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Over the years the subtle issues of public service has often escaped the notice of policy makers, while the macro issues such as staff and finance, organization, information system, monitoring and accountability have hogged the public attention. The performance of public governance is being assessed in terms of economics, politics and morality and nature, quality, interaction, cooperation, incentives; and other micro aspects have been neglected. This has been more common in the arena of policing, leading to lesser efficiency and effectiveness and obnoxious nexus of vested interests.

This is what Shri R.N. Gupta, in his paper, 'Crime control: Actors, Incentives and Cooperative Behaviors' argues with conviction and elucidation. The focus on macro and structural constrains in policing such as inadequate strength, frequent transfers, faulty deployment, lack of infrastructure, autonomy, fixed tenure, etc. have been unable to make any tangible achievement in the service delivery. This can be corroborated by the fact that Delhi, Punjab and Chandigarh have some of the highest Police-population ratio, but it has been unable to make any tangible gain. Hence it is pertinent to give attention to micro and subtle aspect of public governance such as incentives, rational choices made by actors in public governance, human behavior and cognitive limitations.

Apart from it, the functioning of Police has been adversely affected by negative image portrayed by Media. Media generally gives more attention to the omissions and commissions of the police, while blacking out its positive and tangible achievements. In her paper, 'Police Image and Role Play by Indian Media – A Study' Ms. Mou Mukherjee-Das laments on this hiatus between Police and Media. "The relationship between the police and the media in a democratic Society need not always be cordial. But despite friction and constructive tension, there ought to be a fair measure of understanding and an appreciation of each other's role."

Other area that has received insufficient attention is the human resource development and its synergy in delivering good services and surmounting the variegated challenges. Shri Rakesh Kumar Singh, in his paper, 'Human Resource development Perspective for Dealing with LWE Challenges', discusses this crucial aspect of public governance. It has been 'often observed

that internal security challenges in India are basically due to poor utilization of one of the best resources we are having that is human resources. This is also the best tool to tackle extremism and terrorism. Educated and economically empowered people will not opt for violent and vagabond life in jungles when civility can provide them wonderful opportunity for growth.”

It seems to be rather paradoxical that in a globalized and liberalized world, the incidences of crime like rape and domestic violence have not abated in intensity and volume. The paper, ‘Sexual Assault – Criminological and Victimological view’, by Ms. Shradha V. Kulkarni and Dr. G.S. Venumadhava analyzes this paradox. The paper focuses on psychology of such gruesome crime, highlighting psycho-criminological theories behind the act of rape. It attempts an ‘offence analysis’ with taxonomies of rapists as provided by experts, to understand and analyze the motive behind it. It also highlights the social perspective around the rape victims and their consecutive secondary victimization.

Related with it is the domestic violence that stretches across borders, nationalities, cultures and races. Domestic violence is an obnoxious crime which has not shown any sign of downward trend and moreover it is happening within the safety of homes. Dr. Archana Dassi, in her paper on ‘Domestic Violence: A Challenge to Policing and Social Work Practice’ analyzes the domestic violence with perspective of human and social phenomenon having its roots in gender discrimination. She contends that domestic violence has a tendency to surface and assume serious proportions in a patriarchal society. Consequently it becomes imperative to identify and develop capacities that would decapitate it at all levels. It is in this backdrop that social tolerance and gender sensitivity assumes more significance.

In recent years Juvenile delinquency and its implication for society has drawn the attention of policymakers, and it has become debatable matter of criminology. Even terror groups are using children and adolescents in executing their nefarious designs. Dr. Tanusree Moitra discusses some of the aspects of Juvenile delinquency in her paper, ‘Familial and Personality correlates of Juvenile Delinquency in Kolkata, India.’

Apart from these, the current issue of the Indian Police Journal deals with ‘Ongoing Debate on Suicide’; ‘The Victim Turned Offender – An Empirical Study in Palayamkottai Central Prison’, ‘Sparse Matrix Analysis based Spatial Clustering Techniques for Serial Crime Prediction Model’ and ‘ATM Frauds & Security’.



(Gopal K.N. Chowdhary)
Editor

Crime Control: Actors, Incentives and Cooperative Behaviour

R.N. Gupta*

Keywords

Crime Control, Incentives, Actors, Cooperation, Behaviour.

Abstract

There is a need therefore to have a relook at the provisions for compounding of offences. It is of course not possible for modern societies to revert to primitive solutions and, say, cut off the nose of the criminal to satisfy the accused. It should, however, be possible even today to accept a situation where the victim is willing to accept economic/financial compensation, at least in the case of a large category of crimes which are not heinous `culpable homicide not amounting to murder for example, or serious injury. Needless to say only the courts would have power to accept or reject the compromise and ensure that it is completely voluntary and the victim or family is not under any duress. Courts don't even consider such mediation options at present.

Introduction

Public governance has been mostly concerned about the macro issues of policy in different areas of public service - staff and financial resources, organisation, systems for information and execution, accountability, monitoring and so on and tends to

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be assessed in terms of politics, economics and morality rather than nature and quality of governance interactions and the incentives of interacting parties. The system of checks and balances common to the democratic systems requires objective application of common rules and norms but this Weberian approach rarely addresses the incentives and interests which the two parties - government agents and the citizens - bring to the table. For any public policy to be effective, it appears necessary to give the centre-stage to the interests and incentives of the actors, government agents and the citizens.

Favourite Themes: Macro Reforms

Police work in the area of crime is a typical illustration of this omission and to some extent of police failure. Satyamev Jayate, the popular Aamir Khan TV programme, which has taken up some of the major social issues - corruption, child abuse, sex crimes - brings all the stakeholders together and tries to develop a specific constructive agenda for social action, rather than simply beginning and ending with a litany of woes and problems of misgovernance. In one of the programmes on police, it dealt with the macro and structural constraints in police functioning: inadequate strength, frequent transfers, faulty deployment (for non professional - e.g. household - duties) of even the limited numbers available, corruption, lack of ground level experience among the higher ranking officers (in India, unlike the UK, substantive direct recruitment takes place at different levels - Sub Inspector, Deputy Superintendent of Police and the IPS for SP and higher positions - which adds to this problem), absence of systems for autonomy, fixed tenures etc. Most of these, however, have been shown to be, by and large, ineffective.

Chandigarh, Punjab and Delhi have some of the highest police-population ratios but these are not reflected in reduced crime statistics. I wish an econometric analysis on the correlation between police strength and crime in different states in India could be carried out to let us see the result for ourselves. We have, in

any case enough evidence on this through work done globally and especially in the US. Some of the solutions suggested, additional staff or community policing, may not make much difference, as has been demonstrated in a number of these studies. As John R. Lotte Jr., an economist, observes¹ the 'run of the mill' administrative solutions - more staff, tougher laws - seem to make little difference in police effectiveness. In a different context, James Q. Wilson, the architect of the 'Broken Windows' approach (that police need to give priority to controlling minor crimes like breaking of glass windows by street hoodlums, to create a sense of order and prevent or reduce major crimes; ensuring that graffiti on the metro rail in New York was cleaned up immediately appears to have contributed to a reduction in major offences on the rail network) has himself remarked² on the futility of adding more and more judges to cope with increased work load, a favourite solution generally proposed in India to address the problem of case overload in Courts. In the TV programme mentioned, a police officer from Kerala was enthusiastic about the 'best practice' of the community friendly police model - Janmaithri Suraksha - introduced in that state some time back. The experiment in community policing in the neighbouring State, Tamil Nadu - in the Tiruchy district taken up 20 years back - is however forgotten. The process of putting the old wine of ideological solutions in new bottles- Tamil Nadu then, Kerala now - continues unabated. Best practices are being continually reinvented, with no better results. Ben Ramalingam has aptly termed this pathology as 'best practicitis'³.

Malimath Committee Recommendations

The committee⁴ on reforms of the criminal justice system which has made a number of recommendations covering major aspects of the criminal justice system, reflects this bias in favour of structural, organisational and other macro aspects of public governance. The recommendations appear to be a classic illustration of neglect of interests and incentives of actors involved in crime control. Some of the committee recommendations for helping victims may also

add to perverse incentives of and misuse by the police. One example is the recommendation that there should be no distinction between cognizable and other offences and powers need to be given to the police to undertake investigation in all cases. This is ostensibly to save the victims the bother of having to approach the magistrates directly for relief/justice. This may technically make access to justice in such cases easier (assuming we expect police to provide it despite all evidence to the contrary); it would, however, add to workload of the police - more pending cases - and possibly exploitation by the police even in case of crimes now mercifully out of their grip. Similarly the recommended system of compensation to victims is not likely to add to the victim or criminal incentives; it will simply be an extension of the 'welfare state' philosophy to the victims of crimes but would not affect incentives of the criminals or the victims, since compensation is generally independent of conviction of the accused. Some suggestions of the Committee such as investigation of serious crimes by the senior most police officer in the police station are likely to fare no better; professionalism and integrity is not necessarily the monopoly of seniors in hierarchy. Mafia - police nexus is leveraged mostly by the top officials. Proposals for a liberal use of the provision for compounding of cases appear to be well taken. Instead, however, of using the criterion of social/public interest, as recommended by the Committee, it may be more appropriate to seek the rationale for compounding (and settling such cases without trial) to victim's incentives and satisfactory closure for the victim/family, rather than 'social good' or social efficiency!

The problem seems to be a lack of appreciation of the incentives of the government actors, the police in this case, as managers or administrators of resources. Wilson, referred above, has defined the culture and character of different agencies in terms of the observability and concreteness of the tasks they perform and the outcomes they are responsible for. Police, according to him, is a 'coping' organisation, with ill defined and difficult to measure tasks

and a lot of 'contextual constraints' - e.g. rights of the accused. These constraints are rarely taken into consideration and we tend to focus on the macro solutions of staff, training, community policing, staff structure, and so on, rather than the incentives and behaviour on the interacting parties-police, accused and the victim.

Myth of Zero Tolerance of Crime

There is a tendency moreover to neglect not only the incentives and 'rational choices' made by actors in public governance but also human behaviour and the cognitive limitations. Strategies of more and more severe punishment, which are expected to provide more effective deterrence, appear to ignore the well known finding that most of the human beings - including criminals - overrate their abilities. Death penalty or life imprisonment would not deter a criminal who is over confident of his ability to escape the law (e.g. Character of Don played by Shahrukh Khan in Don 2 is a fictional example of the mindset of many criminals; he is confident he can execute his plans perfectly without incurring adverse consequences). Moreover, criminals are as likely as other humans to underrate risk of arrest and punishment ('humans' have an appetite for risk in case of immediate gain, utility or gratification). They may not, due to this bias, be fully rational in assessing risk and probability of arrest/jail and may heavily discount future loss in the face of gains in the immediate present. Humans tend to overrate their abilities - in the case of criminals, their ability to evade arrest/incarceration. Control of serious crimes, as distinguished from maintenance of order and public peace would probably be rarely affected by mending 'broken windows'. There is a need, instead, to align crime control strategy to the incentives and behaviour of the human actors - victims, criminals and the police.

'Nudges' for Actors in Crime

Experimental psychology and behavioural economics have been instrumental in the propagation and adoption of new approaches in economic and social areas of governance. These focus on the actual

behaviour of human beings and seek to design situations (through, for example, 'choice architecture', the term used by Thaler and Sunstein the authors⁵ of 'Nudge') to elicit appropriate behaviour and responses from the actors involved in an interaction or exchange. Human behaviour in social interactions, driven by cognitive rather than emotional faculties, has been sometimes described as System I or System II behaviour - System I is automatic, impulsive and subject to cognitive biases and heuristics whereas System II is rule bound, and deliberative. System I which is automatic seems to dominate the thinking but lazy System II of the cognitive system. One example is making it compulsory for the restaurants in New York to display the calorie value of different dishes, to influence consumer behaviour appropriate to healthy eating. Governments in some countries are trying to redesign rules to capture this dimension in different areas of social and economic policy. In India such 'patrimonial' 'nudges' by the state to provide 'mild incentives without restricting choice are, however, yet to be seriously tried. Policy makers tend to ignore the issues of incentives and behaviour, both of the public agents and the public interacting with government agencies. Thus more and more severe punishments are sought to be designed for crimes on the lines of 'Three Strikes' and 'Four Strikes laws in the US (which provide for mandatory minimum sentencing for the third and fourth time offenders), without considering this aspect.

Governance interactions are governed by formal rules and institutions of interaction and unlike social areas of governance can therefore be structured and conditioned by them. We need to design appropriate rules of interaction to create a proper 'choice architecture' in the case of cognizable offences to influence the incentives, choices and actions of the police, the accused and the victim. These aspects are, however, rarely taken into account while designing rules of the game - in this case, transactions and interactions relating to crime. The policeman is especially important as, in common situations of cognizable offences, a victim is not recognised under law as a stakeholder and the State

takes full responsibility for prosecution, punishment and may be even compensation. Compensation for the victim in India is in fact incidental to the judicial process - some courts may pass on a portion of the fine to the victim. In this situation of zero weight assigned to the victim as a stakeholder, the rational self interest of the criminal and the policeman - whether professional pride, economic gain, social recognition, or moral conviction - is allowed to have full play. In the absence of victim as a stakeholder, who may achieve gratification either through revenge/retribution, or compensation, the stage is thus ripe for a win-win situation for the two parties left in the game - the criminal and the police. The former has to share only a part of the gains with the latter for both to be much better off. In a Kannada movie, *Beli Matthu Hola*, (The Fence and The Crop) directed by PR Ramdas Naidu, the police extract money from the complaining party - a moneylender who mortgages gold ornaments for loans to farmers) - for registering an FIR regarding the theft of gold and other valuables. Later, the police even contemplate registering an FIR against him by inciting the farmers, who had mortgaged the gold ornaments with the moneylender, to complain that the moneylender himself has orchestrated the theft and defrauded the farmers! The victim does not figure in crime detection or prosecution except as a witness, may be and the fiction probably falls even a little short of reality. In North India, it is quite common for the police to accept or at least expect to get a bribe of Rs. 1-5 lac just for registering an FIR in matters which may essentially be civil disputes - violation of patents, alleged second sales of property on the basis of different power of attorney documents, both claiming to be genuine. The FIR is not an automatic process as envisaged by law but an extractive process; the complaint received is simply a trigger to extend the frontiers of exploitation rather than justice.

FIR's - Rules and Police Incentives

There are a number of areas where a simple tweaking of rules to make them sensitive to the incentives of the interacting parties

- police, accused, victim- may pay rich dividends. One of these 'nudges' or mild incentives for the police can be pinning the responsibility for the contents of the FIR register- the initial stage of interaction of the actors - on the police, rather than allowing the victims to be used as the formal instrument and front for whatever the police wish to record and who they want to implicate. The law and the system of registering an FIR assumes that what is reported and what is recorded in the FIR register can be different. Complainants are not expected to be familiar with different sections of the IPC or the detailed clauses and sub sections and are not equipped to structure their complaints to fit particular sections of the IPC. Once the police decide on which sections to invoke and how to proceed, the complaints are in practice got rewritten from the complainants complete with the listing of sections and clauses. This manipulation is possible as there is no system of keeping a factual and separate record of the initial complainant - police interaction. Complaints made on telephone or given orally are not put on tape and the written complaint or information does not have to be independently acknowledged and the interaction video graphed.

One major reform from the behavioural perspective can therefore be a mandatory requirement for recording/videography of this initial interaction - personal or otherwise. This will encourage the victims/complainants to orally communicate, or write down, the facts as they perceive them, thus avoiding problems of recording a missing person report as a kidnapping or a suspected kidnapping as a missing person report. Unless a complainant is powerful enough, this is what may happen in practice; the FIR entries mostly suit the police incentives, whether for favourable crime statistics or extraction of bribes or whatever.

The police need to own what is recorded in the FIR register, as distinct from the complaint which in its spontaneous form has to be owned by the complainant; and evidence of the interaction - oral or written, as spontaneously done- must of course be retained

in all cases. This will be available for verification in case the FIR is manipulated or delayed or differs in material particulars from the complaint. Basically all complaints and information on crime received under Section 154 of the CrPC need to be retained in their spontaneous form, as distinguished from what the police make of them while registering the FIR. In fact, the concept of the zero FIR, now mostly used for offences against women, is a step in that direction - the registration is outside the domain of the investigating police station. What is relevant for the incentives of the parties involved is transparency in the victim-police interactions - oral or written complaint - as distinguished from what is recorded in the FIR register. The FIR is today being treated less as information and more as evidence; the very first step after registration in most of the cases is for the police to make an arrest even without any investigation.

Incentives of the Victims: FIR Report and Registration

A similar logic can be extended to the accused and his/her interests and incentives. All the police-accused interactions need to be similarly taped or video graphed as the case may be. This may seem simplistic and a minor issue of detail but it is precisely these micro rules of interaction in public governance that are likely to bring about the outcomes desired rather than the grandiose plans or general instructions to the police about the need for transparency, objectivity and fairness. We need to provide rules to bring about openness and transparency in the vital area of initial contact and interaction of the victim and the accused with the police. This is likely to nurture victim/family incentives and interests rather than negate or ignore them, as happens at present. Police then may not be able to overwhelm the victim 'and the accused with their own interests - whether of the department (not recording an FIR to show reduced crime) or personal to the police officer (corruption). An interesting off shoot will be immediate exposure of manipulative complainants who may sometimes be a social nuisance.

Incentives of the Victims: Investigation & Prosecution

Another major lacuna involving the public and the police is the neglect of incentives of the victims during investigation and prosecution. In modern societies, the state takes responsibility for providing justice to victims by expending resources on prosecution and incarceration of criminals. Sometimes, the victim or his/her family may have little interest in the criminal's imprisonment or death and may like to forgive, with or without compensation. There is at present no way to do so and the State can and does proceed with the prosecution. This can lead to perverse consequences. If a criminal has gained RS.1 lac from a particular crime - in terms of utility - but the victim has no stakes in the matter, the optimum strategy for the other two parties - policeman and criminal - is to share the gains as the victim is out of the picture. Jared Diamond, in Chapter 2 - 'Compensation for the death of a child', refers⁶ to different systems of civil and criminal justice in traditional and modern societies and how the norms of criminal and civil justice in traditional societies differ from modern systems; the latter provide little scope for compensation or restorative justice (for victims) and rarely achieve emotional closure for the victims and their families. He indicates how, in New Guinea, Sori money (sorry money) - in Tok Pisin, the lingua France of New Guinea - or what may be crudely called compensation, is used to achieve a satisfactory closure without the intervention of the State. Most of the cases, where victims are also the witnesses but may be happy with compensation, are now settled informally with the victim having to be declared a 'hostile witness'. These rituals can thus result in huge social waste.

Incentives of the Victims: Compounding of Offences

There is a need therefore to have a relook at the provisions for compounding of offences. It is of course not possible for modern societies to revert to primitive solutions and, say, cut off the nose of the criminal to satisfy the accused. It should, however, be possible

even today to accept a situation where the victim is willing to accept economic/financial compensation, at least in the case of a large category of crimes which are not heinous `culpable homicide not amounting to murder for example, or serious injury. Needless to say only the courts would have power to accept or reject the compromise and ensure that it is completely voluntary and the victim or family is not under any duress. Courts don't even consider such mediation options at present. There was news about a case where some Indians convicted of murder in the UAE paid blood money of over Rs. 70 crore and thus escaped the death sentence. This was welcomed in India - the accused were Indians after all. On the other hand, these sensible solutions tend to be ignored in India, leaving police as the only gainer in the process of crime control and enforcement. The US law provides for plea bargaining and even the Indian law allows compounding under Section 320 of the Criminal Procedure Code. Financial compensation, however, is not officially a part of this compounding process. What we need is for compounding to be treated as the 'default' option by Courts, not only for the offences listed but for many others and for them to proceed with cases only if the victim is keen on 'revenge'.

The lawyers representing the two parties may not have proper incentives for encouraging such settlement; their incentives may require more and more cases to be heard and concluded in due but delayed course of justice. Even the present Section 320 is rarely used, as compounding does not specifically authorise or permit any compensation which may be required in most of these compoundable cases. Compounding in order to 'take off' may need some material incentives for the victim.

Steven Pinker⁷ mentions about proportionality - in this case between the degree of crime and punishment - as a characteristic feature of modern societies. This has led to reduced incidence of violence, according to him, not only in terms of a drop in the number of fatalities in wars but also in the quantum of punishment inflicted on the criminals. In the case of most of the crimes against individuals,

an a priori criterion for deciding on proportionality would be in the interest of the victim, as distinguished from that of the society or state, the latter being relevant in cases, for example, of treason or terrorism. The onus of deciding on the appropriate course of justice for the accused needs therefore to be shifted from the State to the victim, not only in cases which are compoundable at present but many more, except those considered directly harmful to the state or society.

Jesse J. Prinz while laying emphasis on the influence of upbringing and culture on human nature, remarks⁸ that we need to be concerned with “human natures rather than human nature”. In the case of criminals also we need not put all criminals in the same basket; the treatment has to depend upon their interests and incentives. Psychopaths, as Pinker remarks, make upto 1-3% of male population, account for 20-30% of violent crime and commit half the serious crimes. The incentives and motives of different segments of the criminal population, whether psychological or economic, would thus need to be factored in, while designing rules for interaction with the criminal/accused during investigation and incarceration. Unfortunately the rules of criminal justice tend to move with the dominant ideology - only rod or sympathy or the electric chair.

In India, one of the reasons for failure of justice also concerns the under trial prisoners. Prisons crowded with the under trial prisoners, but with conviction for a very modest proportion of the accused (conviction rate for the accused is about 10%), may only result in the emergence and encouragement of habitual criminals. Their incentives, and consequently the rules to influence them, need to be designed differently. One simple way will be to ensure that each under-trial leaves the jail only after a unique IO is given. As in the USA, compulsory finger/DNA printing can be mandated not only for the convicted but also for the accused. In case changing the law is difficult, this could be made voluntary and persons accused of petty crimes granted bail liberally provided they agree to get UID'. This will relieve congestion in jails and will also be a disincentive to

the released under- trial to commit crimes in future. His/her unique identity will be frozen and will make him/her liable not only for the future crimes but also the one in which he/she jumped bail.

Designing Rules: for Cooperation or Collusion?

There is a need to keep in view one characteristic dimension of governance interactions in the area of criminal justice and control of crime. As Axelrod remarks⁹, unlike citizen to citizen interactions where societies need to encourage cooperative behaviour, in case of public regulations especially relating to crime, the state should, while designing them, keep in view the possibility of collusion or asocial cooperation developing among the violators and the enforcers. Our institutions and rules seem mostly designed to encourage rather than prevent socially harmful cooperation in typical Prisoners' Dilemma (PO) situations. The rules of criminal justice encourage both prisoners to deny their crime rather than to confess, the text book strategy. Moreover, repeated interactions are more likely to take place between habitual rather than first time offenders and the police, leading to situations of police - criminal nexus. In the Iterated Prisoners' Dilemma situations where multiple computer games are played among the same players, as against the classic one-time Prisoners' Dilemma situation, parties tend to develop a cooperative frame as shown by Axelrod. Rules need to be designed to discourage such nexus in the area of crime. Crime enforcement is a social regulation where 'being nice' - in this case, the criminal being nice to be police and the police to the criminal - is generally a more paying strategy for the two parties, rather than manipulation and exploitative strategies, which are common in situations of one time social interactions. Collusion among the police and criminals is a likely outcome in these 'positive sum' games (with gains possible for both parties) as contrasted with 'zero sum' games (one party's gain is other party's loss) like chess.

Most of us humans are prone to adopt automatic System I responses, some of which have been described above. Unlike other areas of social interaction, in the case of public policy with a large number

of govt. agents interacting with citizens, the only way to ensure social and cooperative responses is through appropriate 'rules of the game'. Idealistic approaches based on 'managerialism' and expectations of uniform behaviour and responses from the actors concerned would rarely work. There is need to redesign rules which govern interactions among the victims, police and the criminals keeping in view these factors, rather than treating humans as devils or angels.

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Police Image and Role Play by Indian Media - A study

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Keywords

Police, Image, Media, Modus Operand, Representation, Conception, Reel Life.

Abstract

The term 'police' evokes a negative connotation immediately before the common man. Representations and conceptions in media on police have created an image that detracts the public from viewing them as normal human being. The layman is in awe and fear of this profession and perceives everything that is bad with it. In reel life, often police activity and the administration is highlighted in a negative way, misleading the common man, which in a way causes hindrances for the police in real life. Media has associated police with rampant corruption and political affiliation but has ignored their limitations and their tireless efforts to reach out to the public. The author here attempts to explore the effects of media on common public about the image of the police and how it has affected the process of their modus operandi in real life.

Introduction

Indian society is fascinated and intimidated with crime and justice. Starting from films to books, newspapers to social media websites all are replete with everyday stories and conversations of crime and justice. The role of mass media thus becomes pertinent in the light that the common people

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are constantly surrounded by the various mediums and are bombarded with messages which ultimately help in construction of images, which either support or creates hindrances for those in power of dealing with crime and justice. The mass media constantly surround us, frequently inform us, and just as frequently misinform us (Heath and Gilbert 1996). Hence, the influence of mass media is significant as media could be considered as a primary force (either direct and indirect experience) in shaping people's views of crime (Dominick 1978). Also mass media, due to its pervasive nature, influences public's attitudes toward police force. News media is the primary source for citizens' perceptions of police legitimacy and routine crime reports through portrayal of police as either heroic and professional crime fighters, or as ineffective and incompetent. The common people is confused and in awe of the uniform and the power as on one hand he applauds when he finds his hero in police attire doing justice in films, whereas on the other hand the real police is always under suspicion and scrutiny by the news media.

The police as an age-old traditional institution in India is mistrusted by the public, it is sworn to protect, and thus working in a vacuum with a lack of goodwill and cooperation, both from the public and the media. Both the police and the media perform vital roles in a democratic society, with a common objective of serving the general population. Presently, the common people lack knowledge about the police and the constraints under which they act which in turn has caused hindrances rather than help in a traditionally closed police organization. One way to refine this police-public interface is more transparency and the improved disclosure of appropriate information from the police to the public, and this requires sensitization, cooperation and mutual understanding between the police and the voice of the public, the media.

Theories on role play by media

Scheufele and Tewksbury (2007) stated that mass media had potentials to produce strong attitudinal effects on readers but

these effects also depended heavily on predispositions, schema, and other characteristics of the readers that affected how they processed the messages projected in the mass media. While discussing on the effects of media on public about institutions such as the police, there are three theoretical approaches (Fox and Van Sickel, 2001:6-8). The magic bullet theory or the hypodermic needle theory states that the public takes in media presentations like a drug, which in turn produces powerful and long-term effects on their views about government institutions such as the police. These in turn help in formulating attitudes and perceptions of the police. The “limited effects” theory also states that the though public uses the media for information, but simultaneously the individuals evaluate that information in the context of what they know from other personal sources – such as direct contact, family, friends, peers, colleagues etc. These pre-existing, powerful and independent impressions are believed to constitute influences with which media images have to correspond in order to influence the public’s views of the police.

