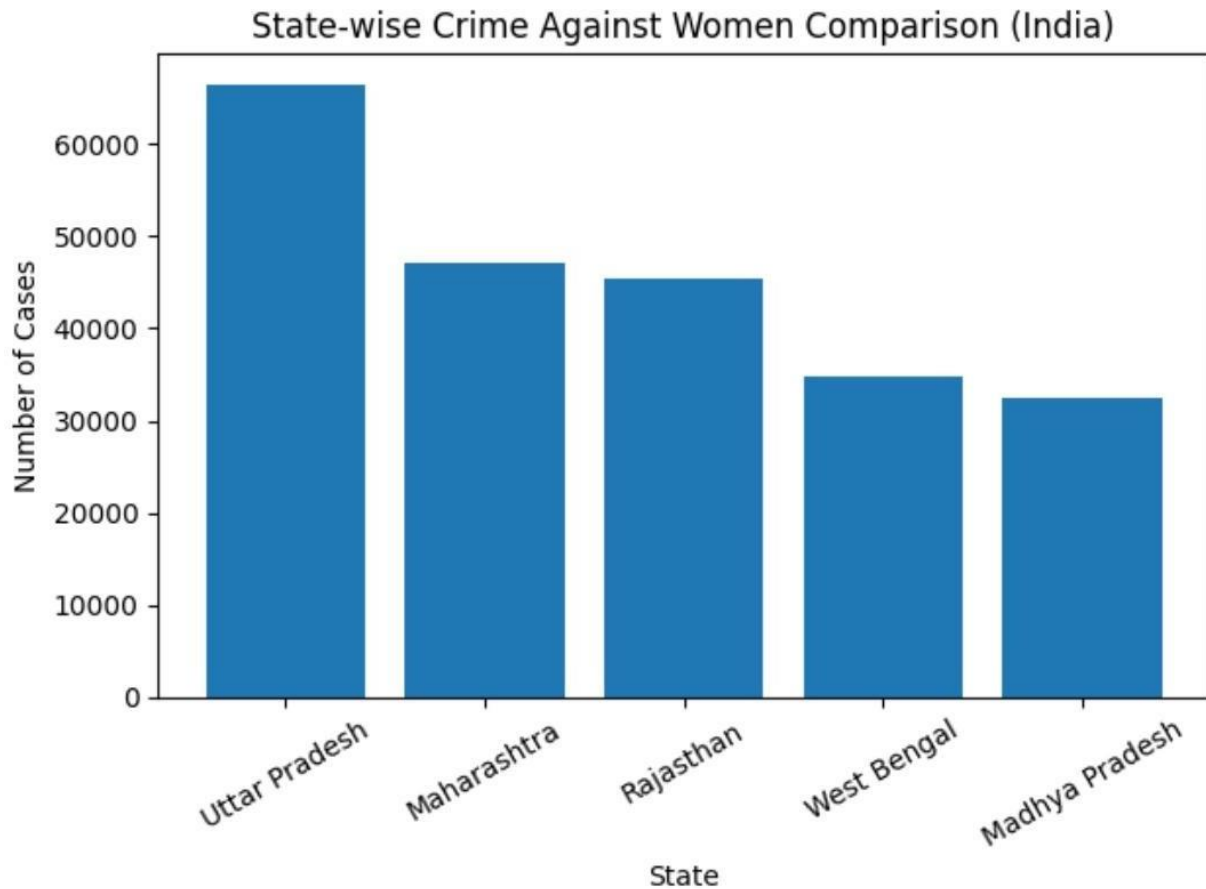


5. State-wise Crime Analysis

Crime distribution across states also highlights the severity of the problem.

State	Number of Cases (2023)
Uttar Pradesh	66,381
Maharashtra	47,101
Rajasthan	45,450
West Bengal	34,691
Madhya Pradesh	32,342

Among these states, Uttar Pradesh recorded the highest number of crimes against women, indicating a strong need for technological safety solutions.



## VII. PROPOSED AI-BASED SAFETY SYSTEM ARCHITECTURE

In this section, we explain the components of our conceptual architecture for an AI-enabled safety system.

- User Interface – The mobile or web application that women access to use safety features
- AI Processing Layer – Provides predictive analytics, interaction with chat bot layer and threat detection.
- Emergency Alert System — Sends alerts and location to emergency contacts.
- This helps record incident data for further analysis and improvement.
- External Services – Ability to integrate with police, emergency contacts, and support organisations.

## VIII. PROBLEMS IN AI-BASED WOMEN SAFETY SYSTEMS

While AI technologies carry numerous plusses they also carry several challenges that need to be worked out.

However, one major issue is data privacy. For example, products which are designed for personal safety often need access not only just to confirm someone's geographical location but frequently also various kinds of personal information as well, such as where they live and who they are. It's therefore crucial that these data are stored and used securely.

Besides this caveat is bias in the algorithm: if a predictive system is trained from incomplete or biased datasets then the results may be seriously inaccurate and reliable.

In some areas of the world, poor infrastructure may keep AI-based safety systems from being fully implemented. Does



not facilitate communication between central and local governments is the lack of infrastructure that provides the link (email, etc.) source industrialist expects.

#### IX. FUTURE DEVELOPMENT INPUT

Further advancement of AI in the future can bring even safer designs. The possible steps are preventative safety devices made and used with AI sensors, voice-activated emergency systems, and a smart city network in which intelligent networks alert authorities automatically of any suspicious activity as it might occur.

When combined with the smart city infrastructure and public security system, these technologies could improve their effectiveness and thus contribute to a safer environment for women.

#### X. CONCLUSION

Artificial Intelligence (AI) may be the magic bullet to solve women's security issues. A combination of predictive analytics, emergency warning system and other technologies coupled with AI chatbots can not only prevent harm befalling the female half of society but also take necessary preventive measures even in a crisis situation.

Although there are a number of safety applications on the market for women as yet, most focus on emergency alerts. Insufficiently targeted at women's empowerment, they are piecemeal, scattered and lack comprehensive protection. Because so many problems stem from a single source - lack of reasoning, thinkers have proposed the SheShield application to address these deficiencies. It integrates awareness, emergency response, legal aid and mental health support in one platform, affording women a more comfortable walk home from work that they can defend more easily

If each element of the SheShield service were offered separately by existing products equivalent to ours, together they would cost the same yet provide far less combined effectiveness as provided in a single package.

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