Thus the effects of the mass media remain limited. The “subtle/minimal effects” theory are neither overwhelming nor minimal, but rather work in certain ways through: (a) agenda setting – instructing and suggesting the public in what to think about as the most important issues (e.g., whether government policing is an important issue at a given time and what aspects are important), (b) priming – associating and correlating people or institutions with particular issues (e.g., associating the police with crime fighting), and (c) framing – shaping how to think about a given issue by either identifying and interpreting general trends or covering specific events (e.g., how often the police use excessive force in dealing with suspects). All three theories posit that the mass media influence the public’s views, although in different ways and to different degrees. Many scholars like McCombs (1981), and Rogers and Dearing (1988) added that the basis of agenda setting assumes that the media do not directly influence

people's opinions or what they think but the agenda of issues they should think about when the media highlighted some issues meanwhile ignoring others. The above models assumes people's attitudes and judgments formation are related to the ease with which associations could be brought to their minds (Tversky and Kahneman 1973, p. 208). Second, by making some issues more salient in readers' minds (agenda setting), media can also shape the considerations that people taking into account when they express their attitudes about the issues (priming) (Scheufele and Tewksbury 2007). Besides public's perception on crime, citizens in many cases are also presented with conflicting images of police force and their effectiveness. While some scholars in their study found out how the police were presented as being unrealistically effective in their studies (Doyle 1998) others argued that news media usually focused on failed attempts by police to control crime and neglected to cover positive crime control efforts (Graber 1980). Lawrence (2000) in his study concluded that the news media helped creating the legitimacy of police whereas sometimes it might also aid even destroying it.

Weitzer's study (2002) discussed the effects on public perception of the police department implicated in various incidents in Los Angeles and New York City as a result of the highly publicized incidents related to police misconduct. With the consideration of the innate influence of those incidents to the public, the findings of the study indicated celebrated incidents of police misconduct may color public's attitude towards police (Weitzer, 2002). Moreover, Chibnall (1975) examined in his study about Fleet Street crime reporters, it found that media editors unscrupulously publicized and condemned police's inefficiency on releasing crime information as well. Not only that it might further induce a negative outcome that would prompt public to become less cooperative with the police and tend to believe subsequent allegations of police misconduct even when the force behaved properly. The prominence of crime in the news

and the importance of the police as a source of news about crime invariably focusses public attention on the role of the police as crime fighters and justice doers. And to commensurate this surveys of the public too indicate that up to 95 percent of the public consider the mass media as their main source of information about crime (Surette, 1998:197). Most news stories about police are focused on a specific crime, crime trends, or crime problems, and the police are rarely the focus of the report. Thus, a lot of news places police in the background of the story, mentioning them only in as much as they describe what they are doing about a crime event or larger crime issue (Surette, 1998:69-70).

As news is a socially constructed product it is subject to host of external as also internal factors. External factors like social, political, ideological and economic factors dominate the scenario and internal factors like the process of “framing” which comprises of the sociology of newsroom behavior to the decisions of the gatekeepers together both of the factors works in conjunction in production of the news. Framing thus an inevitable process of news production implies: simplify, prioritize and structure the narrative flow of events. (Norris, 1995: pp357-370). The concept of framing can be traced back to the Gregory Bateson’s 1955 paper “A Theory of Play and Fantasy”. Later on Goffman while popularizing the concept defined framing as embodiments of “the principles of organization which govern events.”(Goffman, 1974). Tuchman first applied framing in news production process (Tuchman, 1978) and noted that “framing implies identifying some items as facts, and not others (Tuchman, 1976). The mediated representations of issues and events shape the social perceptions of individuals. The idea of ‘news frames’, representing persistent patterns of selection, emphasis, and exclusion that furnish a coherent interpretation and evaluation of events. (TodGitlin, 1980). Out of the myriad ways of describing events in the world, journalists rely upon

familiar news frames, and upon the interpretation of events offered by credible sources, to convey dominant meanings, to make sense of the facts, to focus the headlines, and to structure the story line. News frames bundle key concepts, stock phrases, and iconic images to reinforce certain common ways of interpreting developments. The essence of framing is selection to prioritize some facts, images, or developments over others, thereby unconsciously promoting one particular interpretation of events. (Norris, 1995, pp 358). Since the journalists could not cover every single event that happened every day, thus, it was necessary for them to be selective. This process of selection was the first stage of “creating news” and that was the reason why news was clearly vulnerable to distortion (Tuchman 1978). Fox and Van Sickel has observed a recent trend among the news men and had called this as “tabloid justice” They argue that mass media have entered a time when they concentrate on the “sensationalistic, personal, lurid, and tawdry details of unusual and high-profile trials and investigations” (Fox and Van Sickel, 2001)(p. 3). By treating news as entertainment, the mass media has trivialized serious issues; at the same time had also turned the whole policing system into a farce creating impediments for the institution. The entertainment media present an extremely distorted view of the nature of police work, one that stresses crime fighting, police violence, and individualism (as exemplified by Dirty Harry) (Surette, 1998: 40-43).

“Whatever the [entertainment] media show is the opposite of what is true. In every subject category – crimes, criminals, crime fighters, the investigation of crimes, arrests, the processing and disposition of cases – the entertainment media present a world of crime and justice that is not found in reality. Whatever the truth about crime and violence and the criminal justice system in America, the entertainment media seem determined to project the opposite. Their wildly inaccurate and inevitably fragmentary images provide a distorted reflection of crime within society and

an equally distorted reflection of the criminal justice system's response to crime. The lack of realistic information further mystifies the criminal justice system, exacerbating the public's lack of understanding of it while constructing a perverse topsy-turvy reality of it (Surette, 1998:47)."

Objective

The paper aims to study the effects of media on common people and the formation of police image. Thus this paper tries to explore public perception of police as reported in various media

Methodology

The researcher aims to do this through the study of secondary literature and analyzing the reporting on various recent incidents in various mediums. The researcher had also interviewed certain police officials and media men, who on terms on anonymity had agreed to cooperate with the researcher. The researcher had asked in general some important questions to the common people, though not in strict order of a questionnaire, in order to assess the public attitude towards the police at random. Further research study on content analysis of newspapers can be done and has been kept for further exploration for future study.

The reportage and the impact

While studying several news reports that have highlighted police image in common people's mind, the reports posited a negative refrain about the profession and the institution itself. The reports invariably portrayed police personnel as insensitive and lawless. The coverage in various media on the 2014 Badaun rape case sparked fires world wide grossly showing the inefficiency in police action. A random survey of the word "police inaction" in various mediums starting from print to television to web in the past six months, the researcher found the below headlines.

31st may 2014- 2 policemen fired for not acting in Badaun gang-rape case. (Times of India).

30th may 2014-India gang rapes: Outrage over police 'discrimination' (BBC India).

20thJuly 2014- Bangalore school rape case: Protests continue over police inaction.(IBN Live).

19thJuly 2014- Angry protesters rally over police inaction after 6-year-old raped at school in southern India. (fox news).

29th January 2014- Police Suspended For Inaction In Kerala Woman Suicide Over Obscene Facebook Posts. (www.lighthouseinsights.in).

31st may 2014-Police fired for inaction on India gang-rape and hanging of two girls. (www.theNigerianvoice.com).

01st august 2014- Harassed girl, mother knock on OHRC doors against police inaction (Odisha Sun Times).

29thJuly 2014-Gurgaon highway blocked over police inaction against cow smugglers (www.firstpost.com).

01st July 2014- GSHRC notice to DGP for police inaction in assault on woman (www.zeenews.india.com).

Even United Nations condemned such a heinous crime. Even as the case of Nirbhaya had not been solved, the blame game had already started between the media and the police, each of whom pointing their fingers against each other. The police accused the media of sensationalism and exaggeration. Another charge is that sections of the media are not only unsympathetic; they even betray a lack of understanding and objectivity while reporting law and order issues. The Commonwealth Human Rights Initiative (CHRI) condemned the role of police officers in shielding the accused. "There can be no hope of preventing or minimizing rape if our law enforcers are apathetic to it. A message must be sent that this kind of criminality will not be tolerated, particularly against minors, by ensuring that all the penal provisions on gang rape and murder are invoked, including the Protection of

Children from Sexual Offences Act, 2012,” a statement said. As per reports, when the parents of the girls approached police to file a complaint, the officials refused to do so and sent them away, asking them not to worry. In the case of the rape case in Delhi in 2012, many police chiefs recounted stories of the media’s interference with ongoing investigations and of insensitivity to the legitimate privacy and interests of victims. The police too often finds it difficult in dealing with details of an incident because the matter is sub justice or if the disclosure can affect investigation. The inquiry and subsequent judicial proceedings can be prejudiced if the media is given the information. But while talking with a section of the media, the researcher found that the media persons feel there is a tendency on the part of the police to withhold information instead of sharing it with the press on the pretext of secrecy. To be tightlipped “no comment” has become an unwritten policy. And they advocate this vociferously, the culture of secrecy. In case of the Delhi rape case the Delhi police chief Neeraj Kumar amidst such uproar proposed a solution-“women should not go out late at night”, triggering the insensitive nature and high handedness of crimes of police officials in India. Ruchira Gupta, founder and president of NGO ApneAap Women Worldwide, echoed similar insensitive sentiments and stressed the need to hold police accountable. “To stop rape, we need police to be held accountable. As long as police are part of the problem, poor, low caste women have nowhere to turn to for justice from men who rape them, buy and sell them,” Gupta said in a statement.

In this regard the effort of the National Police Commission is laudable. It has recommended that Superintendents of Police should be permitted to deal directly with the press even the police station officer should be authorized to provide details of the crime graph, the arrests made and the cases convicted. The commission observed: “The exercise of discretion should be in favour of giving as much information as can be given”. The

Delhi Police Commission has also recommended that in cases in which the police figure, the facts should immediately be given to the press in the form of handouts so that the media gets hold of all the materials before publication. The case often suffers if it avoids the media. The commission was also in favour of a "code of honour" between the police and the press about the precise piece of information that should be published so that "the progress of investigation is not jeopardized". But the viewpoint of the media is somewhat different from what the code suggests. The media persons claim they have an experience which does not correspond with the national commission codes. They are often manhandled, roughed up and even shoved off. The police officials in a bid to defend the indefensible, make the exercise unconvincing and lose credibility in the eyes of the media, which provokes the media to expose and exaggerate the lapses of the police by gathering information from unreliable sources. Media officials feel that the Noida incident should be the eye opener for the police officials. On the hindsight although many media officials also feel that the overstressing on crime issues by media is often stretched too far. In one of the conferences of FICCI in May 2008, G. Krishnan, CEO of AajTak, a Hindi news channel said "Today, the consumer demands the 4 C's, namely cricket, cinema, comedy and crime. There is no option for news channels but to feed the viewers with what they want." News can fall victim to sensationalism.

In many parts of the country, distrust of the police is so high that people either prefer to live with crime/harassment or enter the perceived safety of parallel protection rackets; the police system being often described as inept, malevolent and a political tool. In a workshop conducted by the Commonwealth Human Rights Initiative and Press Institute of India, 2005, a reporter of long standing recollected, "the first time I went to a police station I overheard a young girl from a very poor family present with her grandmother reporting her rape. The policeman seemed to be

outright harassing her. I heard him say roughly, why did you go off with your yaar. (lover) in the night?. She was totally intimidated. I was shocked. No one talks like this to a young woman that too in the presence of her grandmother. Very recently, not many years later I had the chance of visiting a police station again. A husband was registering a case of his missing wife. The policemen standing around were scoffing, a 32 year old woman doesn't go missing she runs away. Nothing has changed over the years". In the Badaun rape case- the victims relatives alleged that police refused to help find the missing girls, aged 14 and 16, who were cousins from a low caste. "When I went to the police station, the first thing I was asked was my caste. When I told them what my caste was, they started abusing me," the father of one of the girls told the BBC. (30th May 2014, BBC India). A neighbor of one of the victims said the police "discriminated" against people from the lower castes in the town. A journalist on anonymity recounted an incident in West Bengal where a few months ago, a girl was slapped by a policeman on an open road in broad day light. Her fault being she approached a policeman to complain on a truck driver harassing her. Her brother and father accompanying her too protested and were given a taste of the same medicine. In another incident a journalist from West Bengal working in a reputed Bengali television channel recounted his own horror experience with police where he was harassed when he was with his fiancé in a public place. He then went on to say how often police in their white attires and weathered-white-helmets-from-the 19th century appears from nowhere to ask inane questions – 'what you are doing on the road, your name, what you do' and so on like you were a Jew in Nazi Germany. When they have successfully rattled you enough they will almost coyly poke at your dignity and manage to criminalize a harmless act, such as talking. Though, shell out a few hundred bucks and they will vanish into the thin air just as they had appeared."

When the researcher embarked on a general notion about the police in common people, she found these points-

- Police is supposed to be the protectors of the people but actually they are the main perpetrators and violators of crime.
- Policemen are snob, have a casual approach towards the hapless, more often than not are lazy and delayed, and uses abusive languages and exhibit rude behavior, mostly in a coercive manner.
- People also felt that many policemen are politically affiliated and work accordingly under the power of the political hooligans and therefore praying justice before them will result in their loss of security. Thus they feel that it is wiser to keep quiet than to go to the police station and court problem.
- Police due to their lackadaisical attitude, have built an image which shows them lacking in accountability in providing protection of life and security.
- While crimes are getting sophisticated, the police are becoming less professional. The desire within the police organization to redeem its public image is not so evident.
- Police are often ignorant and lack in adequate training in handling of cases related to women, children and even human rights.
- Police treat people according to their caste, social status and even profession. Though the caste problem is not so serious issue in West Bengal, yet the other issues are very much in practice.

A conditioning seems to have occurred where the name of the police itself evokes an image of insecurity, problem and troubles in India. Though many people when asked they did say that they felt a sense of encouragement when they see films like-Singham, Gangajaal, and Aan- men at work and so on. But they also said that in the films the Police are portrayed as masculine, smart,

full of martial arts skills, fit, aggressive, action packed, always willing to shoot at suspects and so on. The sad reality according to them is just the opposite. The respondents when asked about certain serials which are presently portraying police in a positive image like crime patrol and savdhaan India- they claimed that the police attitudes and behavior varies considerably depending on the socio-economic status of the victims. For example according to the Vrinda Grover, a human rights lawyer based in New Delhi, if a woman is in distress than the last thing she would prefer is to go to the police. In many rape cases, the police spend more time seeking reconciliation between the attacker and the victim than investigating the facts. Over all, experts say, the police are poorly organized to deal with serious crimes, particularly those against women. According to a report published in Wall Street Journal, in 30th April 2013, in March, a 35-year-old woman in the northern state of Uttar Pradesh, one of India's poorest, told police she had been raped in the fields around her village. Police registered the case as harassment—in contravention of new laws that stipulate authorities must investigate rape allegations. When her family approached a senior police officer to complain, he was recorded on camera—later aired on national television—as saying “Who would rape such an old woman?” The policeman who made the comment has been transferred. A senior police official for the state of Uttar Pradesh apologized to the woman for the comment at a televised news conference. The police chief of the district where the incident took place says it is now being investigated as a case of rape and as a case of caste-related violence, because the woman is of lower-caste, or Dalit. Kiran Bedi, a former Delhi police officer who campaigns against corruption, says police often aren't familiar with new regulations. “How many officers are sent back to class whenever there is a new law passed?” she asks. Recently in an incident in West Bengal a girl in presence of her brother was molested in the Kalyani Simanta railway station. (3rd August 2014). According to an established daily,

the reporters were repeatedly warned by the police not to write about the case as molestation or rape rather they were told to write about it as simple argument.

The solution

The relationship between the police and the media in a democratic society need not always be cordial. But despite friction and constructive tension, there ought to be a fair measure of understanding and an appreciation of each other's role. Even media persons feel that they are willing to help out the police, only if their attitude shows little consideration towards their work, rather than revealing show of power. Police officials can organize proper interactive sessions with the media and train the law enforcement officers accordingly. Police officers must be adept in handling the media in this regard. Public relations strategies should be formulated to enhance the image of the police in the public mind along with arranging for workshops in local places to make common people aware about their rights thus building an amiable relationship between the police officials, media and the common people. Media can be treated as an ally rather than a rival and can be helpful in disseminating information on departmental rules and practices and giving publicity regarding wanted persons and criminals. Police officers should grasp this basic fact. "But it is not good enough," says the Royal Commission (1960) in its report, "for the police to understand the requirements of the media. It is equally important for the media to understand the difficulties of the police because the interests of both - despite occasional friction - run in the same direction". Few journalists receive any real education about the criminal justice system or crime prevention. According to Barthe (2010) crime newsletters can be a good idea to solve this problem:

Content of Crime Newsletters

- Self-protection techniques
- Ways to report crime

- Locations of police resources
- Dangerous areas
- Offender addresses
- Area crime problems

Also the media relations department of the police needs to be trained properly on how to behave with media when confronted specially during crisis. Journalists than can be trained and made to cooperate with the police officials too to solve problems facing the human kind, as both police and the journalists have some responsibility towards the society.

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Human Resource Development Perspective for Dealing with Left Wing Extremism (LWE) Challenges

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Keywords

Human, Resource, Development, Perspective.

Abstract

On analysis of the root causes of extremism, the expert group found that livelihood related factors including lack of land reforms, non regulated traditional rights on forest and agricultural produce as well as Social exclusion of certain section of population and lack of governance in the area responsible for widespread discontent and unrest. In a country where 58% of the Indian labour force is still engaged in agriculture and allied occupation, landlessness is still important root of poverty. About 90% of workforce lacks job security and thus permanency in their income.

Introduction

The spectrum of challenges that India is facing in Internal Security is channelizing the best of the resources the nation is having towards coping the security threats. The country has to more often divert focus on containing the violence than taking care of poverty and inhuman socio - economic conditions prevailing in a few pockets of the nation. Cross border terrorism, militancy in J&K and insurgency in North Eastern states have plagued the nation since independence. Variety of political and

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socio- economic issues have been in the core of such problems along with support from foreign countries having vested interest in country's 'instability'. However, the menace of Left Wing Extremism (LWE) which has grown-up due to indigenous factors only, is posing the most serious challenges. Widespread distrust and discrimination towards a section of people for continuously long period have ultimately made them rebels.

Since independence India is facing gravest internal security challenges due to militancy, insurgency and Left Wing Extremism. However, significant achievements in these fields are not forthcoming. Unlike other countries the nation has successfully controlled organized crimes, drug cartels and other mafias. By and large, communal violence has been restricted except for the times when the situations are politically manipulated for petty gains. But the real challenge has come from the Left Wing Extremism. This movement for last forty years continues to have a large support base because of the intellectual appeal of its ideology. The quantum of violence in recent time has almost given impression of complete "lawlessness" in few areas of central India. The audacity of Left Wing Extremists of considering Abujmaad as 'Liberated' and then in 2009 declaring "Lalgarh" as liberated area has caused ripples across the various organs of administration. Panic, fear and terror are unwritten permanent expression of masses in area which the extremist identifies as Compact Revolutionary Zone (CRZ).

Socio-Economic Factors

Though terrorism and violence must be seen as terrorism only not withstanding any justification or provocation, but the Left Wing Extremism has put forth many socio-economic questions before a nation which is scaling new heights of economic development in world scenario year after year. However, the economic disparity and scarcity of resources for majority of people also coexist. Probably, the policy packages are creating wide economic gap and

basic needs of a large section of population remains unfulfilled. The expert group of planning commission on “Development challenges in extremist affected Areas (2008)” has opined; - *‘There is no denying that what goes in the name of “naxalism” is to a large extent a product of collective failure to assure to different segments of society their basic entitlements under the constitution and other protective legislation. There is no denying that the nation is now caught in a vicious circle of violence and counter violence.’*

Dynamics of Conflict Zone

The extremism in recent times is having broader spatial spread and linkages across various other terror groups, making the networking lethal and dangerous. The dynamics of conflict zones created by extremists are oriented towards mass or mass based actions. In 2010, the Left Wing Extremists caused death of 1003 Security Force personnel and civilians. The movement is spread over in almost 220 districts of 18 states and has taken almost 40,000 Sq. Km. of area badly in their grip. Violence has been consistently witnessed in 200 police stations of 90 districts. Extremists are focusing their attacks on railways, mines and industries etc paralyzing normal life and economic activities.

The violence due to extremism is quite substantial. In 2009 it caused 1356 deaths whereas in 2010 the death toll was 1233. In naxal affected area it has been increasing every year. In 2008, 721 persons were killed, in 2009, 908 and in 2010, 1003 persons were killed. In one single incident of naxal attack on 06 April 2010, 76 security force personnel were killed. Besides these terror/extremism related incidents the riotous attitude among people has also gone up. Lots of casualties are due to intolerant behavior of people, probably being shaped up because of the belief that voices will be heard only if violence takes place. In a study commissioned by BPR&D on Social, economic and political dynamics in extremist affected areas, ‘respondents of North

Eastern states indicated that peaceful protests are never noticed in the corridors of power (Common People – 66.2%, Professionals – 55.1%). The open source literature survey had indicated that there is a tendency by the government to ignore emerging movements until a threshold is broken. In Left Wing Extremists affected areas, it is believed by majority of the respondents (Common People – 77.3%, Professionals – 66%) that orchestration of violence by the Naxalite groups is largely a result of the ineffectiveness of peaceful methods of protest. In the opinion of experts, however, violence remains a key tool for attainment of the Naxalite objective of capturing the ‘state power.’ This perception is having serious bearing on not only on law and order but also on national culture of homogeneity and harmony.

On analysis of the root causes of extremism, the expert group found that livelihood related factors including lack of land reforms, non regulated traditional rights on forest and agricultural produce as well as Social exclusion of certain section of population and lack of governance in the area responsible for widespread discontent and unrest. In a country where 58% of the Indian labour force is still engaged in agriculture and allied occupation, landlessness is still important root of poverty. About 90% of workforce lacks job security and thus permanency in their income.

Five Stage Upsurge

Research and studies reflects that wherever the masses get an opportunity to carry out assured economic activities for their subsistence, most of them opt for peaceful co-existence. Probably, the lawlessness and violence is product of poor human resource development. Left Wing Extremists especially progresses its movement in five stages from survey stage, struggle stage, Resistance stage, Guerilla stage to liberated stage. During the initial stages, they study and look for potential areas where there is abundance of socially and economically backward people. They became ‘readymade’ materials for rebellions movements.

This gets flared up because of absence of governance in such area. The second administrative Reforms commission in its seventh report titled. "Capacity building for conflict Resolution: Friction to Fusion (2008)" opines – 'It may be highlighted again that these causes are most glaring in forest area predominantly inhabited by tribal population who thus become the main instruments and victims of left extremist violence'.

Dr. Ajay Sahni, expert on internal security, expressing his opinion in his article, "Naxalism- the retreat of civil governance" says; - 'There appears in India today to be a widening consensus that a variety of blood baths will continue as long as basic realities are ignored.' The data of seriously LWE affected districts too indicates high level of infant mortality, low level of literacy, low per capita food production and high share of rural households without specified assets.

Research across the world has also reflected that lack of development of Human resources has been trigger factors of extremism/terrorism. James Piazza (2006) , if citizens are deprived of the right or means to fulfill their basic human needs and denied any possibility from reasonable economic opportunities, or are directly affected by socioeconomic disparities, soon they feel hopeless and exasperated and may perceive violence as the ideal way to express their grievances and affliction. Krueger (2007), lack of access to education remains a significant cause of support for involvement in terrorist activities. T. P. Thornton (1964), claim that terror is the weapon for those individuals who have lost faith in their government and the political agitation.

Left Wing Extremism has been violating human rights of people, targeting democracy and rule of law. In particular, the extremist has threatened right to life, liberty, physical integrity and dignity of life. One person from each family for the PLGA/Party cadre, forced share from earnings, cultural restrictions and obstructing governance are a few activities of left wing extremists which has

threatened the very existence of human being in many pockets across the country. The conditions are miserable in 90 districts in general and in Dandakarnya area in particular. This has adverse impact on establishment of rule of law and undermines pluralistic society.

Historically too, we are not learning from the message left wing extremism is putting forward. Telengana insurrection (1946-51) reflected that seemingly helpless, resourceless and illiterate people can be organised into a formidable force by a determined group. People could be fed and sustained on revolutionary promises of better future and if land policies are not drastically reformed and interest of peasants not protected similar armed movements are bound to occur. However no concrete action initiated to resolve the critical issues. In dealing with problems like left wing extremism, excessive preoccupation with peace and order, ignoring issues of social justice and law can prove expensive in the long run?

The issue is that why internal security problems are becoming intractable? A few plausible solutions suggested are generally of the nature of police actions against extremists, political dialogue and perception management. However, there is one more positive strategy which can bring far reaching changes and that is development of Human resource (HR) in the affected areas. In these affected areas the basics of human resources are not available. The most important intervention in HR development would be to provide education to all for capacity building and providing employment to the people for enabling them socio-economically. Majority of population are working either in unorganized sectors or sustaining themselves from forest produce. The extremists have additionally put burden on these poor people for their personal security too by unleashing a free rein to indiscriminate violence.

Dismal Human Development

The socio-economic parameters of the extremism affected or prone areas are having dismal human development records. Some

data are pointer to this state of affairs. Even today approximately 58% of the Indian labour force is engaged in agriculture and allied occupations. Thus landlessness is an important root of poverty. But still land reforms are not priority of central or state government. The situation is escalating towards nearby urban areas too. The national average of infant mortality rate in 2009 was 50 whereas it was 65 in Orissa. The percentage of children with anemia was 78 among SC, 79 among ST and 72 among OBC category of people. The estimated number of landless rural families in the country is 1.30 to 1.80 crores. (Report of an expert group of planning commission). One percent tribal are not having sufficient food in any months in a year, approximately 3-4% face food crisis for few months in a year, in total approximately 6% tribal are still facing food crisis. It is pertinent to mention that the cadres of extremists group are having feeling of being deprived and often find themselves lacking opportunity to do something constructive for employment and hence they join the extremist's rank and file.

Misplaced Priorities

Creating employment is not an easy task. Governments of India and state Government have already initiated many welfare oriented projects but the desirable impact is lacking. A few of them are National Rural Employment Guarantee scheme (NREGS), Scheduled Tribes and other traditional Forest Dwellers (Recognition of Forest Rights) Act 2006, National Rehabilitation and Resettlement policy (2007), Comprehensive Area development programme, Backward District Initiative which is financing developmental projects in 55 naxal affected district etc. Besides these schemes there are Area development programmes like Draught prone area programme and Rashtriya Sram Vikas Yojna etc. Numerous government policy initiatives exist. But pilferages and misplaced priorities at the local level has created obstacles in the path of achievement of the desired goal. Secondly, the macro level planning is not yielding enviable outcome. The

solution requires being compatible with the problem of area causing discontent and conflict. The requirement is to come up with specific plan for specific problem with focus on individual as well as social growth.

A few suggested measures could be as follows;

- Forest produce trading Facilities (Sericulture, Bamboo etc) locally
- Construction of Village Roads for employment and accessibility. This will facilitate developmental works too.
- Developing Fisheries industry in villages
- Developing alternate energy sources like Bio- gas, Solar etc. and developing employment generation schemes through it.
- Micro-electricity generation scheme (hydel, solar, wind etc.)
- Local Market for agriculture produce for the farmers
- Regulating petty mining activities in accordance with local requirement of people.
- Employment generation for women – (crafts , pottery making, local artifacts, paintings, metal works, clothes, woodworks
- Recycling industries- creation and promotion thereof
- Tourism potential development scheme in far flung area
- Introducing service sectors in rural area
- Tenancy distribution of land
- Comprehensive Surrender & Rehabilitation policy for extremists and close monitoring by independent agencies
- Making *Panchayati Raj* system stronger etc.

For meeting above requirements the human resource of the area will have to develop competence in employment oriented skills. This can come from training people in various vocations

like training in Sericulture, bee keeping, animal husbandry, pottery making, woodcrafts, handicrafts, traditional harnessing of irrigation, Para- medics, “*Shiksha Karmis*”(Teachers), Petty Mining activities, traditional house building training as well as training them to get employment in Police/CPMF and making them capable for Service sectors like Waste disposal, transport, Communication etc.

It has been often observed that internal security challenges in India are basically due to poor utilization of one of the best resources we are having that is human resources. This is also the best tool to tackle extremism and terrorism. An educated and economically empowered people will not opt for violent and vagabond life in jungles when civility can provide them wonderful opportunity for growth. Unfortunately human resource development perspective for tackling internal security challenges has never been deliberated upon as a viable policy. Though lots of research has to be carried out for meaningful implementation of such policies due to multi-veracity of local needs and inclination of people, nevertheless it would be certainly a great assistance to the poor people of the Nation. An empowered human being is force multiplier in fight against internal security threats and thus a great resource indeed!

Education & Literacy : Force Multiplier

The census of 2011 is also a good pointer to this fact. The literacy rate has gone up from 64.84% in 2001 to 74.04%. Swaminathan S. Anklesaria Aiyer, overs in his article in Times of India, 03 April, 2011 – Literacy improves fastest in poorest states; ‘Literacy is a not for elite benefit. It benefits those at the Social bottom, giving them dignity, status and income potential.’

Our analysis of extremism, especially the left wing extremism is that the education brings awareness among people. Aware people ask for dignity, social security, employment and share in privileges which State provide to citizens. If they don’t get they

feel deprived and cheated. The extremism ideologies propagated by the mafias of left ideologies to take up arms against State provides an opportunity to them to explore violence for securing their rights. But if the aware and capable people are provided with employment or growth opportunity through various assistance programmes in economic activities for sustenance, then obviously fear will not prevail for longer period. The same group of people will not let the tranquility to be disturbed and lawlessness to prevail. The example of Punjab can be taken note of where the militants are trying quite often to regroup but they do not find any support and help of people at grass root level. So they are easily neutralized. Same things are also being observed in North Eastern states where lack of support from people has subdued the terror of 'insurgency'.

While investigating the people's discontent and support for extremists, expert committee of Planning Commission has also observed that,- 'causes are varied depending on characteristics of an area, social, economic and -cultural background. A history of not working out solutions to lingering structural problems and ineffective application of ameliorative steps undertaken since independence and more so since mid sixties of last century..... The intensity of unrest resulting in extremist methods and efforts to the gathering of unresolved social and economic issues through violent means as a challenge to state authority is in response to the gathering of unresolved social and economic issues for long durations. It creates the impression that policy making and administration responds to extreme means'. There is urgent need on the part of government to adopt a multi-pronged strategy to tackle the extremism which should include strengthening of the administrative machinery to redress grievances; improving delivery of accelerated socio-economic development; promoting employment opportunities; encouraging building up of capabilities to improve intelligence gathering for effective police action along with encouraging peaceful local resistance; as well as encouraging peace initiatives by affected State governments.

Individuals are not getting opportunity for growth. As it happens that in families people are waiting from generations to secure economic growth and dignity of life. However, selective perspective of development resulted in mis-governance or no-governance in many parts of the country, creating social discontent and unrest. Social discontent creates disgusted individuals. Deprivation causes hopelessness. Disgusted and hopeless person with its back to the wall is just the fodder for de-stability and an invitation to the radical groups like left wing extremists, to widen their appeal to challenge the government and the democracy. Now LWEs are trying to reinforce the trend and the deprived classes are organized to use violence for societal change. The frequency and intensity of violence has led the internal security managers to belief that LWE can be countered primarily by police action. Otherwise also the lethality of violence or the myth so created has made it inaccessible for government agencies to carry forward the progressive structured developmental work. Under such trying crisis, the only hope is developing human resources in such affected areas by education, empowering society through removal of discrimination, rights of self governance as mandated through Panchayat Raj extension to scheduled areas (PESA) Act 1996. The structure for rural development and displacement of people or dispossession of land of people be dealt from humanitarian angle taking into consideration the livelihood factors of common masses. That is why human resource development primarily through educating the people and employing them seems to be an evolutionary approach at initial stage. The institutional structure which governs social conduct and approach of administration need a relook to have welfare orientation and human resource development approach.

Conclusion

The country while facing serious internal security threats from various extremism has to more often divert focus on containing the violence than taking care of poverty and inhuman socio - economic conditions prevailing in a few pockets of the nation.

Variety of political and socio- economic issues have been at the core of such problems.

The quantum of violence in recent time has almost given impression of complete “lawlessness” in few areas of central India. Probably, the lawlessness and violence is product of poor human resource development. If citizens are deprived of the right or means to fulfill their basic human needs and denied any possibility from reasonable economic opportunities, or are directly affected by socioeconomic disparities, soon they feel hopeless and exasperated and may perceive violence as the ideal way to express their grievances and affliction.

Left-wing-Extremism has been violating human rights of people, targeting democracy and rule of law. In particular, the extremist has threatened right to life, liberty, physical integrity and dignity of life. One person from each family for the PLGA/Party cadre, forced share from earnings, cultural restrictions and obstructing governance are a few activities of left wing extremists which has threatened the very existence of human being in many pockets across the country. The conditions are miserable in 90 districts in general and in Dandakarnya area in particular. This has adverse impact on establishment of rule of law and it undermines pluralistic society.

Often observed that internal security challenges in India are basically due to poor utilization of one of the best resources we are having that is human resources. This is also the best tool to tackle extremism and terrorism. An educated and economically empowered people will not opt for violent and vagabond life in jungles when the civil society can provide them wonderful opportunity for growth. But if the aware and capable people are provided with employment or growth opportunity through various assistance programmes in economic activities for sustenance, then obviously fear will not prevail for longer period. The same group of people will not let the tranquility to be disturbed and lawlessness to prevail.



Sexual Assault Criminological and Victimological View

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Keywords

Gender, Crime, Society, Victim. xyz

Abstract

“Rape” defined under legal context of Indian Penal Code, 1860 is “whenever a man penetrates or does sexual intercourse with a woman without her consent or will it amounts to rape”. In literary sense it is defined as “the ravishing or violation of a woman.” But perceiving it from a feminist point of view, it is a heinous and horrifying act of crime that not only injures a woman’s body physically but also her soul, dignity and self respect whose impact is not only restricted to her but extended to her family and society.

Globalisation and modern world is constantly facing traditional crimes with more intensity and gravity. On one side there is booming industrialisation and communication network which brings people close to one another, whereas, on the other side, there is increase in crimes against women. The culture nourishes women with same power and command and with all opportunities to enjoy their freedom but also a threat from their own colleagues for sexual pleasure for signing projects or even for the approval of projects, or threat from husband who lacks trust knowing the similar working environment. The reasons

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are many but answer is one that a woman can be easily exploited and destroyed and diminished.

The paper focuses on psychology of such gruesome crime which highlights psycho- criminological theories behind the act of rape and also offence analysis with taxonomies of rapists given by experts in order to understand and analyse the motive behind it. The paper also focuses societal perspective towards rape victims and also their subjection for secondary victimisation. The paper also shows the ground reality of sexual crime against women in India in the form of statistical data.

Over all the paper takes responsibility in put forwarding the psychological view in commission of "rape" as a crime and answer questions like why? and who? does it. It also exterminates few myths related to rape, rape victims and rapist.

Intorduction

Just as it is impossible to put forward the same set of causes for every man raping, one cannot assert a prototype of a rapist. Common features do exist, but the biographical details are different. Furthermore, some men rape only in certain circumstances and contexts. Their offences are disparate by nature. Some rapes are of longer duration and more violent than others, while some rapes involve lone rapists, and others gangs. Despite all the differences between rapists, two generalizations about rapists can be made. Firstly, they have a strong desire to assert their power through coercion, and secondly, they are unable to perceive women as people

Since Susan Brownmiller first wrote, "Against Our Will" – the landmark feminist re-conceptualization of rape – feminists have worked on clarifying the fact that rape is less about sex than it is about rage and power. In tackling the question of why men rape, three primary interconnected theories emerge. The first is that of sexist ideology and the rapist's imbibitions of all the qualities assigned to the male sex role. The second is the shocking picture

of our society as a “rape culture” in which rape is tacitly accepted. This is evidenced partly through patriarchal institutions and structures in our society, sexist interpersonal relations, the great importance society attaches to male power and aggression, and the social, economic, and political factors that lead to violence. Finally, there is the postulate of rape as a mechanism of social control. Rape, like other forms of sexist behaviour, dehumanizes women and accentuates their forced subservience to men.

Seen from the women’s perspective, rape is quite different: It is punishment for daring to exist as an independent being, for one’s own purposes not for other’s use. Sexual assault is a form of brutalization based simply, on the idea that women have no place in the world except the place that a man assigns them and that men should be free patrol women’s lives, threatening them if they dare step into view.

A man commits rape if he has sexual intercourse with a woman who does not consent to the act. Sanday’s survey (1981) highlighted three social factors which characterizes “rape cultures”-

- The sexes are clearly separated.
- There is a general subscription to male dominance.
- Male violence is sanctioned for solving personal problems.

Thus, if the culture is patriarchal, giving men dominance in work, family and sex then men can assert their dominance in a number of ways, including rape, to maintain the submissive role of women.

Offence Analysis

- The surveys also reveal that rape most frequently takes place in the hours between 8p.m to 2a.m and almost always in total darkness. The obvious reasons for darkness is the avoidance of detection, but there may be other reasons.
- Bartol (1980) and Howells (1984b) suggest that in the dark the offender may feel ‘**Deindividualized**’, able to set aside

the feelings of guilt and remorse and view the victim as an object rather than a person. It is also possible that as alcohol and drugs are most frequently used in the evening and early hours of the morning that they may be involved in some way.

- Ploughman and Stensrud (1986) carried out a detailed study of rape victimization in New York, influenced by the notion of 'Social Ecology'. The circumstances under which crimes occur, including rape, appear to be neither random nor trivial but rather are socially structured phenomena that depend heavily upon the spatial and temporal organization of human activities. [Ploughman & Stensrud 1986:306]
- Their research also suggested that 'unmarried women are more likely to be victimized than married women because of their exposure to potential rape situations (travelling alone, living alone, living in lower income areas, etc)
- The demographic characteristics of the rapist have been described in number of studies. The rapist is typically young, generally 16 to 30 yrs, although it has been suggested that adolescent sex offenders may be more common than generally acknowledged [Davis & Leitenberg 1987]. Rapist tend to come from a lower socio-economic class [Amir, 1971]
- Almost half of a large sample of convicted rapists were or had been married. It is unlikely that all rapists are psychiatrically disturbed in terms of a formal diagnosis and therefore are not as a group psychologically 'sick' or 'psychotic' in a clinical sense.
- It is also studied that one quarter of arrested rapists have raped previously with approximately one third having a history of arrest for violent offences. [Chappell et al. 1977]. This study shows that a considerable percentage of rapist have either previous record of rape or violent crime. It also

seems that convicted rapist will continue to offend when released from custody resulting in 10% vulnerability towards recidivism. [Romero & Williams 1985]

- The survey also show that in about one third of cases the victim and offender are acquainted prior to the rape [Chappell et al. 1977, M J Walker & Brodsky 1976] although this may be underestimation as victims related to their attacker may be less willing to report.
- According to the experts, when the victim knows the attacker, it is most often an acquaintance previously encountered in either the victim's or offender's home or workplace. In some other cases, in decreasing order of frequency, the relationship is with a friend, neighbour, ex-husband, boyfriend, family friend, relative and fellow employee.
- In minority cases, between 10% & 15%, the rapes involve more than one attacker, while in about one quarter rapes, the attacker demands other several acts, usually oral sex and less often anal intercourse. [Amir 1971, Chappell et al. 1977, Chappell and Singer 1977]
- In more than half the reported cases weapons are used, typically guns and knives. Give these findings; it is not surprising that along with the physical injury resulting from the forced sexual act, other serious physical injury occurs which often requires medical treatment or hospitalization. In some cases the viciousness of the attack results in severe internal injury, while in a minority of cases the rape is sadistic in the extreme, culminating in sexual murder. [Schlesinger & Revitch 1983]

Offender Classification

Guttmacher (1951) classify act according to the motives of the offender:

- i. **True Sex Offender:** Who has a sexual motive in committing the rape.

- ii. **Sadistic Sex Offender:** For whom physical violence is of primary importance.
- iii. **Aggressive Sex Offender:** For whom the rape is simply part of a general criminal, anti-social life style.

Cohen et al. (1971) defined four types of rapist:

- **Displaced Aggression:** Displaced aggression rapists use the rape to express anger and aggression, with the aim of physically injuring the victim who is typically wife or girl friend.
- **Compensatory Offender:** Compensatory offender uses the rape to satisfy the need for a sexual goal, the aggression being a step towards fulfilling that aim, the rape is therefore a way of compensating for inadequacy in achieving sexual goals by conventional methods.
- **Sex-Aggression-Diffusion:** Sex-aggression-diffusion rapist is a sadistic act in which the sexual and violent components of the act become fused, so that it is the victim's pain which excites sexual arousal.
- **Impulsive Rapist:** Impulsive rapist acts without planning, raping when the opportunity present itself.

Eg: Raping while doing burglary.

Type	Motivation	Characteristics
Displaced Aggression	Aggression	Anger, rage, physical injury
Compensatory	Sexual	Rape fantasies being acted out
Sex-Aggression-Diffusion	Aggression & Sexual	Sadistic sexual assault and severe Physical injury
Impulse	Opportunity	Impulse reaction to chance opportunity

Groth (1979) describes three types of rape according to the varying degrees of hostilities and control associated with the act: [Groth & Hobson 1983]

- **Anger Rape:** The anger rape typically follows arguments, sexual jealousies and social rejection. The offender reports experiencing anger and rage, together with a sense of being wrongly treated, prior to the attack. In committing the sexual act the rapists uses far more force than it is necessary to ensure compliance, the aim appears to inflict physical injury with the rape almost an after thought, an additional way of inflicting pain.
- **Power Rape:** The power rape is different in that sexual conquest is the goal, physical force is used only to the degree necessary to force compliance. It is not sexual gratification which is the goal, rather the experience of power which alleviates personal insecurities and asserts manhood and heterosexuality.
- **Sadistic Rape:** Sadistic rape, sexuality and aggression are bound in a reciprocal fashion. The victim is made to suffer, typically by being tied, tormented and often tortured, the victims' humiliation and suffering is sexually exciting, rape fuels the experience yet further.

Pentky et al. (1985) described eight types of rapist. These eight types are defined by combinations of levels of three variables – Meaning of Aggression, Meaning of Sexuality and Offender's level of Impulsivity. They define two types of aggression- **Instrumental** in which the aggression is used to force compliance; **Expressive** in which the act is principally violent. There are four levels of meaning of sexuality- **Compensatory** in which the behaviour is used to act some sexual fantasy. **Exploitative** in which the rape is an impulsive, predatory, etc. Sadistic in which the rape is an enactment of sexual aggressive fantasies. **Displaced anger** where the sexual act is an expression of rage. **Impulsivity** is dichotomized as **high** or **low**, while differing slightly in definition according to

the level of the other two variables, the **low levels** are associated with offender characteristic cues such as perceived threat, **high levels** are characterised by 'acting out' behaviours, low social, competence and character disorder.

These various reasons for raping contain elements of revenge; power strongly supporting the argument rape is not simply a matter of sex. Different men rape to gain different rewards. While taxonomies are helpful in understanding of the complexities of the act and motivation of different rapists but still some distinction between rapists and non-rapists exist. In looking for this difference psychological research has focused principally on three areas- the cues which are sexually arousing for the rapist, the attitudes towards women held by men who rape, the level of social behaviour displayed by rapists.

Statistical Over-View:

Rapes cases in India are more than doubled between 1990 and 2008. Total rape cases reported in 2011 according to National Crime Record Bureau were 23582 out of which MadhyaPradesh accounted for 3406 rapes while West Bengal taking second position of 2363, whereas, Uttar Pradesh accounting for 2042, whereas, Rajasthan for 1800, Maharashtra and Bihar accounting for 1701 and 1700 respectively, Andhra Pradesh accounting for 1442, whereas Kerala 1132, Odisha accounting 1112, whereas, Bihar 934, Jharkhand 784 and Gujrat 439.

Reported violent crimes recorded 228650 of 256329 women were victims and conviction rate is 26% in 2011. According to experts, only about 10% of rapes are reported. According to NCRB, Delhi registered 568 cases compared to 218 in Mumbai in 2011.

India stands third when it comes to rape cases while USA and South Africa leads. According to Government of India, **"A woman is being raped in every 20 minutes in India"**.

Social Perspective

Although rape in theory is generally regarded as a legally and morally unjustifiable act, from the moment rape survivor makes a public declaration that she was raped, her claim will be scrutinised and debated.

The social environments in which rape victims are the focus of attention are characterized by a competition for the appropriate meaning of the encounter and disputed about the legitimacy of the claim to rape victimhood. A claim rape may be challenged by arguing that the event should be understood as consensual sex rather than rape, or if it is accepted that forced intercourse did occur, through suggesting that the victim is still responsible because she acted stupidly or recklessly. [Burt & Estep, 1981]

Secondary Victimization & Rape Myths

Blaming a victim for being raped is a form of 'Secondary Victimization', where victims can be made to feel guilt or shame because they are further victimised by negative feedback about their conduct. Secondary Victimization can have a number of profound consequences.

Davis & Breslar (1994) argues that victim blaming is related to the onset of prolonged negative psychological effects.

Eg: 57 to 80% of self defined victims of rape have been shown to meet the criteria for lifetime PTSD, experiencing symptoms such as depression and persistent revisualisation of the crime.

Secondary Victimization has also been linked to the under reporting of rape to the police, close friends and relatives. [Renner et al 1988, Koss & Harway 1991]. If a victim does report the offence to the police, her insensitive treatment may continue. She will be taken to the district surgeon or a hospital, where she is often left alone for lengthy periods. She frequently becomes nauseous as she is prevented from washing the semen or blood from her body. The rape victim may also, according to Levett,

have to deal with an unsympathetic attitude from the district surgeon since “there are district surgeons [in South Africa] who readily express the belief that many women complain of rape falsely” (Levett, 1981:78). Feminist scholars have argued that the tendency to attribute responsibility to the victims and exonerate the perpetrators of rape is underpinned by a number of myths about rape, namely, prejudicial, stereotyped or false beliefs about rape, rape victims and rapists. [Burt, 19980 pg. 217]

There are a number of rape myths which operate within a range of professional and everyday contexts. Following are few common one:

- i. Women precipitate rape by their behaviour or appearance.
- ii. Rape is not damaging because after all it is only sex.
- iii. Real rape victims have signs of injury to prove it because you can't be raped against your will.
- iv. Women often lie about rape because they are malicious and deceitful.
- v. Real rapists are psychopathic individuals.

Rape myths are embedded within and reinforce culturally dominant, stereotypically, assumptions about femininity, masculinity and the nature of normative heterosexuality [Brownmiller, 1975, Nicolson 1994, Usher, 1997]

Many rape myths suggest that women should take responsibility for the control of male sexual behaviour. They also trivialise the severity of rape experience through construing it as a potentially pleasurable sexual act rather than as an act of violence and oppression.

Conclusion

It is necessary to understand psycho-social process that leads to primary and secondary victimisation of rape victims. Trying to fulfil the expectations of manhood often means that sexual

activity is likely to be impoverished by separation from feelings of affection. Endearment in love-making and sexual liberation requires sex role liberation (Russell, 1975).

Man's wish to dominate, which may be expressed through rape, is not instinctual. Controlling and domineering behaviour is learnt from family modes of relating, the media, sexist sexual institutions and activities, and society's glorification of "strong-armed masculinity and docile femininity. Since the cause of the rape is social, physiological solutions such as castration miss the point. What is required are social strategies. Thus, transformation of prevailing social relations can only come about through a change in social structures and ideologies.

Women's position as potential rape victims becomes increasingly precarious as sexism continues to pervade our society, and as men continue to feel a sense of powerlessness. To break out of this spiral of sexual violence, a concerted effort must be made to develop a science of rape, to implement conclusions of this science, and to actively work towards the establishment of an egalitarian and democratic society.

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Domestic Violence: A Challenge to Policing and Social Work Practice

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Keywords

Domestic Violence, Woman Status, Policing, Social work Practice, Challenge.

Abstract

The status of women has not improved as much as it should have in spite of rapid political, economic and social changes, and a plethora of laws meant for empowering them and strengthening their rights. What is notable is the fact that women are invariably forced into roles that are subservient to men. Virtually every culture in the world contains forms of violence against women that are nearly invisible because they are considered to be normal within their respective community. Violence against women is often a cycle of abuse that manifests itself in many forms, domestic violence being one of them. It is the most common form of gender-based violence worldwide. Studies indicate that the main perpetrators of violence against women are men, mostly spouse.

Domestic violence is largely explained with the help of interpersonal violence which includes family and intimate partner violence. As per the available data, domestic violence is steadily increasing. More and more cases are being reported to formal agencies for redressal. As has been observed that a majority of women victims only wants to have a violence-free family life and do not always insist on registering a

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criminal case punishing the accused as it will hardly bring any relief to them. Women-victims of domestic violence are more interested in reconciliation than legal action against the perpetrator. Keeping this in view, the present paper attempts to understand the challenges faced by women in the intervention process and puts forward suggestions to improve the existing system so that women get their rights that are long overdue and lead a peaceful family life. The paper also attempts to bring out the role of stakeholders such as family, police, judiciary and civil society and the gaps which need to be plugged so as to have a violence-free family life.

Every day, throughout the world, women are subjected to acts of physical violence, which take place within the beguiling safety of domesticity. The violence is painful, humiliating, and debilitating. And it is common. It is a phenomenon that stretches across borders, nationalities, cultures, and races. A binding characteristic of communities throughout the world, almost without exception, is the battering of women by men.

Thirty years ago, violence against women was not considered an issue worthy of international attention or concern. No term for intimate abuse existed in the national lexicon; virtually no shelters or safe houses devoted to battered women had been established; no civil laws had been enacted to deal with the emergency aftermath of an abusive incident; and the government had a long track record of ignoring the problem or even protecting perpetrators. Victims of violence suffered in silence, with little public recognition of their plight. This began to change in the 1980s as women's groups organized locally and internationally to demand attention to the physical, psychological, and economic abuse of women. Gradually, violence against women has come to be recognized as a legitimate human rights issue and as a significant threat to women's health and wellbeing (Ellsberg and Heise, 2005). Violence against women is often a cycle of abuse that manifests itself in many forms, domestic violence being one.

Some women go on to suffer throughout their adult lives within their families—battered, raped and even murdered at the hands of intimate partners (Dassi, 2010).

For long, governments, enforcement agencies and the public at large ignored this form of violence against women. Domestic violence is an issue of concern, because it took place in the family, within the four walls of the house. Although now, domestic violence is recognised by the policy makers but still they have not been able to measure the impact of this violence on women. The reason being that still domestic violence is considered to be a private matter by the larger society and they think it should not go beyond the four walls of the house. The victims of domestic violence suffer from long-term, lifelong, chronic health problems, excessive trauma, depression, anxiety, phobias, post-traumatic stress disorder, and so on.

Domestic violence is also a human rights problem, in the sense that it violates the most fundamental principles of human rights, of one's physical and mental integrity. Reportedly, it is deeply rooted in discrimination and inequality and impunity. Unfortunately, it is also rooted in social tolerance and governmental apathy (Khan and Dassi, 1996). Keeping this in view, the present paper attempts to understand the challenges faced by women in the intervention process, the role of stakeholders such as family, police, judiciary and civil society and the gaps which need to be plugged so as to have a violence-free family life. Let us first have a closer look at the status of women in contemporary Indian society.

Status of woman in contemporary India

In every part of the world, women's roles and positions in society are prescribed by social traditions. One of the key aspects of every culture is the way in which gender roles are defined. Almost without exception women are forced into roles that are subservient to men. Virtually every culture in the world contains forms of violence against women that are nearly invisible

because they are considered to be normal within their respective communities. Women's gender roles are generally viewed as having less political, economic, social and cultural value than those of men (Dassi, 2010).

In the post-independent India, women have been granted equal status with man by the Constitution. The government made effort to raise the status of women in the various fields through legislation and several affirmative measures by way of programmes and schemes to bring them into the mainstream of development.

In spite of affirmative measures taken by the government for the upliftment of women, women are still marginalised and oppressed. In 2011, the literacy level of females is 54.16% as compared to men 75.3%. Census 2011 shows that there is a sharp decline in child sex-ratio in the age-group of 0-6years, from 927 in 2001 to 914 in 2011. The States and Union territories that have shown a huge decline in Child ratio are Punjab, Haryana, Himachal Pradesh, Gujarat, Chandigarh and Delhi. The worst hit are Haryana and Punjab, where the sex-ratio has further dipped to 830 and 846 girl child per 1000 boys, respectively (Census, 2011). The participation of women in economic and political activities has not had corresponding impact on women's status within the family. Doubtless, the country has witnessed, over past six decades, much political, economic and social change. Has this change had a salutary effect on domestic violence?

Defining domestic violence

In order to define domestic violence, it is important to understand the concept of violence first. The "context" and "incidences" of maltreatment suggest different definitions of violence. We take "violence" as conduct which incurs the formal pronouncements of the moral condemnation of the community, or the deviation from conduct norms of the normative groups. Narrowly, the term violence has been applied to 'physically' striking an individual and causing injury. Gells and Strauss (1980) attempt to resolve

problem with a 'purely behavioural' definition: violence is a physical act of aggression.

According to *Encyclopaedia of Crime and Justice* in a broad sense "violence is general terms referring to all types of behaviour either threatened or actual, that result in the damage or destruction of property or the injury or death of an individual". In general, the definition covers those behavioural forms which are generally considered as violent including such crimes as criminal homicide, forcible rape, child abuse aggravated assault and most kind of collective violence on men and women.

According to Convention on Elimination of All Forms of Discrimination Against Women (CEDAW, 1993), an international human rights treaty defines violence against women as "any act of gender based violence that result in, or is likely to result in physical, sexual or psychological harm or suffering to women including threats of such acts, coercion or arbitrary deprivation of liberty whether occurring in public or private life".

In India the first attempt to legally define domestic violence comes along with the Protection of women from Domestic Violence Act, 2005 (PWDV Act). This Act provides more effective protection of the rights of women guaranteed under the Constitution who are victims of violence of any kind occurring within the family and for matters connected therewith or incidental thereto.

Section 3 of PWDV Act defines domestic violence as an act of omission or commission or conducts which:

- Harm, injures or endangers the health, safety, whether mental or physical, and includes physical abuse, sexual abuse, sexual abuse, verbal and emotional abuse and economic abuse or.
- Harasses, harms with a view to coerce her or anyone related to her for a dowry, or property, or valuable security or.
- Threatens by conduct mentioned above.

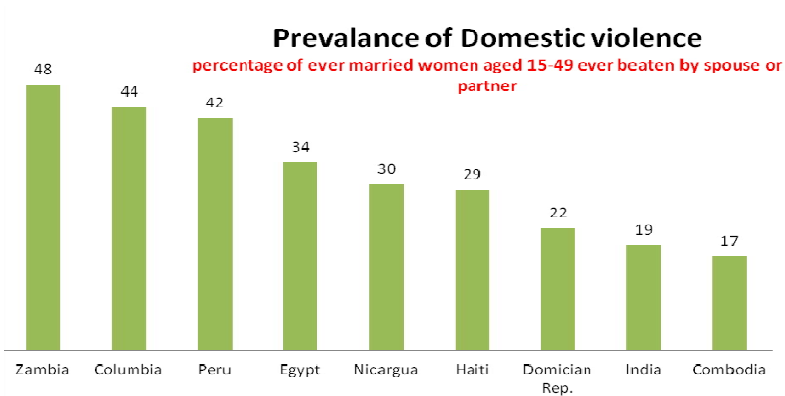
- Otherwise injures or cause harm, whether physical or mental, to the aggrieved person.

Magnitude of the problem

International Scenario

Domestic violence is the most common form of gender-based violence worldwide. Studies indicate that perpetrators of most violence against women are the men in the family. Verbal and psychological abuse is mostly even accompanied by physical and sexual abuse.

Diagram 1



Source: UNFPA, 2005

UNFPA (2005) conducted a study on the prevalence of domestic violence, especially by the spouse or intimate partner in the age group of 15 to 49 years of women across the nine countries of the world. Data revealed that the prevalence of domestic violence varies from 17% to 48% in these nine countries (Diagram 1). Zambia reported highest prevalence (48 percent) of domestic violence amongst them. India reported relatively low prevalence (19 percent) of domestic violence. This poses another question, whether the information revealed by women is authentic or they have suppressed the facts under the pressure and influence of male dominance.

Indian Scenario

Women are principal providers of care and support to families, yet they are subjugated to all forms of violence throughout her life. Violence is perpetrated on women both inside and outside her home. Crime in India (2011) reveals that the proportion of IPC crimes committed against women towards total IPC crimes has increased continuously during last 5 years from 8.2% in 2006 to 9.6% during 2010, with a little dip in 2011(9.4%) (Table 1).

Table 1
Proportion of crime against women (IPC) towards
total IPC crime

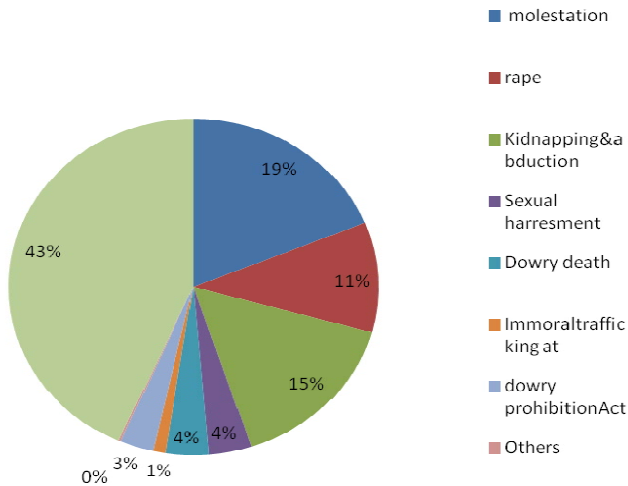
S.No	Year	Total IPC	Crime against woman (IPC)	Percentage to total crime
1.	2006	18,78,293	1,54,158	8.2
2.	2007	19,89,673	1,74,921	8.8
3.	2008	20,93,379	1,86,617	8.9
4.	2009	21,21,345	2,03,804	9.2
5.	2010	22,24,831	2,13,585	9.6
6.	2011	23,25,575	2,19,142	9.4

Source: Crime in India 2011, NCRB, Govt of India

Among all the crimes against women, domestic violence constitutes nearly 50 percent (torture by husband, 43.4 percent and dowry death, 3.8 percent) of the crimes committed against married women in the boundaries of their household by their husbands and relatives (see Diagram 2). Domestic violence comprises all acts of intimidation and aggression which forces a woman to seek redressal by breaking the silence imposed on her by a patriarchal culture (Mishra, 2006).. The magnitude of the problem is also clouded by the fact that domestic violence is a crime that is undetected and underreported. On the other hand,

shame, a fear of reprisal, lack of information about legal rights, lack of confidence in and the legal costs involved make women reluctant to report incidences of violence. The dimensions of this violence are alarming, as highlighted by records on its incidence and prevalence. Although official figures do tell us much about domestic violence, these do not bring out information on its incidence in different strata of society.

Diagram 2
Crime against women during 2011



Source: Crime in India 2011, NCRB, Govt of India

State-wise distribution of the data on domestic violence reveals that 'torture' cases (498 A IPC) in the country have increased by 5.4 % over the previous year (94,041 cases). West Bengal reported 19.9% of these cases (19,772) as compared to the National rate at 8.2. Among the UTs, Delhi reported 1575 cases of torture by husband and in-laws. It is significant to note that North-eastern states reported no cases of torture at all. Does this reflect on the social fabric of the NE states or the socialization of the men folk

who have learnt to pay due respect to women? This also raises the question that are women more empowered in North-Eastern states and do not tolerate any forms of domestic violence meted out to them?

The data on 'dowry deaths' (304B IPC) reveal that the cases of Dowry Deaths have increased by 2.7% during the year 2011 over the previous year (8,391 cases). 26.9% of the total such cases reported in the country were reported from Uttar Pradesh (2,322 cases) alone followed by Bihar (1,413 cases) (16.4%). The highest rate of crime (1.4) was reported from Bihar as compared to the National average of 0.7. Among the UTs, Delhi again reported 142 cases which amount to 1.6percent of the total such cases

The cases under Dowry Prohibition Act have increased by 27.7% during the year 2011 as compared to the previous year (5,182 cases). 28.7% of cases were reported from Andhra Pradesh (1,899) followed by Karnataka (1210 cases) accounting for 18.3% of total cases at the National level. The highest crime rate of 2.5 was reported from Odisha as compared to 0.5 at the National level.

A total of 33,789 cases of crimes against women were reported from the 53 cities during the year 2011 as compared to 24,335 cases (35 mega cities) in the year 2010. The rate of crime in these cities at 21.0 was comparatively higher as compared to the National rate of 18.9. Among 53 cities, Delhi (4,489 cases) has accounted for 13.3% of total such crimes followed by Bengaluru (1,890 cases, 5.6%), Hyderabad (1,860 cases, 5.5%) and Vijayawada (1,797 cases, 5.3%). The crime rate was significantly higher in Vijayawada, Kota, Kollam, Jaipur and Asansol at 120.5, 57.5, 54.2, 48.6, and 48.2 respectively as compared to average of mega cities at 21.0. Delhi city has accounted for 17.6% of Rape cases, 31.8% of Kidnapping & Abduction cases, 14.0% of Dowry Deaths and 10.1% of Molestation cases among 53 cities. 70.7% (605) cases under Dowry Prohibition Act during the year 2011 were registered in Bengaluru city alone.

Many states have taken social and structural steps to alleviate the distress experienced by women. However, legally, progress has been limited. While legislation may be enacted to address violence against women, the implementation of such legislation is peculiarly ineffective and the predominant mode of redress continues to emanate from sociologists, psychologists, and activists. A real solution continues to elude the law, lawmakers, and legal practitioners. One of the prevalent misconceptions is that domestic violence is a private affair that does not warrant state interference. It is only recently that the law has actively begun to accept "domestic violence" as "a serious social evil." But still the women face a number of challenges in approaching the formal agencies of intervention.

Challenges in approaching the Formal agencies for intervention

The challenges faced by the women victim may be classified into individual, societal and legal.

First challenge faced by the women is at the individual level where the victim may not approach the formal agencies due to various reasons ranging from her acceptance of violence as *normal* to the insecurities that she perceives after she makes her situation public. The domestic violence literature suggests that victims may avoid calling the police because of their desire to protect the offender (spouse) from criminal prosecution. Their reluctance to call the police may be because of various reasons such as perceptions of the incident as minor (victims are likely to perceive the incident as trivial as has been learned during the socialization process), sympathy or some emotional attachment to the offender, their economic dependence on the offender, or their desire to protect their children (Pagelow, 1984).

Second challenge is faced by the women at the societal level which includes her family, relatives, neighbours and the friends circle. Victims may be concerned about their embarrassment

and status in the society. Thus, the most common reason for not approaching the police is the fact that domestic violence is perceived by the society as a 'private matter.' They may believe that their association with a violent partner or family member will stigmatize them. But if she leaves the abusive partner, she runs the risk of being ostracized by the society because she left and thus could not possibly be a "good wife," and she feels profoundly guilty. In some social circles, victims will appear cowardly if they report an assault to the police rather than handle the conflict themselves. Others may label them as incapable who rely on legal authorities to address their personal grievances. Thus, women face the difficulty of challenging traditional gender structures, where they usually hold a lower status.

Third challenge faced by the victims is about lack of sensitivity on the part of formal agencies of interventions towards the victims of domestic violence. To illustrate, they feel threatened by the approach of the police and visualize that on reporting the case to police, the police might be influenced by the abuser and hence will be lenient towards him. If the victims anticipate a lenient response of police towards the perpetrators of domestic violence and might not take an appropriate action, they may see no reason to report the incident. They may be afraid that an angry offender will respond with physical violence or some form of retaliation. At the same time, most women want the formal agencies to provide them a peaceful family life and hence refuse to forsake the relationship. A lack of sensitivity, on the part of the formal agencies, about the social and psychological dynamics of domestic violence causes many victims to be frustrated with the formal system. It has been observed that the role of formal agencies in a domestic dispute situation is more often that of a mediator and negotiator than enforcer of the law. Their approach is to attempt reconciliation (abuser and the victim) without resolving the conflicts which are threatening the sustainability of the relationship. Most laypersons assume that domestic violence

ends when a victim finally approaches the formal agencies for help. In reality, this may be a signal to the perpetrator to escalate his behavior in an attempt to continue to control or punish his partner for leaving the four walls of the house and making the family issue public.

Measures taken by Police for the implementation of DV Act 2005 and IPC 498A in India

In order to combat domestic violence, police is supposed to take measures like establishing Special Police Unit for Women and Children. The police personnel is supposed to assist Protection officers, appointed under PWDV Act 2005, to carry out their duties. The police is supposed to collaborate with the service providers to provide various facilities to the victim such as counselling, medical facilities, shelter, etc. But what is the situation at the ground level? Lawyers' Collective's monitoring and evaluation report (2009) brings forth issues like inadequate infrastructure, capacity-building of implementing agencies and creating a system of accountability for all the stakeholders. Let have a closer look at the measures taken by Delhi Police.

Measures taken by Delhi Police for the implementation of DV Act 2005 and IPC 498A

The extension of women's right is the basic principle of all social progress. Keeping this in view, Delhi Police has taken several measures to ensure the effective implementation of domestic violence laws (DV Act, 2005 and IPC 498A). One of the primary measures taken by Delhi Police is to create Special Police Unit for Women and Children (SPUWC) in every district of Delhi and is popularly known as Crime Against Women Cell (CWC). The focus of SPUWC is to contribute in being with those, who suffer from social inequalities like dowry, domestic violence and various other inequalities. Through this, there is an effort to bring to all a well informed and resourced initiative with a motto of solving problems through counselling and investigation. It is

basically a resolving, solving and reconciliatory body against matrimonial disputes under the supervision and guidance of Joint Commissioner of Police. Over the years it has undergone transformation and is, today, a centre for empowerment, relief and support to women victim of crime or violence (Delhi Police Website).

At the very first interaction with social worker, the client/victim is listened to and informed about all the services available at the SPUWC, and therefore facilitated to decide on what is the best suitable option to her situation; she is to be guided about the procedure at SPUWC. A form is also filled alongside this procedure. She is to be attended by the Inspector or the police official appointed to hear her for the first time and write her note-sheet and mark an enquiry officer or social worker on her file who shall be responsive to the client application/complaint.

The role of the social worker in the SPUWC is as follows:

- Facilitating the client to make an informed choice/ decision.
- Negotiating and working towards non violence, gender equality and harmony in family / reconciliation
- Negotiation for separation
- Providing the client with information on govt. and non govt. agencies and their services as per the client needs like plans and programs for women and children, de-addiction, mental health etc.
- Considering the male client's application also. The wife's (mutual) consent is a must for the intervention of social workers.

Counseling Wing and Social Workers' Services (10 Am-6 Pm)

Social workers provide individual and joint sessions to women and the concerned members of the family. Developmental

sessions are also provided to women where her career options and other life alternatives, risk in reconciliation or separation are discussed for a better life ahead and to make an informed decision.

Mediation Cell

Mediators appointed by Delhi High Court Legal Services Cell do the Mediation at SPUWC. It is a process where Mediator negotiates in the direction of mutual settlement between the parties.

A Special Women Police Station

- Facilitating emergency services like medical help and temporary shelter to women in distress
- Filing the FIR in cases of matrimonial disputes, violence for dowry demands and the cases of domestic violence after the proceedings of counseling unit and mediation cell.

Facilitating Legal Aid From Delhi Legal Services

Authority (DLSA) (Wednesday and Thursday –2.00 Pm to 6.00pm)

- Facilitating women to get free legal aid.
- To assist her in filing cases in the court.

Enquiry Officers/ Inspectors Counseling at Delhi Police

As special police unit is basically a reconciliatory body it tries to work out for mutual settlement and reconciliation. If there is no scope for any mutual concern and as per the client situation the file is to be dealt by an enquiry officer. It has enquiry officer / counsellor who write her final report after having all the individual and joint sessions with client and the concerned people at the SPUWC. After the final report of the Police Officer the file is to be transferred to the investigation officer.

Helpline – 1091

- 24 hour helpline is there for women in a crisis situation/ family violence.
- There are women police personnel with the required male staff to attend the call of women victim and link her with available list of service providers, to resolve and assist her emergency situation as per her needs.

Interactive Website

Delhi Police has created an interactive website where the women in distress can seek response to their queries online while keeping her identity confidential.

PARIVARTAN – A Campaign for the safety of women in Delhi

Parivartan, is an initiative by Delhi Police to change the patriarchal mindset of society toward women. It is a community intervention programme started by Delhi Police in 2005 against rape and domestic violence by deploying women police constables (WPCs) in field in partnership with parents, teachers, psychologists, sociologists, lawyers, students, youth, area security committee members, not- for-profit organizations and resident welfare associations in a well-planned manner. The objectives of Parivartan are as follows:

- To reduce the annual growth rate of crime against women & children.*
- To organize at least one pantomime show in each beat covered under Parivartan programme on yearly basis.*
- To organize at least one workshop and lectures in educational institutes in each Police Station covered under Parivartan programme on yearly basis to sensitize the students and teachers about the prevailing crime against women.*
- To organize at least one self defense training programme in*

each Sub-division of North West District on yearly basis to empower the women/girls.

- e) *To initiate action on the complaints immediately except those which required review by the Senior Officers, which can be taken within 3 days from the receipt of the complaint.*
- g) *To organize at least one workshop on monthly basis to sensitize the male staff about Parivartan and crime against women.*
- h) *To review the role/participation of the members of Women Safety Committee in the implementation of programmes under Parivartan on yearly basis.*
- i) *To organize at least one awareness programme/meeting in each beat covered under Parivartan programme on yearly basis.*

Involvement of Professional Social Workers in SPUWC

- To begin with Social Workers play an important role in providing individual and joint counselling to women and the concerned members of the family.
- Along with it women is counselled on the risks involved in the reconciliation or separation and is facilitated to make an informed decision. At the same time her career options and other life alternatives are also discussed.
- SPUWCs which do not have a full time professional social workers, they collaborate and seek services of the NGOs who work with the women in distress.
- Social Workers provide referrals like emergency numbers booklet list of Protection officers (POs), list of family counseling centers (FCCs), crisis intervention cells (CICs) etc as per availability.

- Networking with other service providers (government-run and NGOs) and gender resource centers is being done to avail the client with all the knowledge of services/ provisions/ programs, available to her
- Any organization or individual may approach the social workers for organizing or conducting the sessions at their place/ office.
- Awareness generation sessions at community level by social workers are to address the issue of violence against women and create awareness on what is safety plan or legal provisions like PWDVA-05, IPC 498-A etc. and how it can be dealt in a better way towards women empowerment for an engendered society

Social Dialogue Through A Publication

A book titled **“Room 103, Nanakpura Thana”** has been brought out by Delhi Police to give an insight into the concentrated effort of the force to join hands with society and work as partners with various stakeholders of society to ensure safety and security of women. The book gives a legal social and psychological commentary of the issue of violence suffered by the women in their personal relationship. Going through this book police officers as well as other stakeholders will know not only how they impact the life of the women victims but it will also help the women victims in identifying issue faced by women through the stories of a women counselled at the SPUWC and standing up against violence meted out to them. It will guide the police officers not only by way of sensitization of the issue but also to carry forward their knowledge into correct legal action. Overall it gives a broad perspective of our work on violence against women and as such, the information provided by the book vis-a-vis, these factors is of consequences to each members of society, police, bureaucracy, judiciary, in fact to one and all.

Intervention Gaps

It is generally believed that family courts, lawyers, and judicial services, such as mediation and custody evaluation, can assess the needs of abused women and their children as well as the impact of the batterer. But in reality it is observed that the issue of domestic violence is often overlooked by law enforcement agencies.

Due to the social, financial, and political inequalities between men and women, women predominantly occupy the private realm where violence tends to be perceived by law enforcement authorities as less objectionable and more commonplace than other crimes.

One of the main ironies is the hiatus between the law against domestic violence and the implementation of such law. The major cause for this is the intimacy of the relationship between the perpetrator and the abused.

Different judges have incomplete knowledge about domestic violence and the weight that this issue should receive. The abusive spouses and their lawyers would play on these differences by “judge shopping” through various legal strategies, for example, triggering delays and adjournments until the “right judge” was presiding.

Abused women often experience difficulty accessing appropriate legal and social services for themselves and their children. Abused women and children involved in child custody proceedings require a host of well-coordinated legal and social services. At a point of crisis, victims are required to navigate complex systems in order to access limited services. This situation can be further exacerbated by barriers such as isolation, lack of social support and economic constraints.

Violence experienced by battered women also includes the lack of adequate institutional support in the form of welfare services and shelter homes.

Role of stakeholders

Family:

- Family needs to educate her about the expectations from marriage, train her to manage the new roles and responsibilities in her marital home, provide information on reproductive issues and equip her with life skills to live meaningfully.
- Family needs to think differently about the socialisation patterns provided to both boys and girls in the family and develop an equitable, mutually respecting relationship between both boys and girls.
- Family needs to distribute material resources or assets equitably among all the children irrespective of gender.
- Family should give a reassurance to the girl child (who is being married off) about her sense of security to return to her natal home in case of any untoward incident of violence or abuse faced by her at her in-laws place.
- Family needs to encourage an open mode of communication between the married girl child and her parents so as to ensure unhesitant and honest dialogue on the issues related to marital life.

Criminal Justice System

- Gender sensitization of the police, judiciary and the larger society
- Family courts, lawyers, and court-related services need training to enhance their skills in responding to domestic violence.
- There should be speedy trials of the cases of maintenance and child custody.

- The judiciary should ensure the safety of abused women and their children during trial period.
- A tribunal should be constituted to look into the progress of cases and implementation of various orders issued for protecting the rights of a woman such as protection orders, maintenance and custody orders, etc.
- During the induction training of judges, lawyers, mediators, police personnel and child welfare workers, the training and education on domestic violence should form an essential component.
- Courts have recognised that police departments' failure to respond to battered women's calls for help can be a form of sex discrimination. There is a need for improving police policies and practices.

Civil Society

- Civil society has an ever-increasing role in ensuring accountability and transparency in information and practices. A well-developed civil society can potentially influence the government by enhancing political responsiveness by gathering and expressing the public's wishes through non-governmental forms of association.
- Civil society needs to advocate women's rights where we need to restructure our gender relations, redefine our gender roles and advocate equitable distribution of resources and opportunities.
- NGOs provide legal services for poor women by providing effective, dedicated advocates.
- Provide awareness and educate women on the laws, which many women feel is important knowledge that they lack. Conduct sensitization programmes to assist in changing the attitudes and sexual stereotypes of judges towards domestic violence.

- To disseminate the laws those are against family violence among families, citizens, religious groups and students of all ages.
- Civil society should act as institutional reformers by monitoring police, prosecutorial, and judicial responses as well as to be advocates for the particular needs of individual battered women from marginalized communities.
- Significant material resources to be made available to the disadvantaged battered women to better their chances of success in leaving or changing the immediate battering situation
- Many aspects of judicial reform are contentious and need pressure from actors outside the governmental realm. Civil society has an ever-increasing role in ensuring accountability and efficiency, and quality of the delivery of justice.

Conclusion

To recapitulate, domestic violence is a human and social phenomenon having its roots in gender discrimination. It has a tendency to surface and assume serious proportions in a patriarchal society. It is, therefore, imperative to identify and develop capacities which would contain it at all levels. It is in this context that the issue of social tolerance assumes a pointed significance.

Domestic violence prevention requires a clear commitment from all levels of government, judiciary, law enforcement machinery and civil society with the goal of establishing a consistent, coordinated, and integrated approach for the victims of domestic violence. It requires changes in attitudes and behaviour of police, judiciary, family and larger society. Given the pervasiveness and harms of domestic violence, efficient and effective judicial and law enforcement mechanisms are the need of the hour.

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Acid Violence Cases and Its Forensic Aspect

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Keywords

Acid Attack, Vetricolage, Forensic Evidence, Gender Based Violence.

Abstract

Acid attack is a cruel form of gender based violence. It can be defined as throw, spray, pour or inserting of any corrosive acid onto the body with intention to kill, deface and permanent disfigurement to any part of body of the victim. The sulfuric acid, hydrochloric acid, and nitric acid are most commonly used by perpetrators of acid violence. Sulfuric acid also known as oil of vitriol and battery acid is often used in acid violence worldwide and India. Acid Violence is Gender-Based Violence prohibited by International Law and India has ratified the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) in 2003. The results can be horrifying as the victim is traumatized physically, psychologically, economically and socially. Now, India have a special section 326A and 326B in the Indian Penal Code which deals with acid attacks. Now, it is urgently needed that law enforcement agency should conduct thorough scientific investigation of acid violence act, and collect physical evidences in proper manner to prosecute the attackers and also ensure protection and rehabilitation of victim. It is also essential for governments to limit the easy availability of acid.

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Introduction

Acid throwing, also called as acid attack is frequently being practiced as a new weapon of domestic violence and gender based crime, especially against women worldwide but is particularly prevalent in Bangladesh, Pakistan, India, and Cambodia for last four decades¹. It is not only just a crime but it is terrorism/war against women.

Acid throwing can be defined as an act of a sadistic form of violence that involves the throwing, spray, pour or inserting of corrosive acid into the body of victims. It is usually thrown at victim's faces with intention of kill, injury, deface and permanent or partially disfigurement and damage to any part of the body of the victim. Sulfuric acid known as oil of vitriol and battery acid is frequently used as tool of acid violence, so throwing of the sulphuric acid is also called vitriolage.

In historical scenario, Sulfuric acid has been used to purify gold and fabricate imitation precious metals in Greek, Sumerian, Roman, Persian, Arabian, and Indian civilization since ancient times². The first recorded case of an acid attack occurred in 17th century France under the rule of Louis XIV.³

In late nineteenth century, A 'wave of vitriolage' has been occurred in the United Kingdom and Europe particularly in France, where in 1879, 16 cases of vitriol attacks were reported and from 1888 to 1890, 83 cases of vitriolage were noticed.⁴ The rhetorical and theatrical term *La Vitrioleuse* was coined, and their violent acts were widely reported in the popular press as 'crimes of passion', perpetrated predominantly by women against other women, and "fuelled by jealousy, vengeance or madness and provoked by betrayal or disappointment or lose of love". In the meantime, several Art Nouveau artists also popularized the image of *Vitrioleuses*^{5,6}.

Worldwide Statistics

Global statistics suggest that acid attacks are predominantly perpetrated by men as a result of shame and loss of face or loss

of honour. It is a worldwide problem and not limited to poor, under developed, developing and third nation's countries; even it has been reported in developed nation like USA, Germany, France, and United Kingdom. However, the reason may vary from nation to nation. Although, it is occurring as a big trouble and spreading like terrorism against the women in south Asian countries¹. According to researchers and activists, countries typically associated with acid assault include Bangladesh, India, Pakistan, Cambodia, Vietnam, Laos, Hong Kong China, the United Kingdom, Kenya, South Africa, Uganda and Ethiopia since last decades.⁵ In Cambodia, it is estimated that the earliest case of acid attack violence occurred in the 1960s, and since then, the issue has become an epidemic in the South East Asian countries.⁷ According to data gathered by the Cambodian Acid Survivors Charity on people treated in hospitals for acid attacks, there have been 271 acid violence victims between 1985 and 2010 in Cambodia.⁸

The New York-based agency- Human Rights Watch (HRW), reported nearly 280 women were killed and 750 injured through acid attacks in Pakistan in 2002.⁹ The Acid Survivors Foundation (ASF), Bangladesh recorded 485 such attacks in 2002, it is estimated that at least 864 women, 412 men and 14 children had acid thrown on them in the four years up to 2003. Acid Survivors Foundation, Bangladesh have been reported 3,184 acid attack victims in the country since 1999.¹⁰

There are no official statistics for such attacks in India. According to a study, 174 cases of acid attack were reported in 2000 in India. A search of Indian newspapers found 153 reported cases of acid violence from January 2002 to October 2010.¹ According to Stop Acid Attacks (SAA), a group based in Delhi that works with survivors and has collected data on the crime, most attacks in India are against women aged between 21 and 30 (76%); 83% of attacks happen in public places; 70% of victims are women; 75% of the survivors have 21-40% burns; and many attacks

occur because women have rejected men's advances (51%). It estimates that there are up to 1,000 attacks a year. According to SAA, the centre has received more than 200 reports of attacks since January 2013, although it suspects that the real number is much higher. Although, observers noted that the incidence of acid attacks against women are increasing in India. Acid throwing incidents are under-documented and there is a need for better data collection in India.¹¹

Factors and Motives

Various studies enunciated that acid violence is prevalent in Asian countries because of following major factors: (a) gender inequality and discrimination, (b) the easy and cheap availability of acid, and (c) impunity for acid attack perpetrators due to weak investigation.^{1, 7} Motivations for attacks against women in India are spurned love and affection, sexual jealousy, economic or land disputes, hate or revenge.¹²

Indeed, a significant portion of attacks in India and Bangladesh occur when a woman exercises decision-making power by rejecting a suitor's marriage or love proposal. Acid attackers aim for a woman's face in an attempt to destroy as it is considered one of her most important assets of her beauty. A research has been found following common reason and causes⁵:-

Reason	Cause (s)	Perpetrators & Victims / Survivors
Domestic Disputes	<ul style="list-style-type: none"> - Suspected infidelity - Jealousy & envy - Divorce settlements - Perceived dishonour - Domestic violence - Rigid gender roles - Inequality - Hierarchy & power 	<ul style="list-style-type: none"> - Husband against wife - Wife against husband - Wife against (suspected) mistress - Husband against former wife - Divorced man against the new husband of his former wife - Father against daughter - Child against parent (elder abuse)

Dowry Disputes	-Devaluation & commodification of women & girls - Greed - Hierarchy & power	- Husband against wife - Fiancé against fiancé - Parents-in-law against daughter-in-laws - Other in-laws against daughter-in-law
Rejection of love / sex / marriage	- Jealousy & envy - Shame - Loss of face - Loss of honour - Notions of masculinity	- Co-workers against co-workers -Unknown people attacking perceived lovers / acquaintances - Former or current lovers
Land / property / money disputes	- Poverty - Competition - Shame - Loss of face - Loss of honour Grievances	- Neighbours against neighbours - Unknown attackers - In-laws - Business partners or employers or employees (Can be women or men)

Common Tools and its Mechanism

The sulfuric acid, hydrochloric acid, and nitric acid are most commonly used by perpetrators to acid violence.⁵ Sulfuric acid also known as battery acid is frequently used in acid violence worldwide.

Sulfuric acid is used on large scale as a basic chemical for chemical synthesis, municipal and industrial water treatment, oil industries, used for fertilizers production, metal extraction for mining, refining and processing of metals, and for other industrial uses such as pulp and paper processing. It is also sold as a powerful drain cleaner and battery acid.

Concentrated sulphuric acid (H₂SO₄) reacts violently with water with evolution of considerable heat, spattering, steam and acid fumes, the molecule is broken up with the release of energy into free positively charged hydrogen atoms (H⁺) known as

hydrogen ions, and free sulphate ions (SO_4^{2-}) which carry a double negative charge^{13,14}. In contact with the skin, sulphuric acid can cause burns by drawing water out of skin tissue; thermal burns from the heat generated by reaction with water; and direct chemical reaction with skin tissue.

The contact zone first appears bleached, then turning brown, and leaves behind a slow healing ulcer. Extensive burns to the skin may prove fatal, and to the eyes permanent blindness may occur. Even diluted acids will make the skin feel very itchy quickly, and while it may take a little longer, it can also cause acid burns. If not washed off immediately with water, acid can melt away a victim's skin and flesh, going as far as dissolving bones.⁸ When thrown at the face, acid quickly burns and destroys victims' eyes, eyelids, ears, lips, noses, and mouths. It takes five seconds of contact to cause superficial burns and 30 seconds to result in full-thickness burns. After the attacks, victims are at risk of breathing failure due to the inhalation of acid vapors which cause either a poisonous reaction or swelling in the lungs. In the weeks or even months after the attack, acid burn victims may suffer from infections, which can also cause death if not treated with proper cleaning techniques and antibiotics.^{5, 15,16, 17, 18}

Consequences

An acid attack on the body would dramatically change the life of victim and the results can be horrifying. The victim is traumatized physically, psychologically, economically and socially. Victims suffer psychological symptoms such as depression, insomnia, nightmares, fear about another attack and/or fear about facing the outside world, headaches, weakness and tiredness, difficulty in concentrating and remembering things, etc. They feel perpetually, ashamed, worried, and lonely. Depression may sometimes lead to suicidal tendencies due to disfigurement, disability and feelings of inferiority and worthlessness^{7,19,20,21}.

Victims face a lifetime of discrimination from society and they become lonely. They are embarrassed that people may stare or laugh at them and may hesitate to leave their homes fearing an adverse reaction from the outside world. Victims who are not married are not likely to get married. Those victims who have got serious disabilities because of an attack, like blindness, will not find jobs and earn a living and they become dependent on others for food and money.^{5, 15, 20, 22}

Scientific Evidences and its Forensic Aspect

In case of vetriolage, the scientific evidence may play vital role in the conviction of the guilty person. Various type of evidences can be recognize and collect by the investigators at SOC, victim and perpetrators. The basic rule for admissibility of evidence is that it must be relevant and probative; it is always better to gather too much rather than too little evidence and then to allow lawyers/courts to determine what is admissible or not. In almost every case of acid throwing, stains/spots here and there will be found upon wood, clothes, paper, tiles etc. In all cases where a strong acid has caused the stains, they continue damp for a very considerable time.

- **Clothings:** In most acid case, the clothings will show clear sign of attack as clear damage to the fabric or discoloration because the dye in the fabric has altered. However, the amount and appearance of the damage depends on the nature of fabric and the strength and type of acid used. If upon linen clothes, it chars and corrodes it. If upon wool, the fabric is rendered damp, rotten, and discoloured. On black cloth the stain is first red, becoming after a time of dirty brown colour^{23, 24}. In case of nitric acid, stains on clothing appear yellowish. Even, the fabric may have been washed, and by this means most of the acid got rid of. But the washing will not hide the alteration of colour and texture, nor will it remove the acid that exists in combination with the organic matter²⁴. Therefore, stains or burning marks should be thoroughly searched on the victim dress and culprit dress, as

the presence of acid stains on clothes of victim and culprit is frequently very useful as evidence in connection with crimes. Clothings thought to have been sprayed with acid must not be placed in the paper sacks or directly into nylon bags, as the acid may attack either of these. Wherever possible, they should be placed in glass screw-top-jars, but if these are not available or not large enough, the item should be sealed in a special polythene bags and then a nylon bag and submitted to forensic laboratory for further analysis ²⁵.

- **Soils:** The acid may be dropped down on earth during commission of crime. The soil stained with acid at scene should be collected with help of scraper and spatula, and then placed in the sealed glass containers. A sample of soil should be collected from 10-20 feet far from scene as control.
- **Wood:** If sulfuric acid falls upon wood, the ligneous tissue of wood is blackened and discoloured and leave the clear spots. Nitric acid leaves yellowish spots on the wood.
- **Tiles/stones:** If acid falls upon tiles and stones, it leaves the white spots.
- **Skin:** The parts of the body with which it is brought into contact are stained at first of a white, and afterwards of a dark brown or black color.²⁶ In case of nitric acid, the corroded areas appear yellowish due to xanthoprotic reaction. Skin pieces of victim having burning stains by acid should be collected during medico- legal assistance and the item should be sealed in a glass jar or special polythene bags and then a nylon bag and submitted to forensic laboratory for further analysis.
- **Carrier and its parts:** The bottle, jar, can etc. may also be found at scene, which used to carrying for acid by culprit. The said container having remnants of acid should be packed properly in its original state. Fragments of the glass bottle can

be found at scène. These fragments should also be collected and submitted to prove to be the presence of acid.

- **Vehicle:** Vehicle which has been used in crime may left the evidence at scene like tyre marks, soil, paint/glass (in case of possible collision with an object during running) etc. and it may also carry some evidence like acid stains. Therefore, the seizure of vehicle is very important within well in time for recovery of scientific evidences.
- **Electronic Evidence** like CCTV footage if any, phone call details may also be helpful in investigation.
- **Impression marks** like finger, foot print may also be found on scene and other articles on the scene. The finger print of culprit should also be searched on container before preservation for chemical analysis.

In all cases where litigation is likely, photographs of the injuries should be taken as soon as is practicable. It is important to understand the chemical properties of the evidence being gathered so it can be collected in proper containers. Corrosive compounds such as battery acid are collected in either glass or special plastic bottles. If battery acid were placed in a metal container, it would react with the metal, corroding it. The evidence should be collected and preserved in its original state in a suitable container by crime scene investigators. In all cases, the chain of custody, evidentiary chain or continuity of evidences is a crucial aspect of any forensic process. All Evidences should be in sealed, labeled exhibits bags, following strict rules in order to preserve the integrity of the items and their admissibility in court.

Legal Aspect in the World and India

Acid Violence is Gender-Based Violence Prohibited by International Law and Govt. of India has ratified the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW).¹ States should enact laws that provide for appropriate

criminal remedies and criminal procedures to ensure that perpetrators are brought to justice. Additionally, to combat acid violence, it is essential for governments to enact laws to limit the easy availability of acid as per CEDAW.

Law Commission of India headed by Justice A.R. Lakshmanan proposed a new section 326A to be added in the Indian Penal Code (IPC) and section 114B to be added in the Indian Evidence Act. The Commission also proposed a new law for compensation to the victims of the acid attacks. Finally after long interval, on the recommendations of Law Commission, India and Justice J S Verma Committee Report, Govt of India has been added following new section and enacted laws in the Criminal Law (amendment) Act, 2013 on acid attacks.²⁷

IPC, Section 100 : “Seventhly.-An act of throwing of administering acid or an attempt to throw or administer acid which may reasonably cause the apprehension that grievous hurt will otherwise be the consequence of such hurt.”

IPC, Section 166 A : Public servant disobeying directions under law : Whoever being a public servant :

- a) knowingly disobeys any direction of the law which prohibits him from requiring the attendance at any place for the purpose of investigation into any offence or any other matter or
- b) knowingly disobeys, prejudice to any person, any other direction of the law regulating the manner in which he shall conduct such investigation or
- c) fails to record any information given to him u/s 154 CrPC in relation to offences punishable u/s 326A, 326B, 354, 354B, 370, 370A, 376, 376A, 376B, 376C, 376D, 376E or 509 of the Indian Penal Code shall be punished with punishment from six months to two years and fine .

IPC, Section 166 B : Punishment for non-treatment of the victim : Whoever being In charge of a hospital public or private whether

run by Central Government, State Government, local bodies or any other contravenes provisions of sections 357C of the CrPC shall be punished with imprisonment up to one year or fine or both.

IPC, Section 326 A : Voluntarily causing grievous hurt by use of acid etc. : Whoever causes permanent or partial damage to or deformity to or burns or maims or disfigures or disables any part or parts of the body of the person or causes grievous hurt by throwing acid or by administering acid to that person or by using any other means with the intention of causing or with the knowledge that he is likely to cause injury or hurt shall be punished with imprisonment from 10 years to life and with fine.

IPC, Section 326 B : Voluntarily throwing or attempting to throw acid : Whoever throws or attempts to throw acid on any person or attempts to administer acid to any person or attempts to use by any other means with the intention of causing permanent or partial damage or deformity or burns or maiming or disfigurement or disability or grievous hurt to that person shall be punished with imprisonment from 5-7 years and fine.

Section 154 CrPC : Proviso shall be inserted as if the is given by woman against whom an offence u/s 326A, 326B, 354, 354A, 354B, 354C, 354D, 376, 376A, 376B, 376C, 376D, 376E or 509 is alleged to have been committed or attempted such information shall be recorded by a woman officer and if victim is temporarily or permanently disabled, then information shall be recorded by a police officer at the residence of the person or at a place convenient to such person in the presence of interpreter or special educator as the case may be. The recording of such information shall be video graphed. The police officer shall get statement of the person recorded through Judicial Magistrate.

Section 357B, Cr PC: Compensation to the addition of fine : The compensation payable by the state government u/s 357A shall be

in addition to the payment of fine u/s 326A or 376D of the Indian Penal Code.

Section 357C, Cr PC: Treatment of Victims:All hospitals, public or private whether run by Central Government, State Government, local bodies or any other person shall immediately provide the first aid or medical treatment, free of cost, to the victims of any offence u/s 326A, 376, 376A, 376B, 376C, 376D, 376E of the Indian Penal Code and shall immediately inform to the police of such incident (sections 357C).

Now, acid attack is cognizable and non-bailable offence in India u/s 326 A and 326 B IPC. The National Crime Records Bureau (NCRB) has started to record and publish data on acid attacks, as they were recognized as a distinct category of crime in 2013.

The Hon'ble Supreme Court of India has also directed all the state governments and union-territories of India to frame rules to regulate sale of the acid and other corrosive substances and also increase the compensation amount. In 2013, the Indian government reclassified acids as a poison, bringing them under the regulatory purview of the Poison Act of 1919. This Act empowers state governments to regulate the safe possession, sale and registration of substances designated as poisons.

Conclusion

As acid attack is very horrifying act against women and now, it is cognizable offence in India. So, it is needed that the distribution and sale of acid be strictly regulated and the sale of acid across shop counters be banned to suppress its easy availability in the market. International commerce of sulphuric acid is controlled under the United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988, which lists sulfuric acid under Table II of the convention as a chemical frequently used in the illicit manufacture of narcotic drugs or psychotropic substances. Besides this, in order to implement such criminal laws effectively, governments should: (1) conduct appropriate

investigations of acid attacks; it must also be emphasized on scientific evidences (2) protect victims from threats that could undermine those investigations; and (3) prosecute and punish perpetrators of acid attacks.

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Familial and Personality Correlates of Juvenile Delinquency in Kolkata, India

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Keywords

Delinquency, Family, Personality and Kolkata.

Abstract

In recent years the problem of juvenile delinquency has become the most important subject matter of criminology. Various political ups and downs and its aftermath have even served to accentuate the magnitude of the problem. Although excellent works are available in the western countries, but no recent research in the Indian context brings together the relevant materials of the juvenile in relation to causation and prevention of their delinquent behaviour. The present study deals with understanding the causes of delinquency with respect to two approaches - one familial, the contribution of various family pathology as determinants of delinquent behaviour; and other largely psychological, that is the importance of predisposing individual differences based on various personality traits. The results unravel various predictors of delinquent behavior. The theoretical and practical implications of the findings were discussed.

Introduction

For many young people today, traditional patterns guiding the relationships between family, school and work are being challenged. It is not only developed countries that are facing this situation; in developing countries as well there

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are new pressures on young people undergoing the transition from childhood to independence. Rapid population growth, the unavailability of housing and support services, poverty, unemployment and underemployment among youth, the decline in the authority of local communities, overcrowding in poor urban areas, disintegration of the family and ineffective educational systems are some of the pressures young people must deal with.

Youth regardless of gender, social origin or country of residence, are subject to individual risks but are also being presented with new individual opportunities – some beneficial and some potentially harmful. But quite often the youth deviate towards illegal opportunities and commit various offences, become addicted to drugs and use violence against other people. According to the Registrar General of India (2012), the rate of juvenile crime has increased from 1.8 percent to 2.3 percent since 2002 to 2012. Even worldwide the rate of juvenile crime has increased tremendously during the last half of the 20th century (Rutter, Giller & Hagell, 1998). Due to this recent growth juvenile delinquency has become a great concern in the contemporary society. Juvenile delinquency is a legal term for behaviour of children and adolescents that in adult world would be judged criminal under law. By definition, it refers to the “antisocial or criminal activity of child below 18 years of age and which violates the law.” In India, the term Juvenile delinquent has been changed to “Child in Conflict with law” (JJ Act, 2000), which means that a person who has not completed eighteen years of age, who has alleged to have committed an offence punishable under any law for the time being in force.

With this rapid increase in juvenile crime, the focus is more towards identifying the causal factors underlying delinquency. Past research indicates that there are number of overlapping factors which determine the development of delinquency. Theorists consider the family the most significant factor that plays a major role in the development of an adolescent and dysfunction in the family can lead to various forms of deviance among the adolescent, juvenile

delinquency as mentioned is one such type of behaviour deviance. Theorists ranging from all the way from those oriented to Freudian psychology to those in the sociological field consider the family the most important environment of the child. Socioeconomic status, class status, peer group relations, class mobility, and delinquent subculture are also important, but if analyzed closely, each is either directly or indirectly related to the family environment. Even the positions adolescents occupy on personality variables such as extraversion and neuroticism are assumed to be relatively constant over time and to reflect either genetic influences or experiences early in life, or both. It is further assumed that people will respond to new situations in ways which are predictable from their position on the dimension of personality concerned. Eysenck's view is that previous learning experiences and current situational stimuli are both important and play a major role in the formation of personality. In fact, emotional insecurity, feelings of inadequacy and inferiority, affectional undernourishment, extreme submissive or aggressive responses to rigid domination, are among the common denominators not only of unhealthy personality but behavioural disorder as well.

Although a lot of significant researches have been conducted in the western countries and that has inspired the present researcher to identify the familial and personality correlates of delinquency in Indian context.

The present study was conducted in Kolkata, West Bengal to understand the various problems as mentioned below:

- Difference between delinquent juveniles and non – delinquent juveniles with respect to their family factors.
- Difference between delinquent juveniles and non – delinquent juveniles with respect to their personality traits.
- Identify the predictors of delinquent behaviour (both familial and personality) in an Indian context.

Method

Sample

The data have been collected from two groups of juveniles living in the city of Kolkata and its neighbouring districts. Participants consisted of 100 delinquent juveniles and 100 non-delinquent juveniles. The study used the technique of purposive sampling to select the participants based on certain factors that were kept constant like

- All the participants were male in the age group of 11 – 18 years.
- All the participants were living with their biological parents.

The delinquent juvenile sample was collected from Dhrubashram - A State Government Remand Home and the non delinquent – juvenile sample was collected from 5 Government run school covering 5 district of West Bengal, namely Kolkata, North 24 Parganas, South 24 Parganas, Howrah and Burdawan.

Hypothesis

- H_{1A} : The delinquent adolescent would report differential amount of affection manifested through communication, from (i) the mother and (ii) the fathers, than the non-delinquent adolescent.
- H_{1B} : The delinquent adolescent would report being subjected differentially to (i) maternal and (ii) paternal, care and control than the non-delinquent adolescent.
- H_{1C} : The home environment of the delinquent adolescent would exert differential influence as compared to the non-delinquent adolescent.
- H_{1D} : The components of the familial variables would exert differential influence in generation of delinquent behaviour as depicted by the Behaviour Deviance Scale.
- H_{2A} : The delinquent adolescent would have different personality traits compared to the non-delinquent adolescent.

- H_{2B} : Delinquent adolescents would possess a poorer self concept than their counterparts.
- H_{2C} : The components of the personality variables would exert differential influence in production of delinquent behaviour as depicted by the Behaviour Deviance Scale.

Measures

i) Background Information Schedule

ii) Familial Variables

- Perception of Communication Satisfaction Questionnaire (PCS; Hecht, 1978).
- Home Environment Inventory (HEI; Misra, 1989).
- Parental Bonding Instrument (PBI) by Parker et al., (1979).

iii) Personality Variables

- Eysenck Personality Questionnaire (EPQ), adapted version of the EPQ developed by Basu&Basu (1996).
- Self concept questionnaire (SCQ) developed by Saraswat (1984).

iv) Delinquency

- Behavior Deviance Scale (BDS -R; Chauhan & Aurora, 1989).

Procedure

The procedure of the study was divided into two stages. In the first stage, the Superintendent of the Remand Home was contacted in order to seek permission to visit the home. After getting the permission, a tentative time schedule was developed in discussion with the Home Authority. All the measures were administered directly to the delinquent participants using one-to-one method of data collection, so that any difficulty to understand the items can be explained to them. Only those participants were considered for the

study who gave their consent. Initially a rapport was established with the participant, after establishing a friendly relationship with the participant, the questionnaires were administered. The questionnaires were adapted to the local spoken language of the participants (Bangla) so that they did not face any difficulty to understand the meaning of the items. The reliability of the adapted scale had been provided later in the measures.

In the next phase of the study, the first author contacted the school administrators to explain the purpose of the study. All the measures were administered except the Behaviour Deviance Scale was used as a confirmatory measure of delinquency. Data was collected from this group of participants in their school environment under the close supervision by the teachers of that grade.

In order to maintain the parity with the other group of sample, instructions were provided in Bangla language to this group as well. Consent was taken from each of the students before initiating the procedure.

Results and Discussion

To meet the objective of the study, the statistical treatment of the data were conducted in two phases. In the first phase, z-ratio test was conducted to check the acceptance or rejection of hypotheses H_{1A} , H_{1B} , H_{1C} , H_{2A} and H_{2B} . In the second phase, Multiple Regression Analysis was conducted in order to test the hypotheses H_{1D} and H_{2C} . Multiple Regression Analysis is a technique for identifying the predictor variables that creates a significant impact upon the dependent variable. It was done with the help of the software for statistical package (SPSS version 17.0)

The demographic and socio- economic condition of the juveniles were collected with the help of General Information Schedule. The data have been presented in Table 1. Most of the juveniles in the delinquent group as well as in the non-delinquent group belonged to the 13-15 years age group.

Table 1. Demographic description of the participants

Variables	Delinquent	Non- Delinquent
1.Age		
10 – 12	32%	30%
13 – 15	56%	58%
16 – 18	12%	12%
2.Education		
No School	32%	00%
Elementary School	41%	29%
Middle School	25%	65%
High School	02%	06%
3. Dependence on Substance		
Yes	94%	03%
No	06%	97%
4. Religion		
Hindu	57%	71%
Muslim	43%	29%
5. Number of Siblings		
0 – 2	62%	77%
3 – 5	32%	23%
6 – 8	06%	-
6. Type of Crime		
Theft	55%	-
Rape	23%	-
Murder	22%	-
7. Length of stay in the Correction home		
6mths – 12mths	46%	-
12mths – 18mths	21%	-
18mths – 24mths	18%	-
24mths – 30mths	12%	-
30mths – 36mths	03%	-
8.Father's Education		
No School	29%	00%
Elementary School	50%	24%
Middle School	09%	45%
High School	12%	31%
9. Mother's Education		
No School	69%	18%
Elementary School	31%	42%
Middle School	00%	33%
High School	00%	09%
10. Father's Employment Status		
Working	100%	100%
Non – working	00%	00%
11.Mother's Employment Status		
Working	73%	22%
Non – working	27%	78%
12. Average Family Income	4820 INR	6500 INR

As far the education level was concerned, it had been observed that the overall rate of education in the delinquent group was poor compared to the non-delinquent group. An alarming finding was that majority of the delinquents were dependent on substance. With regard to religious affiliation, it was observed that the percentage of Hindu were high in the non-delinquent group as compared to the delinquent group. The number of offspring in the delinquent family was higher as compared to the number of offspring in the non-delinquent family. As far as the type of crime committed by the delinquent adolescents, it was found that 55% had committed theft, 23% had committed rape and the remaining 22% had murder cases.

With regards to the parental education, the overall percentage was poor in the delinquent group of adolescents compared to the non-delinquent group. Regarding the occupation of the parents, data indicated that 100% of the delinquent adolescent fathers were employed, but in a very low skilled job such as labour, cart puller etc. 73% of the mothers were engaged in a very low profile job, where as only 27% of them were homemakers only. Father's employment rate was 100% in the non-delinquent group of sample as well and the type of job is also low in profile. Whereas in this group only 22% of the mothers were working and remaining 78% were homemakers. The total average monthly family income for delinquent family was 4820 INR and for the non-delinquent family it was 6500 INR. Therefore, it can be interpreted from the family income that the per capita income in the delinquent family was lower as compared to the non-delinquent family.

Table 2. Mean, Standard Deviation and z- ratio among both the groups of participants

	Mean	Standard Deviation	z- ratio
Hypothesis H_{1A(i)}	PCS (M)		
Delinquent	45.88	11.83	9.62**
Non - delinquent	61.86	12.3	
Hypothesis H_{1A(ii)}	PCS (F)		

Delinquent	46.21	9.96	8.41**
Non - delinquent	56.97	8.03	
Hypothesis H_{1B(i)}	Care(M)		
Delinquent	21.24	5.94	9.20**
Non - delinquent	27.48	3.28	
Hypothesis H_{1B(ii)}	Control (M)		
Delinquent	24.89	8.78	6.41**
Non - delinquent	19.8	6.34	
Hypothesis H_{1B(iii)}	Care (F)		
Delinquent	16.49	7.29	9.95**
Non - delinquent	24.71	3.88	
Hypothesis H_{1B(iv)}	Control (F)		
Delinquent	22.39	5.07	7.29**
Non - delinquent	15.35	8.23	
Hypothesis H_{1C(i)}	Control		
Delinquent	25.50	5.36	10.69**
Non - delinquent	18.23	4.19	
Hypothesis H_{1C(ii)}	Protection		
Delinquent	16.33	6.69	7.02**
Non - delinquent	22.16	4.89	
Hypothesis H_{1C(iii)}	Punishment		
Delinquent	27.05	5.45	7.68**
Non - delinquent	21.98	3.74	
Hypothesis H_{1C(iv)}	Conformity		
Delinquent	18.77	6.35	6.38**
Non - delinquent	23.43	3.61	
Hypothesis H_{1C(v)}	Isolation		
Delinquent	21.48	8.25	7.8**
Non - delinquent	13.52	6.11	
Hypothesis H_{1C(vi)}	Rejection		
Delinquent	9.35	6.52	10.87**
Non - delinquent	21.09	8.64	
Hypothesis H_{1C(vii)}	Deprivation		
Delinquent	22.72	8.27	8.07**
Non - delinquent	13.84	6.95	

Hypothesis H_{1C(viii)}	Nurturance		
Delinquent	17.47	8.28	8.71**
Non - delinquent	26.18	6.62	
Hypothesis H_{1C(ix)}	Reward		
Delinquent	30.64	7.92	5.63**
Non - delinquent	25.35	5.03	
Hypothesis H_{1C(x)}	Permissiveness		
Delinquent	19.45	7.63	4.97**
Non - delinquent	23.88	4.73	
Hypothesis H_{2A(i)}	Psychoticism		
Delinquent	10.88	3.87	13.77**
Non - delinquent	4.13	2.98	
Hypothesis H_{2A(ii)}	Extraversion		
Delinquent	10.66	3.95	2.53*
Non - delinquent	9.47	2.39	
Hypothesis H_{2A(iii)}	Neuroticism		
Delinquent	5.66	2.39	14.72**
Non - delinquent	12.43	3.81	
Hypothesis H_{2A(iv)}	Lie Scale		
Delinquent	8.67	2.99	5.34**
Non - delinquent	11.18	3.66	
Hypothesis H_{2B}	Self Concept		
Delinquent	87.49	18.81	6.95**
Non - delinquent	105.35	17.48	

* $p \leq .05$; ** $p \leq .01$

Next, z- ratio test was conducted to test the hypothesis. Table 2 represents the mean, standard

deviation and z- ratio value of all the variables. Results indicate that there exists a significant difference between both the samples on all of the familial variables. The mean score further explained that the pattern of upbringing was poor in the delinquent families in comparison to the non-delinquents families. So, it can be said that hypotheses H1A, H1B and H1C were accepted with high statistical

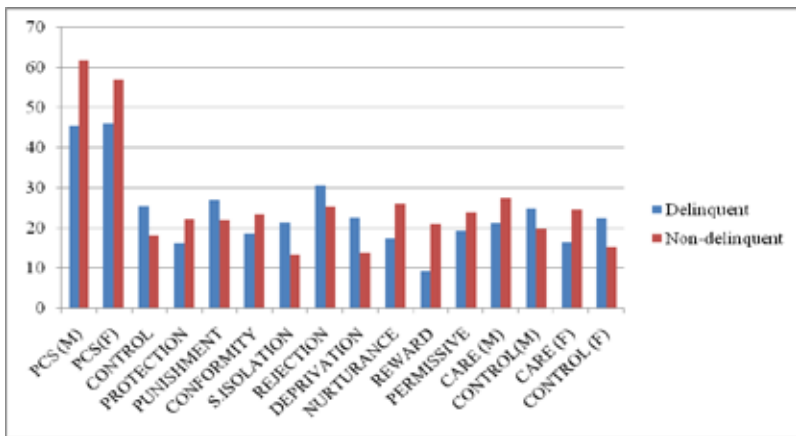
significance. In the delinquent families, control, punishment, deprivation of privileges, isolation and rejection were all on the higher end; whereas positive behaviour such as reward, nurturance, care and satisfactory parent-child communication was on the lower end.

Explanations for these findings ranged from the simple to the complex. From the sample characteristics it was observed that parents of delinquent juveniles were less educated as compared to their counterparts, also the percentage of working parents was high in delinquent families. Due to this reason, probably parents were not able to spend quality time with their children and also they perhaps do not know the importance of spending time with children, so much essential for the latter's wholesome upbringing. Another issue that needs to be noted, was the number of offspring in the delinquent families was high compared to the non-delinquent families, as a result economic strain was also high among the delinquent families. According to Conger et al., (1992, 1993, 1994) the economic hardship (often tied to parents' education level, number of dependents etc.) were strongly associated with the developmental and adjustment problems of adolescents. In one of the study, Conger et al., (1994) found that conflict in the family over financial shortages was related to marital conflict and parents' hostility toward the child, and that these factors in turn appeared to be associated with increased psychosocial problems like truancy, lying and in extreme cases even delinquency.

Another interesting point emerged from the findings, i.e. gender differences were present among the parent-adolescent relationship. Poor support of father towards their sons and the use of high control were more strongly present in delinquent families compared to the non-delinquent families. As children have the tendency to identify with the same-sex parent (Laible & Carlo, 2004), hence, a good relation with this same sex parent serves as a protective factor against delinquency. In the present study it was found that lower rate of verbal interaction and affection with the father

(delinquent families) surfaced due to paternal neglect, and these in turn represented a reciprocal influence which could further lead to increasing withdrawal and psychological distance from each other. As a result the adolescent was not able to develop a role model in his life, with whom he could identify himself and thereby become a healthy functioning adult.

Figure 1. Bar diagram representing the mean score on each of the familial variables among both the groups



The statistical values of the personality variables have been presented in the Table 2. z – ratio test indicated that there exists a significant difference between the two groups – delinquents and non-delinquents, in all dimensions of personality. With this, the hypotheses H_{2A} and H_{2B} were also accepted with high confidence. On a closer look it was observed that the delinquents groups were high on Psychoticism (P) and Extraversion (E) traits as compared to the non-delinquents.

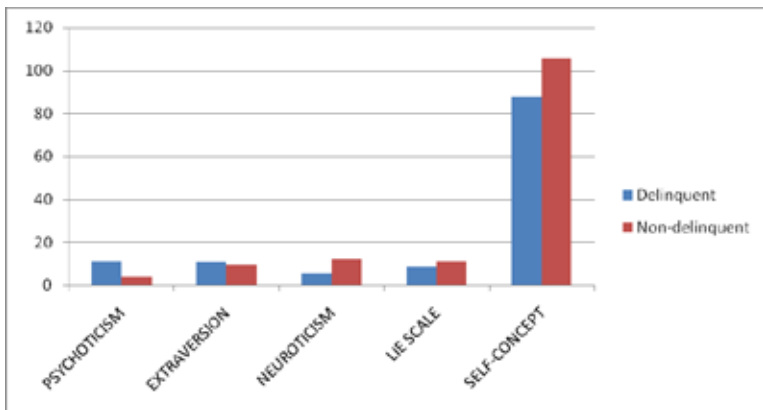
This result was consistent with Eysenck’s (1997) suggestion that Extraversion was more likely to be associated with antisocial behaviour. As because aggressive behaviour is associated with low cortical arousal (high E), a person with a relatively under reactive nervous system does not learn restraints on behaviours

and seeks for more external sensation and stimulation compared to an individual with a higher basal level of cortical arousal (low E). As a result these individuals were less conditioned to socialization process. The dimension P is argued to be strongly related to offending, so individual high on both P and E traits will be predisposed to developing antisocial, aggressive behaviour. Although the Neuroticism (N) score was low in the delinquent group compared to the non - delinquent, this finding was contrary to Eysenck's original work. One of the possible explanations might come from studying the delinquent cases on the basis of type of crime committed. It was observed that the majority of the crime committed by the present group was theft, followed by rape and murder. To commit crimes like theft, one must have low level of anxiety, or rather he/she should be desperate enough to undertake such risk taking behaviour, where there would be no fear of getting caught. So based on the sample characteristics, the N score has come out to be low. This finding was in line with those of Furnham & Saipie (1993), who found that drivers convicted for speeding, not paying tolls etc. were high on P and low on N dimensions of personality. Hindelang & Weiss (1972) also found that high E and low N to be associated with major theft and aggression.

Finally, the Lie Score (L) is a measure of the degree to which one is disposed to give socially expected responses. A high score on this scale suggested that the respondent was engaging in impression management and low score suggested weak socialization. In the present study, the L score has come out to be moderate in the delinquent groups, which was again contrary to Eysenck's theory. The possible explanation might be that, as the data were collected after the delinquents have been convicted and put in the remand home and during this entire period they had already gone through a lot of social and judicial humiliation and harassment and as a result they were more keen to give socially acceptable response. Another interesting explanation for their moderate Lie score was that, as the researcher was a quiet, soft spoken and kind natured female, so it

was out of a tendency of the delinquents to present a good social image of them in order to get acceptance from the researcher. This can be further confirmed from their self-concept score, which was quite poor compared to that of the non-delinquents. As they were aware of the fact that now they were stigmatized in the society, so from inside they had a poor self-concept as a part of their getting accustomed to the social stigma.

Figure 2. Bar diagram representing the mean score on each of the personality variables among both the groups



In the second phase Multiple Regression analysis was done to identify the predictor variables.

The findings indicated (Table 2a & 2b) that scores on the punishment and rejection dimensions were the positive predictors of delinquency. Whereas, reward, maternal and paternal care negatively predicted delinquent behaviour. Family variables considered for the present study explained a good percentage of the total variance of the outcome variable. Extreme negative parental behaviours emerged as the significant predictors of delinquency. It implied that youngsters who experience rejection by significant others such as parents were at risk to develop problem behaviour like delinquency (Rohner, 2004).

Table 2 (a). Summary table of Regression Analysis with Familial Variables as Predictors of Delinquency

R	R ²	Adjusted R ²	F	Sig.
.553	.306	.273	2.291**	.008

*p ≤ .05; **p ≤ .01

Table 2 (b). Coefficients of the Regression model

Variables	Beta	z- ratio
1. PCS (M)	-.062	-.433
2. PCS (F)	-.095	-.685
3. Control	.194	1.494
4. Protection	.222	1.434
5. <i>Punishment</i>	.262	1.963*
6. Conformity	-.055	-.395
7. Social Isolation	.020	.135
8. <i>Rejection</i>	.530	3.168**
9. Deprivation	.124	.769
10. Nurturance	-.233	-1.698
11. <i>Reward</i>	-.202	-2.467*
12. Permissive	-.046	-.437
13. <i>Care (M)</i>	-.121	-2.069*
14. Control (M)	.024	.211
15. <i>Care (F)</i>	-.297	-2.160*
16. Control (F)	.240	1.816

The results indicated (Table 3a & 3b) that all the personality variables cumulatively accounted for a significant proportion of the variance in the dependent variable. So, our last hypothesis H_{2c} was also accepted. Further analysis revealed that Psychoticism and Extraversion were positive predictors of delinquency, whereas self-concept was a negative predictor, i.e., high Psychoticism, high Extraversion and a poor self concept characterized the delinquents.

Table 3 (a). Summary table of Regression Analysis with Personality Variables as Predictors of Delinquency

R	R ²	Adjusted R ²	F	Sig.
.695	.484	.456	17.606**	.000

*p ≤ .05; **p ≤ .01

Table 3(b). Coefficients of the Regression model

Variables	Beta	z- ratio
1.Psychoticism	.218	2.228 *
2.Extraversion	.258	3.497**
3.Neuroticism	.133	1.524
4.Lie	-.008	- 1.585
5. Self Concept	-.130	-6.351**

Conclusion

The main purpose of this study was to identify the predictors of delinquent behaviour and also a comparative study was conducted with a matched non-delinquent group, in order to understand the differences among both the groups in terms of their family and personality factors.

Overall it could be stated that an important factor influencing delinquent behaviour is the family setting. It is within the family that they had internalized the basic beliefs, values, attitudes and general patterns of behaviour that gave direction to their subsequent delinquent behaviour. Child rearing practices such as disciplinary methods, parental affection, care have all been suggested to have varying levels of influence on delinquent behaviour. More specifically, lax or inconsistent discipline as well as harsh discipline was seen as being more likely to result in juvenile delinquency. Also lack of parental affection has emerged as a possible precursor to delinquent behaviour. Family dysfunction combined with personality aversion, become the major predictors of delinquent activity.

Limitations and Suggestions

The present study suffered from the following limitations:

Influence of peers should also be considered in future research.

- If a longitudinal study could have been conducted, it would have thrown more light upon the future of the convicted adolescents.
- Only males could be included in the sample, due to unavailability of female samples. The female residents of comparable government-run-homes were mostly victims of various social mishandlings.
- Despite of its limitations the present study offers useful suggestions in the following areas that can be used for the prevention of delinquency.

i) Assistance to parents in dealing with Behaviour Problems

Assistance to parents in dealing with the conduct problems of children often involves assistance to parents themselves in solving problems of their own. To promote the stability and happiness of family life is, therefore, an aid in the prevention of juvenile delinquency.

ii) Role of a School

Schools can do much to prevent juvenile delinquency by controlling the causes that predispose the child to delinquent behaviour. They can hire teachers, who can understand the children, study the community and utilize the community resources, plan a curriculum that meets the needs of the youth and put it into operation, provide child counselling services for treatment of the personality disorders and provides classes for slow learners so that they do not feel inferior.

iii) Institution Caring for Delinquent Adolescents

Increasing effort is being made to adjust the delinquent child in his own community through counselling and rehabilitation

services. The appropriate departments of State government should exercise authoritative and complete supervision over all State-run institutions dealing with delinquent children, with the object of assisting them to develop adequate personnel, facilities for care and training, and treatment based on knowledge of the particular needs and capacities of each child under care.

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The Ongoing Debate on Suicides

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Keywords

Debate, Suicide, 309 of I.P.C., Mental Health Care Bill, 2012

Abstract

In India too there have been several judicial pronouncements in favour of deleting suicide attempt as an offence and the law commission had made a recommendation fairly long back to this effect. A draft bill was also perhaps prepared, but it failed to come up before the Parliament for reasons not known. Some time in 2011 renewed efforts were underway in this direction. This was mainly sequel to several judicial pronouncements made by the apex court.

Introduction

There is one, and perhaps the only offence in Indian penal code, the commission of which is not an offence, but attempt to commit the same or its abetment is. That offence is suicide. Obviously when some one commits suicide, he is beyond the reach of man made laws. However, if some one attempts and fails in committing suicide he is liable for punishment under section 309 of I.P. C., punishable with simple imprisonment for a a term which may extend to one year and/ or fine. The offence is also cognizable by police. Suicides have of late become a cause of concern. Because of their increasing

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numbers over the years, and more so because of large number of farmers of Vidarbha region of Maharashtra, and other states committing suicides due to crop failure.

According to British medical journal, 'Lancet' suicides have become the second leading cause of death among young in India and about 40 percent of men and 56 percent women who commit suicide are individuals in the age group 15-29 years. As per figures of the National Crime Record Bureau (NCRB), during the year 2011, one Lac thirty five thousand people died by committing suicide. As per the state wise break up, West Bengal recorded the highest figure of 16,492 suicides, followed by Tamilnadu with 15,947 suicides, and Maharashtra was a close third with 15,947 suicides. All the states were more or less equally afflicted by suicidal deaths, generally speaking.

A Disease

According to World Health organisation (WHO) people with mental disorders suffer from depression and schizophrenia, which are identified as major factors leading to suicides. This is viewed more like a disease and this has made law makers and jurists think over whether attempt to commit suicide needs to be dealt with more like a health problem, or an offence under law. In the most of the countries world over with some exceptions like India and some other South Asian Countries, attempt to commit suicide is no more an offence. At the international level many countries are liberalising their laws accordingly. A Right to die group, Judicial Intervention Exit supports total decriminalisation of attempt to commit suicide. In Switzerland, there exists a phenomena called 'Suicide tourism' and hundreds of tourists visit Zurich city of Switzerland just to commit suicide, because since 1941, Switzerland permits suicide without the assistance of physicians.

In India too there have been several judicial pronouncements in favour of deleting suicide attempt as an offence and the law

commission has made a recommendation fairly long back to this effect. A draft bill was also perhaps prepared, but it failed to come up before the Parliament for reasons not known. Some time in 2011 renewed efforts were underway in this direction. This was mainly sequel to several judicial pronouncements made by the apex court. The earliest supreme court decision on this subject was delivered on 27.04.94, by a Division Bench (DB) comprising Justice Sahay and Justice Hansariya which went to the extent of calling sec. 309 I.P.C. as violatory of the fundamental rights under sections 14 and 21 of the Constitution. However, within a few months this decision of Supreme Court, it was nullified by another Division Bench (DB) hearing the case of Vijay and Gyanchand Jain Vs the State of Madhya Pradesh. In March 2011, however, in another case before the Supreme Court it was observed that time had come to decriminalize the attempt to commit suicide, and dubbed it as 'anachronistic'. In the famous Aruna Shaunbag case, the apex court held that the right to live with dignity includes within its scope the right to die with dignity. The court at the same time put a rider on suicide requests on behalf of persons living in vegetative condition, and permission of High Court was made necessary to exclude malafide deaths.

It was while hearing a PIL before Delhi High Court, that the Government of India conceded that it intended to amend the law to decriminalize attempt to commit suicide, in a years time, to give effect to law commission's recommendations. Accordingly the Union Health Ministry drafted a new Mental Health Care Bill 2012 to be tabled before Parliament. The new bill provides that no complaint, investigation or prosecution shall be entertained against the person who attempted to commit suicide, notwithstanding any thing contained in the Indian Penal Code. However, it does not provide a blanket bar to prosecution and reportedly lays down that the person who attempted to commit suicide shall be examined by a psychiatrist before any criminal investigation takes place. If the psychiatrist certifies that the person suffers from

mental illness, he will not be prosecuted. It is not clear whether a person who attempts to commit suicide for any other reason than mental illness shall be liable for prosecution or not.

The Bill in question was sent to all states for concurrence, law and order being a state subject. As per reports, 25 out of 29 states have agreed. The bill remains to be tabled before parliament soon hopefully and then only its precise provisions would be known. It appears obvious, however, that section 309 I.P.C. has not been dropped totally, but only made subject to clinical opinion. This tantamounts to nothing but a half baked effort towards decriminalization of the offence under 309 I.P.C. Such an imprecise law would only make matters worse in my opinion. It would have been desirable that the law in offing was made forth right to obliterate attempt to commit suicide and the issue of suicide addressed more comprehensively. For example, there is one more offence relating to suicide, and that is abetting or instigation of suicide by some one. The famous case against Kanda, a minister of Haryana is a glaring example of this offence, punishable under, section 306 IPC. The new law in making has left it untouched completely, rightly or wrongly.

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Plastic Currency- Forensic Examination of Credit & Debit Cards

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Keywords

PCF, ATM, EFTPOS, CVV.

Abstract

Today's world has become electronic one, where every task depends upon computer system and so is the idea of paying goods & services. Plastic Currency is just like a plastic card containing some information stored on the magnetic stripe. Plastic Currency based on e-payment, in which value is transferred via internet & communication technologies. Depending on the period of payment, Plastic Currency called as Credit Card if payment will be done later or as Debit Card if payment transfers now or as Smart/ Memory Card if payment had submitted before. There is a number of fraud in case of Plastic Currency, first one in Card related fraud i.e. Application fraud, Lost/Stolen card, Account takeover, Counterfeit/Fake card, Mail-Not Receipt & Cash Machine fraud. Another is Merchant related fraud i.e. Merchant Collusion & Triangulation. Next one is Internet related fraud i.e. Site Cloning, False Merchant site & Plastic Card Generator. Plastic Currency contains a number of Security features as Plastic Card Number, Printed Bin, Bank & Brand Logo, Hologram, Ultraviolet Security Character, Expiry Details, Magnetic Strip, Signature Panel, CVV Number etc. Plastic Card

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whether it is Credit or Debit card can be examined manually by simply using Luhn's Formula. This paper also explains various technical specification used in Plastic Currency as prescribed by ISO/IEC 7810, 7811, 7812, 7813.

Introduction

The Electronic Payment (e-payment) is a method of value exchange in electronic commerce; here the value is transferred via the Internet and communication technologies. The electronic payment systems have evolved from traditional payment systems and consequently the two types of systems have much in common. Electronic payment systems are much powerful, especially because of the advanced techniques in security that have no analogs in traditional payment systems. An electronic payment system denotes any kind of network service that includes the exchange of money for goods or services. E-payment is conducted in different e-commerce categories such as Business-to Business (B2B), Business-to-Consumer (B2C), Consumer-to- Business (C2B) and Consumer-to-Consumer (C2C). [Donal o' mahony]

Plastic Currency is a type of plastic card which is used as money. Plastic currency, Plastic card or Plastic money is synonymous. Therefore, Plastic Currency is like a plastic card made up of small pieces of plastic and the few numbers that are embossed on printed on the surface and stored on the magnetic stripe. Plastic Currency is used in form of Credit, Debit or Smart cards etc.

The traditional and ancient society was devoid of any monetary instruments and the entire exchange of goods and merchandise was managed by the "barter system". The use of monetary instruments as a unit of exchange replaced the barter system and money in various denominations was used as the sole purchasing power. The modern contemporary era has replaced these traditional monetary instruments from a paper and metal

based currency to “plastic money” in the form of credit cards, debit cards, etc. The use of plastic money is increasing day by day for payment of shopping bills, electricity bills, school fees, phone bills, insurance premium, travelling bills and even petrol bills. The convenience and safety that plastic cards carry with their use has been instrumental in increasing both plastic card volumes and usage. This growth is not only in positive use of the same but as well as the negative use of the same. The world at large is struggling to increase the convenience and safety on the one hand and to reduce its misuse on the other.

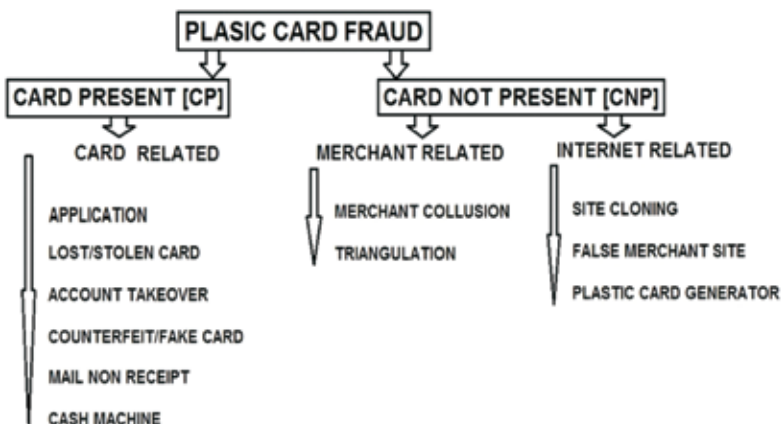
The ancestor of data storage cards is most probably the calling card. The first plastic based card was issued by Diners Club in 1950. By the end of the fifties two other firms joined the initiation: American Express and Carte Blanche. The first credit card was issued by the Bank of America; this is what became VISA later on. Interbank launched another system called Master Card. However, these early cards were only capable of ‘storing’ embossed identification items (names, numbers, codes etc). The first cards with magnetic stripes were developed by the International Air Transportation Association (IATA) in the 1970’s. On this type of card the magnetic stripe stored 210 bit/inch of information, which means about 80 alphanumeric (7-bit) characters. (For the sake of compatibility, today’s magnetic stripes are divided into three regions. The first region corresponds to the original stripe, storing read-only information. The second region can hold additional 40 digits with an information density of 75 bit/inch. The third region is read-writeable and may contain 107 digits.) A much higher amount of data can be stored on optical cards. In this case, both reading and writing (and positioning of course as well) are done optically, enabling a higher level of precision and thus higher information density. Also, typically the whole surface of the card is used for holding data. This way, capacity of some megabytes can be achieved. On the other hand, manufacturing costs of such cards are quite high.

Now a days use of plastic cards has become a way of life in many parts of life in many parts of the world. So, the Plastic cards use for money transaction purpose in banking, corporate as well as government sector. State-of-the-art thieves are concentrating on plastic cards. In the past, this type of fraud was not very common. Today, it is a big business for criminals. Plastic cards bring new convenience to your shopping and banking, but they can turn into nightmares in the wrong hands.

Plastic Card Fraud [PCF]

Now a days Plastic Card Fraud is the major and one of the biggest threats to business establishments. Plastic Card Fraud is defined as when an individual uses another individual's plastic card for personal reasons while the owner of the card and the card issuer are not aware of the fact that the card is being used. Persons using the card has not having any connection with the cardholder or the issuer and has no intention of making the repayments for the purchase they done. There are many ways in which fraudsters execute a Plastic card fraud. As technology changes, so do the technology of fraudsters and thus the way in which they go about

Fig 1: Types of Plastic Card Fraud



carrying out fraudulent activities. Plastic card [Credit/Debit] related frauds come in several ways under two scenarios i.e. “Card Present (CP)” and “Card Not Present (CNP)”. “Card not present” scenario encompasses methods for committing online frauds by the use of credit/debit cards, while offline frauds involve traditional methods. It could be considered that all technology aided crimes will be represented with the term “online”, whereas all non-technology aided will be called “offline”. The different types of methods for committing card frauds are described below.

Card Related Fraud

There are number of card related frauds where the plastic card may present directly or indirectly. All types of card related frauds are described below:

Application Fraud

This type of fraud occurs when a person falsifies an application to acquire a plastic card. Application fraud can be committed in three ways: Assumed identity, where an individual illegally obtains personal information of another individual and opens accounts in his or her name, using partially legitimate information. Financial fraud, where an individual provides false information about his or her financial status to acquire credit. Not-received items (NRIs) also called postal intercepts occur when a card is stolen from the postal service before it reaches its owner’s destination.

Lost/Stolen Cards

A card is lost/stolen when a legitimate account holder receives a card and loses it or someone steals the card for criminal purposes. This type of fraud is in essence the easiest way for a fraudster to get hold of other individual’s plastic cards without investment in technology. It is also perhaps the hardest form of traditional plastic card fraud to tackle.

Account Takeover

This type of fraud occurs when a fraudster illegally obtains a valid customer's personal information. The fraudster takes control of (takeover) a legitimate account by either providing the customer's account number or the card number. The fraudster then contacts the card issuer, masquerading as the genuine cardholder, to ask that mail be redirected to a new address. The fraudster reports card lost and asks for a replacement to be sent. Identity theft on cards involves a criminal obtaining enough personal information or documents to either take over an existing account or to apply for a new card. Using false or stolen documents, criminals either impersonate their victims to open bank accounts and obtain other financial products or they undertake account takeover fraud. This occurs when criminals take over the running of an existing bank account, by obtaining key personal details of an existing customer. This allows the criminal to assume the identity of the genuine customer. By contacting the bank, the criminal will masquerade as the genuine customer and make arrangements for new cards and cheque books to be delivered to a new address and to obtain additional financial products.

Fake and Counterfeit Cards

The creation of counterfeit cards, together with lost / stolen cards pose highest threat in plastic card frauds. Fraudsters are constantly finding new and more innovative ways to create counterfeit cards. Some of the techniques used for creating false and counterfeit cards are listed below:

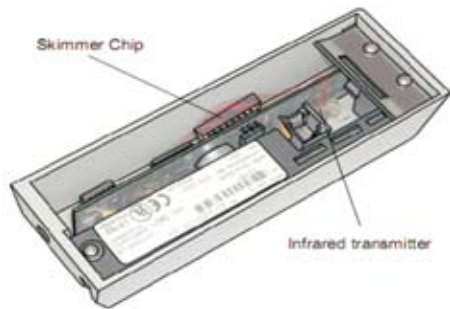
- **Erasing the magnetic strip:** A fraudster can tamper an existing card that has been acquired illegally by erasing the metallic strip with a powerful electro-magnet. The fraudster then tampers with the details on the card so that they match the details of a valid card, which they may have attained, e.g., from a stolen till roll. When the fraudster begins to use the card, the cashier will swipe the card through the terminal

several times, before realizing that the metallic strip does not work. The cashier will then proceed to manually input the card details into the terminal. This form of fraud has high risk because the cashier will be looking at the card closely to read the numbers. Doctored cards are, as with many of the traditional methods of plastic card fraud, becoming an outdated method of illicit accumulation of either funds or goods.

- **Creating a fake card:** A fraudster can create a fake card from scratch using sophisticated machines. This is the most common type of fraud, though fake cards require a lot of effort and skill to produce. Modern cards have many security features all designed to make it difficult for fraudsters to make good quality forgeries. Holograms have been introduced in almost all plastic cards and are very difficult to forge effectively. Embossing holograms onto the card itself is another problem for card forgers.
- **Altering card details:** A fraudster can alter cards by either re-embossing them by applying heat and pressure to the information originally embossed on the card by a legitimate card manufacturer or by re-encoding them using computer software that encodes the magnetic stripe data on the card.
- **Skimming or cloning:** Most cases of counterfeit fraud involve skimming, a process where genuine data on a card's magnetic stripe is electronically copied onto another. Skimming is fast emerging as the most popular form of plastic card fraud. Employees/cashiers of business establishments have been found to carry pocket skimming devices, a battery-operated electronic magnetic stripe reader, with which they swipe customer's cards to get hold of customer's card details. The fraudster does this when the customer is waiting for the transaction to be validated through the card terminal. Skimming takes place unknown to the cardholder and is thus

very difficult, if not impossible to trace. In other cases, the details obtained by skimming are used to carry out fraudulent card-not-present transactions by fraudsters. Often, the cardholder is unaware of the fraud until a statement arrives showing purchases they did not make. Sometimes information on the card's magnetic strip is obtained in "card skimming". This is when a legitimate card is obtained for a few seconds to enable it to be passed over a magnetic tape reader so that a counterfeit copy may be made. Another technique is "buffering", which involves modifying the information stored in the magnetic strip of the card or obtaining security codes electronically.

Fig 2: Basic Skimmer



White plastic: A white plastic is a card-size piece of plastic of any colour that a fraudster creates and encodes with legitimate magnetic stripe data for illegal transactions. This card looks like a hotel room key but contains legitimate magnetic stripe data that fraudsters can use at POS terminals that do not require card validation or verification (for example, petrol pumps and ATMs).

Cash Machine or Pin Fraud

Fraud at cash machines is not a type of fraud but describes the location where it occurs. A fraudster will look to obtain the card and its corresponding PIN wherever possible. It is attractive to the fraudster because it gives direct access to cash rather than goods. Some fraud occurs through 'shoulder surfing' – where criminals look over a cash machine user's shoulder to watch them enter their PIN, then steal the card using distraction techniques or pick

pocketing. Other frauds include the use of skimming devices attached to the cash machine, in conjunction with a miniature camera to capture the PIN or where a customer has written down their PIN and kept it with their card which is then stolen.

Merchant Related Frauds

Merchant related frauds are initiated either by owners of the merchant establishment or their employees. The types of frauds initiated by merchants are described below;

Merchant Collusion

This type of fraud occurs when merchant owners and/or their employees conspire to commit fraud using their customer's (cardholder) accounts and/or personal information. Merchant owners and/or their employees pass on the information about cardholders to fraudsters.

Triangulation

The fraudster in this type of fraud operates from a web site. Goods are offered at heavily discounted rates and are also shipped before payment. The fraudulent site appears to be a legitimate auction or a traditional sales site. The customer while placing orders online provides information such as name, address and valid plastic card details to the site. Once fraudsters receive these details, they order goods from a legitimate site using stolen plastic card details. The fraudster then goes on to purchase other goods using the plastic card numbers of the customer. This process is designed to cause a great deal of initial confusion and the fraudulent internet company in this manner can operate long enough to accumulate vast amount of goods purchased with stolen plastic card numbers.

Internet Related Frauds

The Internet has provided an ideal ground for fraudsters to commit plastic card fraud in an easy manner. Fraudsters have recently begun to operate on a truly transnational level. With

the expansion of trans-border or 'global' social, economic and political spaces, the internet has become a New World market, capturing consumers from most countries around the world. The most commonly used techniques in internet fraud are described below:

Site Cloning

Site cloning is where fraudsters clone an entire site or just the pages from which you place your order. Customers have no reason to believe they are not dealing with the company that they wish to purchase goods or services from because the pages that they are viewing are identical to those of the real site. The cloned or spoofed site will receive these details and send the customer a receipt of the transaction via email just as the real company would. The consumer suspects nothing, while the fraudsters have all the details they need to commit plastic card fraud.

False Merchant Sites

These sites often offer the customer an extremely cheap service. The site requests a customer's complete plastic card details such as name and address in return for access to the content of the site. Most of these sites claim to be free, but require a valid plastic card number to verify an individual age. These sites are set up to accumulate as many plastic card numbers as possible. The sites themselves never charge individuals for the services they provide. The sites are usually part of a larger criminal network that either uses the details it collects to raise revenues or sells valid plastic card details to small fraudsters.

Plastic Card Generators

Credit card number generators are computer programs that generate valid credit/debit card numbers and expiry dates. These generators work by generating lists of plastic card account numbers from a single account number. The software works by using the mathematical Luhn algorithm that card issuers use to

generate other valid card number combinations. The generators allow users to illegally generate as many numbers as the user desires, in the form of any of the plastic card formats, whether it be American Express, Visa or MasterCard.

Mail Non-Receipt (Mail Intercept) Fraud

Mail non-receipt fraud happens when cards are stolen before reaching the cardholder. Non-receipt or mail fraud occurs when an individual’s mail is intercepted by a criminal. Most issuers have card activation programs requiring customers to call and authenticate in order to begin purchasing with their card. These programs help mitigate non-receipt losses and enable issuers to quickly detect non-receipt fraud.

Plastic Currency - Credit & Debit Cards

Credit Cards

“A Credit card is a card that allows you to borrow money to pay for things. There will be a limit to how much you can spend called your credit limit. At the end of each month you can either pay off the whole of the amount you owe or make a minimum repayment.”- Prof. Phil Edwards

Credit cards are used to purchase goods and services on the understanding that payment will be made at some point in the future.

Fig 3: Credit Card [Obverse Side]



Fig 4: Credit Card [Reverse Side]



The use of credit cards originated in the United States during the 1920s, when individual companies, such as hotel chains and oil companies, began issuing them to customers for purchases. This use increased significantly after World War II. The first universal credit card was introduced by Dinner Club, Inc. in 1950 at New York. The American Express company established another major universal card in 1958.

Fig 5: Credit Card [Obverse Side] in UV Light



Fig 6: Credit Card [Reverse Side] in UV Light

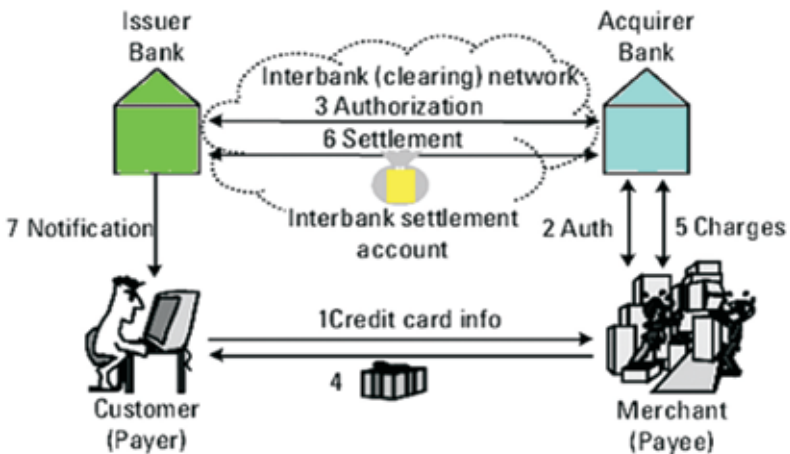


Credit Card Payment Transaction

The given Figure illustrates a typical payment transaction with a credit card as the payment instrument. The customer gives his credit card information (i.e., issuer, expiry date, number) to the merchant (1) The merchant asks the acquirer bank for authorization (2) The acquirer bank sends a message over the interbank network to the issuer bank asking for authorization (3) The issuer bank sends an authorization response (3) If the response is positive, the acquirer bank notifies the merchant that the charge has been approved. Now the merchant can send the ordered goods or services to the customer (4) and then present

the charge (or a batch of charges representing several transactions) to the acquirer bank (5 up). The acquirer bank sends a settlement request to the issuer bank (6 to the left). The issuer bank places the money into an interbank settlement account (C to the right) and charges the amount of sale to the customer’s credit card account. At regular intervals (e.g., monthly) the issuer bank notifies the customer of the transactions and their accumulated charges (7); The customer then pays the charges to the bank by some other means (e.g., direct debit order, bank transfer and check). Meanwhile, the acquirer bank has withdrawn the amount of sale from the interbank settlement account (5 down) and credited the merchant’s account.

Fig 7: Credit Card Payment Transaction



Debit Cards

A Debit Card is a payment card linked to a bank account and is used to pay for goods and services by debiting the cardholders account. A Debit Card or deposit accesses the cardholder’s funds in a cheque, saving or other form of depository account.

The card at a point of sale and the transaction is processed through the authorization and clearing system in which the transaction is settled against funds on deposit rather than a credit limit.



Fig 8: Debit Card [Obverse Side]



Fig 9: Debit Card [Obverse Side]



Fig 10: Debit Card [Obverse Side] in UV Light



Fig 11: Debit Card [Obverse Side] in UV Light

Basically, Debit Card is used by two ways, which are;

Automated Teller Machine (ATM)

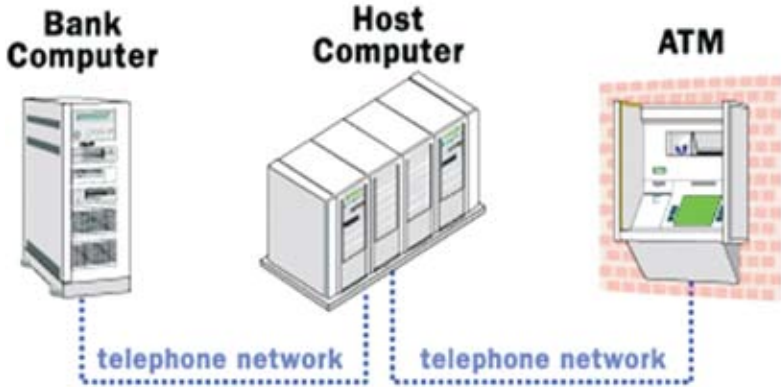
ATMs are electronic vaults, which enables users to withdraw or obtain other banking services. An Automated Teller Machine

(ATM) is a computerized telecommunications device that provides the customers of a financial institution with access to financial transactions in a public space without the need for a human clerk or bank teller. On most modern ATMs, the customer is identified by inserting a plastic ATM card with a magnetic stripe or a plastic smartcard with a chip, that contains a unique card number and some security information such as an expiration date or CVC (CVV). Security is provided by the customer entering a personal identification number (PIN). ATMs are known by various other names including automated banking machine, money machine, bank machine, cash machine, hole-in-the-wall, cash point and Any Time Money.

Typical ATMs have two input devices (a card reader and keypad) and four output devices (display screen, cash dispenser, receipt printer and speaker). Not visible to the client is a communications mechanism that links the ATM directly to an ATM host network. The ATM functions much like a PC; it comes with an operating system and specific application software for the user interface and communications. Whereas most ATMs use magnetic strip cards and personal identification numbers (PINs) to identify account holders. The ATM forwards information obtained from the client's card and the details of the client's request to a host processor, which then routes the request to the client's financial institution. If the cardholder is requesting cash, the host processor signals for an electronic funds transfer (EFT) from the customer's bank account to the host processor's account. Once the funds have been transferred, the ATM receives an approval code authorizing it to dispense the cash. This communication, verification, and authorization can be delivered several ways. Leased line, dialup, or wireless data links may be used to connect to the host system, depending on the cost and reliability of infrastructure. The host systems can reside at the client's institution or be part of an EFT network. The EFT network may support debit card transactions using PINs etc. Point-of-sale

services that use PINs are also possible. EFTs often has a national or regional scope.

Fig 12: How ATM works



An ATM is typically made up of the following devices:

- CPU (to control the user interface and transaction devices)
- Magnetic Card reader (to identify the customer)
- PIN Pad (similar in layout to a Touch tone or Calculator keypad)
- Secure cryptoprocessor, generally within a secure enclosure.
- Display (used by the customer for performing the transaction)
- Function key buttons (usually close to the display) or a Touchscreen (used to select the various aspects of the transaction)
- Record Printer (to provide the customer with a record of their transaction)
- Vault (to store the parts of the machinery requiring restricted access)
- Housing (for aesthetics and to attach signage to)

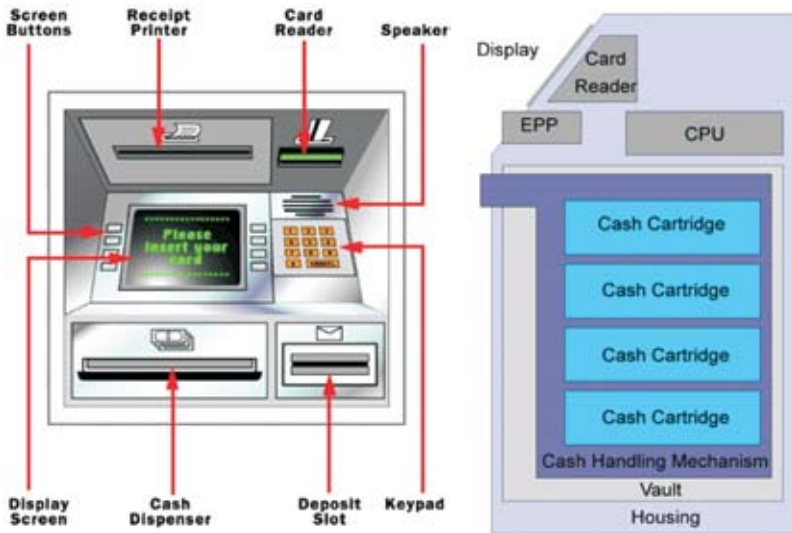


Fig 13: A block diagram of an ATM (Front & Side View)

Electronic Fund Transfer at Point of Sale (EFTPOS)

EFTPOS transactions are carried out using the terminal connected to a merchant cash register which enables customers to pay for goods or to withdraw cash electronically via their bank computer. Transactions are carried out by either swiping

Fig 14: EFTPOS



the card through the speed point machine or keying in manually the account details which then communicates details of the credit or debit of the EFTPOS network to the customer's bank.

Security Features- Credit & Debit Cards

There are a number of Security Features which are currently present in the Plastic Currency. In the current research work all the Security Features present in the plastic currency are discussed below. All

these Security Features can be viewed under different light source in UV Light including Normal Light. The unique security features of a plastic card are distinguishable features that have been devised to prevent manipulation and combat fraudulent activity.



Fig 15: A Plastic Card (Obverse Side)



Fig 16: A Plastic Card (Reverse Side)

Security Feature of Obverse Side [Front Panel]

1. Plastic Card Number

All plastic cards have 13 to 19 digits. These numbers should be clean and clear and are the same size as well as regularly spaced.

If the numbers appear fuzzy, the card may have been re-embossed. Whether the account number printed on the card is complete or partial, it should make sure it matches the card number that appears on the sales receipt or the number that is displayed on the terminal screen when the card is swiped.



Fig 17: Plastic Card Number

2. Printed Bin

Another highly visible security feature is the printed bin situated below the first four digits of the account number. This is a four digit printed number THAT MATCHED the first four digits of the embossed account number. The “printed bin” will be either above or below the start of the embossed account number. This printed bin is the Bank Identification Number (BIN).

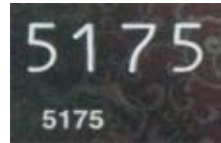


Fig 18: Printed Bin

3. Hologram

Holograms are small metallic oblongs, containing a laser-etched image on their surface. The image changes shape and colour depending on the viewing angle, and is very difficult to forge. The most visual feature on a plastic card is the three dimensional hologram that is situated of the front of the card. In most cases of counterfeit cards, the hologram is not a hologram but a look-a-like item that is “reflective” rather than “refractive”. Holograms are refractive, that is, the item in the hologram appears to actually move, whereas a reflective item is only a photo on a reflective material. Forged holograms have included printed images



Fig 19: Hologram

using a variety of materials and inks. Some have used plain foils and or diffraction grating foils.

4. Bank & Brand Logo

All types of Plastic Card also contains Bank as well as its Brand Logo depending upon its issued Bank and the Brand e.g. Visa, MasterCard etc.



Fig 20: Bank & Brand Logo

5. Ultraviolet Security Character

In the front of the card there is an ultraviolet security feature. A fluorescent image of Bank Logo and Card Scheme Logo can be seen when ultra violet light is passed over the face of the card.



Fig 21: Ultraviolet Security Character

6. Expiry Details

In addition to the main plastic card number, plastic cards also carry issue and expiry dates (given to the nearest month).



Fig 22: Expiry Details

Security Feature of Reverse Side [Back Panel]

1. Magnetic Stripe

A magnetic stripe is a stripe of magnetic tape affixed to the back of a card. The magnetic stripe contains essential cardholder and account information. The magnetic stripe allows a transaction to be processed when it is read at an electronic point of sale at a merchant. The information includes the account number and expiry date, which must correspond with those embossed on the face of the card the use of non-standard stripes makes it difficult for a forger to encode information onto the magnetic stripe. Although it is technically possible to remove a magnetic stripe from a card and replace it with another or re-record over it, in practice, it is uneconomical. A magnetic stripe includes the painting of a stripe of magnetic ink on the back of a card which allows for the recording of information that only a magnetic reader can read. Make sure the magnetic stripe is smooth and straight and does not show any signs of tampering.

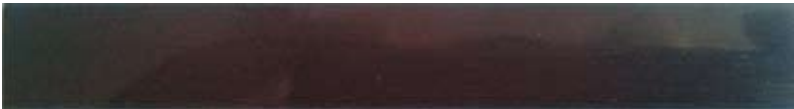


Fig 23: Magnetic Stripe

2. Signature Panel

The signature panel has the word of Card Scheme type at a white background and appears on the back of the card. If the panel is tampered with, to remove a genuine signature, the word “void” will show through. The genuine cardholder is required to sign the signature panel on receipt of the card. With the exception of transactions where it is permissible for the card to be absent, in mail or telephone orders, the signature on the card is normally checked by merchants against the signed sales voucher at the time of purchase to verify the genuine cardholder is using the card.

Some cards have the entire account number reverse indent-printed on the signature panel, while others have only the last four digits of the account number.



Fig 24: Signature Panel

3. Card Verification Value (CVV)

The Card Verification Value (CVV) is an algorithmically calculated number that is verified by the issuing bank when a transaction is completed through an electronic point of sale terminal and appears on the back of the card. The check allows the bank to confirm that the information is the same as that encoded on the magnetic stripe of the genuine card. To counter the threat of encoded counterfeit cards, the industry began to encode special information on the magnetic stripe of all valid cards. This number is based on the account number, expiration date and service code and is calculated.



Fig 25: Card Verification Value

CVV2 code, which will be reverse indent-printed either on the signature panel itself or in a white box to the right of the signature panel. CVV2 is one more card security feature that helps you ensure that the person making an online, telephone or mail-order purchase from you is actually a legitimate cardholder. The CVV2 is a three-digit security code that appears on or to the right of the signature. Whenever you take a card-not-present order – online, by phone or by mail – make sure you request this three-digit number. The card system provides a real-time check to ensure that the CVV2 you

have been given is the one properly associated with the account number provided by the customer. By supplying the CVV2, the customer shows that they are actually in possession of the card. If the customer has only the account number or the account number and expiry date, it may indicate that the transaction is fraudulent.

Technical Specification

Physical and Electrical Properties

ISO/IEC 7810 [Identification Cards- Physical Characteristics]

The International Organization for Standardization (ISO) standard 7810 "Identification Cards- Physical Characteristics" defines physical properties such as flexibility, temperature resistance and dimensions for three different card formats (ID-1, ID-2, and ID-3). The ID-1 format specifies a size of 85.60 × 53.98 mm (3.375 × 2.125 in) and rounded corners with a radius of 2.88–3.48 mm (0.030 in). It is commonly used for banking cards (credit cards, debit cards etc).

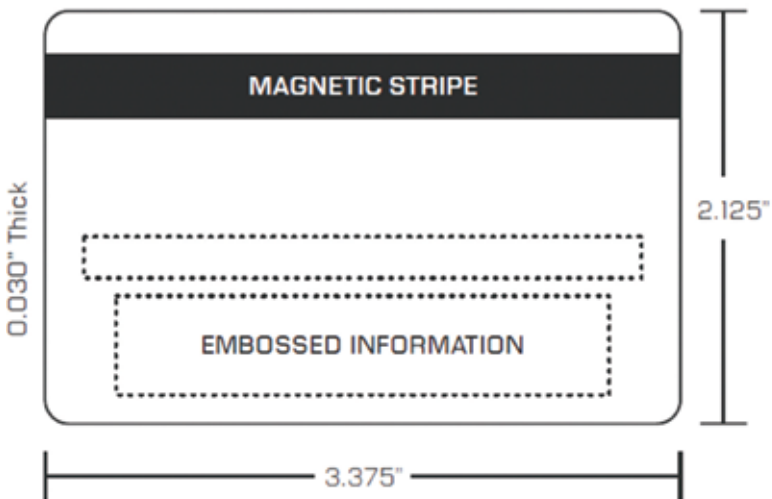


Fig 26: Dimensions of Plastic Currency

ISO/IEC 7811 [Identification Cards- Recording Technique]

ISO Standard 7810 “Identification Cards- Recording technique” is a set of nine (7811-1 to 7811-9) standards describing the recording technique on identification cards. It comprises:

ISO/IEC-7811	
7811-1	Embossing
7811-2	Magnetic Strip - Low Coercivity
7811-3	Location of Embossed Characters
7811-4	Location of Read Only Magnetic Track 1 and 2
7811-5	Location of Read & Write Magnetic Track 3
7811-6	Magnetic Strip - High Coercivity
7811-7	Magnetic Strip - High Coercivity, High Density
7811-8	Magnetic Strip - Specific Coercivity
7811-9	Tactile Identifier Mark for Visually Impaired

ISO/IEC 7812 [Identification Cards- Identification of Issuers]

Identification of issuers was first published by the International Organization for Standardization (ISO) in 1989. It is the international standard that specifies “a numbering system for the identification of issuers of cards that require an Issuer Identification Number (IIN) to operate in international, interindustry and/or intra-industry interchange” and procedures for registering IINs. The registration authority of assigned IINs is the American National Standards Institute, but previously it was the American Bankers Association. ISO/IEC 7812 has two parts:

7812-1: Numbering System

7812-2: Application and Registration Procedures

An ISO/IEC 7812 number contains a single-digit Major Industry

Identifier (MII), a six-digit Issuer Identification Number (IIN), an individual account identification number and a single digit checksum. The maximum length of such a number is 19 digits. Some card issuers refer to the Bank/Payment Card Number, found on payment cards such as credit cards and debit cards, as the Primary Account Number or PAN.

Major Industry Identifier [MII]-

MII is the first digit of the ISO/IEC 7812 issuer identifier number which is also called as System Number. It identifies the industry within which the card is primarily to be used. If the major industry identifier is 9 the next three digits are the numeric-3 country code from ISO 3166-1.

MII Digit	Issuer Authority
0	ISO/TC 68 and other industry assignments
1	Airlines
2	Airlines and other industry assignments
3	Travel and entertainment
4	Banking and financial
5	Banking and financial
6	Merchandizing and banking
7	Petroleum
8	Telecommunications and other industry assignments
9	National assignment

Issuer Identifier Number [IIN]

The first six digits, including the major industry identifier, compose the Issuer Identifier Number (IIN) which identifies the issuing organization. The IINs was previously called the “Bank Identification Number” (BIN) and some places still use that term. The registration authority of assigned IINs is the American National Standards Institute but previously it was the American

Bankers Association. The official ISO registry of IINs, the “ISO Register of Card Issuer Identification Numbers”, is not available to the general public. It is only available to institutions which hold IINs, issue plastic cards or act as a financial network or processor.

Issuing Network	IIN ranges	Length	Validation
American Express [Amex]	34, 37	15	Luhn algorithm
Diners Club Carte Blanche	300-305	14	Luhn algorithm
Diners Club International	300-305, 309, 36, 38-39	14	Luhn algorithm
Diners Club United States & Canada	54, 55	16	Luhn algorithm
Discover Card	6011, 622126-622925, 644-649, 65	16	Luhn algorithm
Insta Payment	637-639	16	Luhn algorithm
Japan Credit Bureau [JCB]	3528-3589	16	Luhn algorithm
Laser	6304, 6706, 6771, 6709	16-19	Luhn algorithm
Maestro	5018, 5020, 5038, 5612, 5893, 6304, 6759, 6761, 6762, 6763, 0604, 6390	12-19	Luhn algorithm
MasterCard	50-55	16	Luhn algorithm
Visa	4	13, 16	Luhn algorithm
Visa Electron	4026, 417500, 4405, 4508, 4844, 4913, 4917	16	Luhn algorithm

Individual Account Identification [IAI]

The account number consists of digits 7 to second last (n-1), a maximum of 12 digits. The account number is allocated by the card issuer.

Check Digit

The final digit is a check digit which is calculated using the Luhn algorithm, defined in Annex B of ISO/IEC 7812-1.

Verification of Plastic Currency

The Luhn algorithm or Luhn formula, also known as the “modulus 10” or “mod 10” algorithm, is a simple checksum formula used to validate a variety of identification numbers including plastic card number. The Luhn test is used by some plastic card companies to distinguish valid plastic card numbers from what could be a random selection of digits.

The Luhn formula was created and filed as a patent (now freely in the public domain) in 1954 by Hans Peter Luhn of IBM to detect numerical errors found in pre-existing and newly generated identification numbers. Since then, its primary use has been in the area of check sum validation, made popular with its use to verify the validity of important sequences such as plastic card numbers. Currently, almost all plastic card numbers issued today are generated and verified using the Luhn Algorithm or Modulus, Mod-10 Formula. Needless to say, if you come upon some existing plastic card numbers that fail the Luhn algorithm when put to the test, it is safe to assume that they are not valid or genuine numbers.

The Luhn algorithm only validates the 16 digit plastic card number and not the other critical components of a genuine working plastic card account such as the expiration date and the commonly used Card Verification Value (CVV) and Card Verification Code (CVC) numbers (used to prove physical possession of the debit or credit card).

Applying the Luhn Algorithm for the Creation and Validation of Plastic Card Number Sequences

4 Steps of Calculation-	
Step 1-	First, lay out/write down all the numerical digits of the credit or debit card number. The Luhn Algorithm always starts from right to left, beginning with the right most digit on the plastic card face (the check digit). The lone digit at the very right end of the plastic card number sequence is known as the “check digit”, which often is the final number that is computer generated to satisfy the mathematical formulations of the Luhn check sum process.
Step 2-	Starting with the check digit and moving toward left, double the value of every alternate digit. Thus double the value of all odd digits. E.g. the digit 8 when doubled will become 16, which turns into a 7 (when 1 and 6 are added together). Togetherness to make a single digit is called the Digital Root. Remember that the check digit is never doubled.
Step 3-	The Non-doubled digits will remain the same means even digits would be left the same.
Step 4-	Now, lay out the new sequence of numbers. The new doubled digits will replace the old digits. Non-doubled digits will remain the same. The remainder (e.g. 9) shall be the check digit.
Step 5-	Add up the new sequence of numbers together to get a sum total. If the combined tally is perfectly divisible by ten (ends in 0, like 60 for example), then the account number is mathematically valid according to the Luhn formula. If not, the plastic card number provided is not valid and thus fake or improperly generated. Note: The total sum except Check Digit (in our example = 51). The check-digit is what number needs to be added to this total to make the next multiple of 10. In this case, it needs to add 9 to make 60. So the check-digit for this fictitious number is 9.

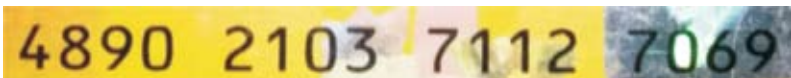


Fig 27: Plastic Card Number used for Check Digit Calculation



1st- Layout the Plastic Card Number

2nd- Double every Odd Digit & Add up the Digits
[After skipping Check Digit from Right to Left]

3rd- Even Digit left out the same without add up

4th- Add up all the, if final sum divided by 10
the Plastic Card Number is Valid.

Calculation of Check Digit/
Verification of Plastic Card
by Luhn Formula

Fig 28: Verification of Plastic Card by Luhn Formula

Card Security Code

The Card Security Code is typically the last three or four digits printed on the signature strip on the back of the card. The Card Security Code (CSC) sometimes called Card Verification Value (CVV)/ Card Verification Code (CVC)/ Verification Code (V Code) or Card Code Verification (CCV) is a security feature for credit or debit card transactions, giving increased protection against plastic card fraud.

There are actually several types of security codes:

- The first code is called CVV1 or CVC1 is encoded on the magnetic stripe of the card and used for transactions in person.
- The second code and the most cited is CVV2 or CVC2. This CSC (also known as a CCID or Credit Card ID) is often asked for by merchants for them to secure “card not present” transactions occurring over the Internet, by mail, fax or over the phone.

ISO/IEC 7813 [Financial Transaction Cards]

ISO/IEC 7813 is an international standard codified by the International Organization for Standardization and International Electrotechnical Commission that defines properties of financial

transaction cards e.g. debit or credit cards. The standard defines physical characteristics e.g. size, shape, and location of magnetic stripe etc and magnetic track data structures.

Physical Characteristics

ISO/IEC 7813 specifies the following physical characteristics of the card, mostly by reference to other standards: Embossed characters by reference to ISO/IEC 7811, Embossing of expiration date the format, e.g. MM/YY or MM-YY, Magnetic stripe by reference to ISO/IEC 7811.

Track	Recording Density (bits per inch)	Character Configuration (including parity bit)	Information Content (including control characters)
0.110" 1	IATA	210	7 bits per character 78 alphanumeric characters
0.110" 2	ABA	75	5 bits per character 40 numeric characters
0.110" 3	THRIFT	210	5 bits per character 107 numeric characters

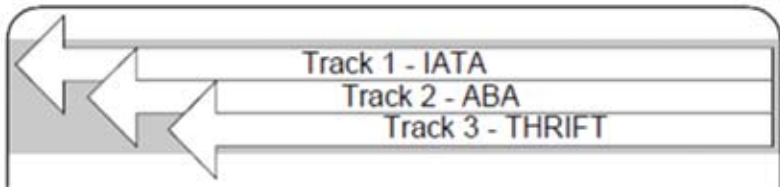


Fig 29: Magnetic Strip Encoding

Magnetic Tracks

Track 1

Track 1 has a higher bit density (210 bits per inch vs. 75), is the only track that may contain alphabetic text and hence is the only track that contains the cardholder’s name. The information on track 1 on financial cards is contained in several formats: A, which is reserved for proprietary use of the card issuer, B, which is described below, C-M, which are reserved for use by ANSI Subcommittee X3B10 and N-Z, which are available for use by individual card issuers.

The Track 1 structure is specified below where FC: Format code “B” (The format described here. Format “A” is reserved for proprietary use), DD : Discretionary data means balance of characters, may include Pin Verification Key Indicator (PVKI, 1 character), PIN Verification Value (PVV, 4 characters), Card Verification Value or Card Verification Code (CVV or CVC, 3 characters) and Longitudinal redundancy check (LRC) - it is one character and a validity character calculated from other data on the track. Most reader devices do not return this value when the card is swiped to the presentation layer, and use it only to verify the input internally to the reader.

Example

%B6011898748579348^GUPTA/
SWAPNIL^37829821000123456789?

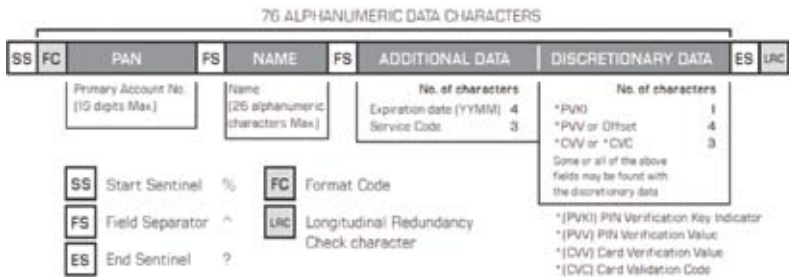


Fig 30: Track 1st of Plastic Currency

Track 2

This format was developed by the banking industry (ABA). This track is written with a 5-bit scheme (4 data bits + 1 parity), which allows for sixteen possible characters, which are the numbers 0-9, plus the six characters: ; < = > ? . The selection of six punctuation symbols may seem odd, but in fact the sixteen codes simply map to the ASCII range 0x30 through 0x3f, which defines ten digit characters plus those six symbols. The Track 2 structure

is specified below. The maximum record length is 37 numeric digits. e.g.5095700000000

Example

;0123456789123456¼0612sssDD.?

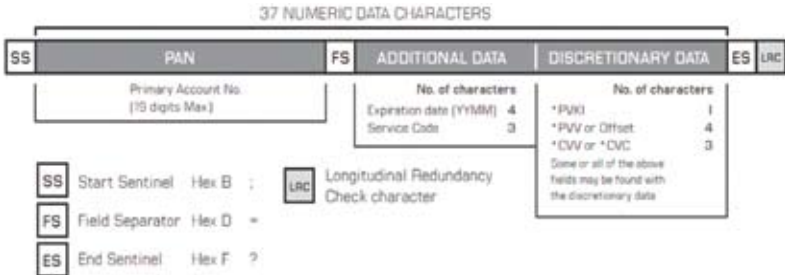


Fig 31: Track 2nd of Plastic Currency

Track 3

Track 3 is virtually unused by the major worldwide networks and often isn't even physically present on the card by virtue of a narrower magnetic stripe.

Example

¼FC0123456789123456¼.?

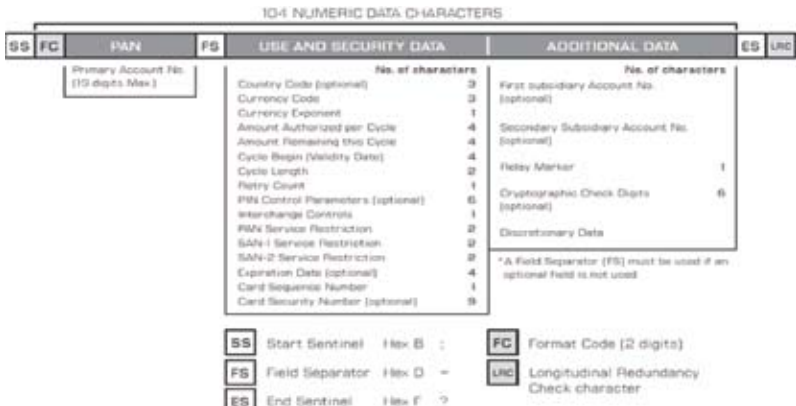


Fig 32: Track 3rd of Plastic Currency

Conclusion

The Plastic Card is a card which is used almost by every person in the society having a Bank account. There are a number of Security features present in the Plastic Currency e.g. Plastic Card Number, Printed Bin, Bank & Brand Logo, Hologram, Ultraviolet Security Character, Expiry Details, Magnetic Strip, Signature Panel, CVV Number etc. But still, there is an urgent need to improve & amendment of the Security features in comparison with the plastic card of other countries. Hence the future card is being embedded with chip instead of magnetic strip. Plastic Card whether it is Credit or Debit card can be examined manually by simply using Luhn's Formula. After the thorough examination of all security features as well as plastic card fraud one can be easily identified the fake plastic card. This paper certainly be useful to Forensic Scientist, Police Officers, Airport Officers and as well as for a layman.

Acknowledments

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The Victim Turned Offender an Empirical Study in Palayamkottai Central Prison

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Keywords

Victim Turned Offender, Victimization Survey, Criminal Justice System, Prisoners.

Abstract

National Crime Victimization Survey is any nation's primary source of information on criminal victimization. The survey fully reports the likelihood of victimization by rape, sexual assault, robbery, assault, theft, household burglary, and motor vehicle theft for the population as a whole as well as for segments of the population such as women, the elderly, members of various racial groups, city dwellers, or other groups. Some times this victimization leads the victims to offender. Many juvenile sex offenders are also victims of sexual abuse this was found by Muster and Nori for the journal of trading the victim – turned – offender. Victim turned offender is one of the class of Hans Von Hentig's classification on the victims. This study attempt to proof the Hans Von Hentig theory of victim turned offender. For the study, data was collected from prisoners in Palayamkottai Central prison in Tamil Nadu, India through a victimization survey and used to identify the extent to which victimization contributed towards their incarceration.

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Introduction

Like Mendelssohn, known as the father of victimology, Hans Von Hentig also developed a typology of victims: Victims responsible for their harms. His classification schema was based on psychological, social and biological factors. In 1948, he developed three broad categorizations of victims:

General age, gender, vulnerabilities psychological: depressed, acquisitive, approximately at the same time as Mendelssohn, suggested that there is an interconnection between “killer and killed, duper and dupe.” According to von Hentig, the victim is not just a passive figure but rather an “activating sufferer” who plays a part in the creation of the criminal act and who is barely considered by our legal system. The focus of this study will be on the activating sufferer concept of Hans Von Hentig.

Von Hentig studied crime and victims in the 1940s, and Steven Shaffer later published *The Criminal and His Victim*. Their analysis of murder focused on types of people who were most likely to be victims of homicide. The most likely type of victim Von Hentig identified is the “depressive type” who was seen as an easy target, careless and unsuspecting. The “greedy type” was seen as easily duped because his or her motivation for easy gain lowers his or her natural tendency to be suspicious. The “wanton type” is particularly vulnerable to stresses that occur at a given period of time in the life cycle, such as juvenile victims. Von Hentig’s last type was the “tormentor,” the victim of attack from the target of his abuse, such as the battered woman. (Roberson, 1994)

Von Hentig’s work provided the foundation for analysis of victim-proneness that is still evident in the literature today. Wolfgang’s research followed this lead and later theorized that “many victim-precipitated homicides were, in fact, caused by the unconscious desire of the victims to commit suicide.” (Roberson, 1994)

Review of Literature

A research published by the charity victim support today (10 October 2007) reveals a complex cycle of violent crime among young people that challenges pre –conceived ideas that young people are simply either victims or offenders. The report *Hoodie or googlie?* Shows that certain attitudes and risk factors can influence whether or not young people are likely to commit violent acts, be on the receiving end, or indeed fall into both categories. It suggests that tackling these lifestyle factors could help reduce levels of violence among the young.

The research project was carried out for the charity by BMRB social research. It included a review of previous research into violence among young people followed by interviews and workshops with young people aged from 14 to 18 and with adults who work with them. The researcher looked for common factors or differences between different groups of young people who had carried out violence, been a victim, or both. They also examined whether or not there were consistent ways in which victims turned into offenders and vice versa.

Among the key findings, the study found that:

- Victims can become offenders because of their experience. Causes could include carrying out retaliation on the offender, or against others in a displaced show of strength or emotion. Victims might also make friends with offenders to seek protection, particularly if they were socially isolated, but this could then lead to them committing offences themselves.
- Offenders can often become victims of violence. This is because they are at risk of retaliation and are also unlikely to be protected by adults in authority.
- Many of the risk factors that increase the chances that victims will become offenders are the same as those that make it more likely that offenders will become victims. They include:

- Thinking that the only way to deal with anger is through violence or that retaliatory violence is acceptable behavior
- Believing that the police would not help or that their involvement might make things worse.
- Other lifestyle factors can reduce the risk that victims of violence will turn to offending. The include:
 - Having good family relationships
 - Having a positive attitude towards school
 - Taking part in structured activities with adult supervision, and
 - Having positive attitudes towards the police.

The insight the research gives into the complex inter – relationships involved in young people’s experience of violent crime should help policy makers, schools, youth workers and parents and new ways to help break the cycle of violence. The project also asked young people about their support needs and found that views were similar on how to help both victims and offenders deal with their experiences in a more positive way. ‘Some of our findings might look like nothing more than common sense,’ said project manager Dr. Harriet Beecher of Victim Support. “But this its eh first time that we have clear evidence for how the lifestyle, beliefs, attitudes and experiences of young people can help determine whether or not they behave as offenders or victims. It also demolished the myth that young people are either ‘hoodies’ or goodies’ as many clearly have experiences of being both. “more work needs to be done by lots of different agencies to fine appropriate interventions to help young people avoid violence. However, these researches give us a firm foundation for where to direct our energies. More importantly, it offers hope that some focused help, support and re –education can help break the victim / offending cycle and reduce violent behavior among young people.”

Hanson, Kilpatrick et al (in press) in an article on violent crime and mental health noted that the risk of becoming a crime victim varies as a function of demographic variables such as:

- Gender -men have higher risk of assault than women (Gelles & Straus, 1988; Hanson et al., 1993; Norris, 1992) and lifetime risk of homicide is three to four times higher for men than women (Bureau of Justice Statistics, 1992)
- Age -Adolescents have substantially higher rates of assault than young adults or older Americans (Bureau of Justice Statistics, 1992; Hanson et al., 1993; Kilpatrick, Edmunds & Seymour, 1992; Kilpatrick et al., in press; Reiss & Roth, 1993; Whitaker & Bastian, 1991).
- Race - Racial and ethnic minorities have higher rates of assault than other Americans (*FBI Uniform Crime Report*, 1992; Hanson et al., 1993; Kilpatrick et al., 1991; Reiss & Roth, 1993)
- Socioeconomic class - Violence disproportionately affects those from lower socioeconomic classes (U. S. Bureau of the Census, 1991). Family income is related to rates of violence and victimization, with lower income families at a higher risk than those from higher income brackets (Reiss & Roth, 1993)

An Edinburg University research by Professor David Smith revealed that it was possible to predict delinquent behaviour from a victim and that a delinquent can become a victim. The study over a span of three years tracked the progress of over 4000 children in Edinburgh as they moved from primary into independent and state secondary schools in 1998. Smith found an overwhelming link between those who had been victims of crimes such as assault, vandalism or theft and those started to display delinquent behaviour. They began carrying weapons, assaulted people, shoplifted and became rowdy. Now a 12-year-old victim of assault, vandalism or theft in Scotland has a one in five chance of becoming a delinquent.

Method

Sample: Sample for the survey comprised of 337 male inmates of the Palayamkottai Central Prison. Random purposive sampling method was used.

Tools: A tool with 19 items was prepared by the researcher. The 19 items consisted of demographic variables, variables to assess whether the respondents had been victimized prior to incarceration, the type of victimization suffered and certain variables to assess the physical and psychological impacts of victimization.

Procedure: The randomly chosen sample respondents were assembled in a common hall and briefed about the purpose of this study. The tool was then administered individually. Careful explanations were given to all the respondents to enable them to fill-up the tool completely and correctly.

Results and Discussion: The State of Tamil Nadu has 134 prisons with a total inmate population of 15734. Of these 5357 are convicts, 2384 are under trials, 7199 are remand prisoners, 755 booked under various acts such as COFEPOSA, TPDA, NSA and others.

The current sample of inmates had been incarcerated for the first time. Most of them were in the age group of 26-55 with primary or secondary school level education. Many of them were married. The entire sample of respondents had been victimized as individuals and families. It is interesting to note that 47% of respondents had been victimized by murder and 71% were currently incarcerated for murder. The respondents suffered psychologically and financially due to the victimization. Table 1 shows 78.5% of the respondents perceived that previous victimization had led them to commit a crime. Table 2 shows 82.2% of the respondents perceived that if the previous victimization had not occurred they would not have committed a crime.

Table 1

Did previous victimization lead you to commit the crime?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	260	77.2	78.5	78.5
	No	71	21.1	21.5	100.0
	Total	331	98.2	100.0	
Missing	System	6	1.8		
Total		337	100.0		

TABLE 2

Would you have avoided crime in the absence of victimization?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	259	76.9	82.2	82.2
	No	56	16.6	17.8	100.0
	Total	315	93.5	100.0	
Missing	System	22	6.5		
Total		337	100.0		

Conclusion

Ian Loft in an article on how people become criminals stated “A victim of circumstances, or perhaps a victim of an unfortunate birth; it is a fact that people become criminals through a combination of choices, circumstances and opportunity. Human predilection for wealth, fame, power, physical and emotional satisfaction drive individuals in a unique way where some people seem less likely to live their lives and achieve their goals by working within the system of laws in a given society.”

Social scientists have used four theories of deviance to explain how people become criminals.

- Differential association theory – a theory that explains gang behavior
- Anomie theory – a theory that explains how minorities or disadvantaged groups tend to commit crimes

- Labeling theory – a theory that explains how people labeled as criminals go on to create more crimes
- Control theory - a theory that says that people who commit crimes simply lack the normal restraints that the rest of us operate under

According to the control theory, both inner and outer controls work against deviant tendencies. People may want—at least some of the time—to act in deviant ways, but most do not. They have various restraints: *internal controls*, such as conscience, values, integrity, morality, and the desire to be a “good person”; and *outer controls*, such as police, family, friends, and religious authorities. These inner and outer restraints form a person’s self-control, which prevents acting against social norms. The key to developing self-control is proper socialization, especially early in childhood. Children who lack this self-control, then, may grow up to commit crimes and other deviant behaviors.

The conversion process from victim to criminal is possibly also expedited by lack of support from the criminal justice system.

Victims’ aversion to the Criminal Justice System

Classical conditioning theory

Classical conditioning theory predicts that any stimuli present at the time of a violent crime are potential conditioned stimuli that will produce conditioned fear, anxiety and other negative emotions when the victim encounters them.

- Thus, *characteristics of the assailant* (e.g., age, race, attire, distinctive features), or *characteristics of the setting* (e.g., time of day, where the attack occurred, features of the setting) might become conditioned stimuli.

Classical conditioning theory also suggests that negative emotional responses conditioned to a particular stimulus can generalize to similar stimuli.

- Thus, a woman who exhibits a conditioned fear response to the sight of her rapist might also experience fear to the

stimulus of men who resemble the rapist through the process of *stimulus generalization*.

- Eventually, this stimulus generalization process may result in the rape victim showing conditioned fear to all men.

Avoidance Behavior

The most common response to crime-related conditioned stimuli is *avoidance behavior*. Thus, there is a natural tendency for crime victims to avoid contact with crime-related conditioned stimuli and to escape from situations which bring them in contact with such stimuli.

Second-order Conditioning

A final classical conditioning mechanism with important implications for understanding the behavior of crime victims is *second-order conditioning*. If a neutral stimulus is paired with a conditioned stimulus (without presenting the unconditioned stimulus), this neutral stimulus becomes a *second order conditioned stimulus* that can also produce a conditioned response.

- Thus, any stimuli present at the same time a crime-related conditioned stimulus is present can become a second-order conditioned stimulus that also evokes fear, other negative emotions, and a strong tendency to engage in avoidance behavior.
- This is important for practitioners as police, prosecutors, and victim service providers may become associated as a second-order conditioned stimulus.

Classical Conditioning and Victims' Reactions to the Criminal Justice System

Application of these classical conditioning principles to victims' interactions with the criminal justice system helps us understand why the criminal justice system is so stressful for many victims.

First, involvement with the criminal justice system requires crime victims to encounter many cognitive and environmental stimuli that remind them of the crime. These range from:

- Having to look at the defendant in the courtroom.
- Having to think about details of the crime when preparing to testify.
- Confronting a member of “second-order conditioned stimuli” in the form of police, victim/witness advocates, and prosecutors.

Second, encountering all these crime-related conditioned stimuli often results in avoidance behavior on the part of the victims.

Such avoidance behavior is generated by conditioned fear and anxiety, not by apathy. Avoidance can lead victims to cancel or not show up for appointments with criminal justice system officers, or victim advocates.

Other Sources of Stress

Aside from conditioning, there are several other reasons that interacting with the criminal justice system can be stressful for victims.

- One reason interactions are stressful is because victims lack information about that system and its procedures, and victims fear the unknown.
- A second reason interactions are stressful is that victims are concerned about whether they will be believed and taken seriously by the criminal justice system.

Most victims view the criminal justice system as representative of society as a whole, and whether they are believed and taken seriously by the system indicates to them whether they are believed and taken seriously by society.

Criminal Justice System and Psychological Trauma

Crime-related psychological trauma impairs the ability and/or willingness of many crime victims to cooperate with the

criminal justice system. At every key stage of the criminal justice system process—from contemplating making a report to police, to attending a parole hearing—interactions can be stressful for victims and often exacerbates crime-related psychological trauma.

Victims whose crime-related fear makes them reluctant to report crimes to police or who are too terrified to testify effectively make it impossible for the criminal justice system to accomplish its mission. Thus, it is important to understand:

- Victims' crime-related mental health problems.
- What aspects of the criminal justice system process are stressful to victims
- What can be done to help victims with their crime-related mental health problems
- What can be done to help victims cope with criminal justice system-related stress

Effective partnerships among the criminal justice system, victim assistance personnel, and trained mental health professionals can help victims with crime-related psychological trauma and with criminal justice system-related stress. By helping victims through such partnerships, the criminal justice system also helps itself become more effective in curbing and reducing crime.

As Kilpatrick and Otto (1987) noted, there are several psychological theories that are useful in understanding why victims might develop psychological trauma, and why interactions with the criminal justice system are usually stressful for victim.

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Sparse Matrix Analysis based Spatial Clustering Techniques (SMSCT) for Serial Crime Prediction Model

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Keywords

Spatial Mining, Crime Location, Crime Data, Prediction Techniques Time Series Data, Crime Analysis, Geographical Profile, Sparse Matrix, Spatio-Temporal Mining, Future Hotspot.

Abstract

Crime hot spot prediction is an challenging task in current time. In recent past increasing volume of crime has been one of the serious issue. So that an effective model are needed which are capable for dealing with large amount of crime data and provide prediction of future crime location. Spatial temporal data mining are very much useful for dealing with geographical crime data. In this paper sparse matrix analysis based spatial clustering technique for serial crime prediction model is presented. In this technique firstly crime data are preprocessed through various distribution techniques and then sparse matrix analysis based spatial clustering technique are applied on a four year time series data for finding out the hotspot location for next year, after that three clustering techniques are used to grouping similar crime incident, at last cluster result obtained by original and proposed dataset are compared. The main objective of this paper to provide crime prediction technique which is helpful for detecting the crime and provide prediction of future crime.

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Introduction

Crime analysis utilizes past crime data to predict future crime locations and times [1]. In the field of crime analysis Criminal geographical profile is a methodology of investigation, which makes use of interaction between crime location and crime base of criminal to find out the most probable place of the crime base [2]. Crime prediction is based on past crime; it uses past crime data for analysis and prediction of future crime, and this is possible by data mining techniques [3][4].

In the field of data mining, spatial temporal data mining provides the platform for the analysis of spatial data. Spatio-temporal concepts combine both spatial and temporal concepts. It concern with both spatial and temporal relationships two important attributes of spatial-temporal data mining are location and time. The area of spatio-temporal data mining is where this relationship is both defined by the spatial and temporal characteristics of the data and is extremely challenging due to the increased search space for knowledge [5].

In this paper, sparse matrix analysis based spatial clustering technique for serial crime prediction model is presented, based on spatial temporal data mining and used for predicting future crime location.

Literature Survey

This section reviews the current literature and related work in the areas of crime pattern analysis.

Hot-Spots Prediction Using Support Vector Machine. This technique uses Support vector Machine for Crime prediction for a given percentage of the data and a predefined level of crime rate, The data points which have the crime rate above the predefined rate are members of hotspot class and data points with crime rate below the predefined rate are members of coldspot class. k-median clustering

algorithm is used for this purpose. Lastly compare the result when the same percentage of the data is selected randomly [6].

A Multivariate Time Series Clustering Approach for Crime Trends Prediction. In this technique, a approach for multivariate time series clustering technique based on DTW together with Parametric Minkowski model is used to consider the weightage scheme in the clustering algorithm. [7].

A Novel Serial Crime Prediction Model Based on Bayesian Learning Theory. This technique introduces a novel serial crime prediction model using Bayesian learning theory. Author mainly studies the factor related to geographic report which is made by combining all geographic profiles weighted by effect functions which can be adjusted adaptively based on Bayesian learning theory [8].

Predicting the geo-temporal variations of crime and disorder [9]. This technique introduces the crime incident prediction by concentrating on geographical areas of concern that outshine traditional policing boundaries. The result of this technique are satisfactory using artificial neural network and gamma test provide the facility to predict future crime [10][11].

Proposed Methodology

In this work, our aim is to propose the technique used for predicting the future serial crime hotspot. The sparse matrix analysis based spatial clustering technique is used to find out future hotspot based on previous year time series data, and after obtaining hotspot different clustering techniques are used to find out similar group of cluster. To evaluate the performance, comparison of different clustering algorithm applied on original and proposed data are done.

Step-I: First it takes crime incident data from various location of specified land.

Step-II: Apply preprocess techniques to find distribution and distance analysis of crime incident data.

Step-III: Apply SMSCT to find out future hotspot.

Step-IV: Apply NNHSC, K-Means and STAC clustering to find out cluster.

Step-V: Compare result of clustering on original and proposed data set.

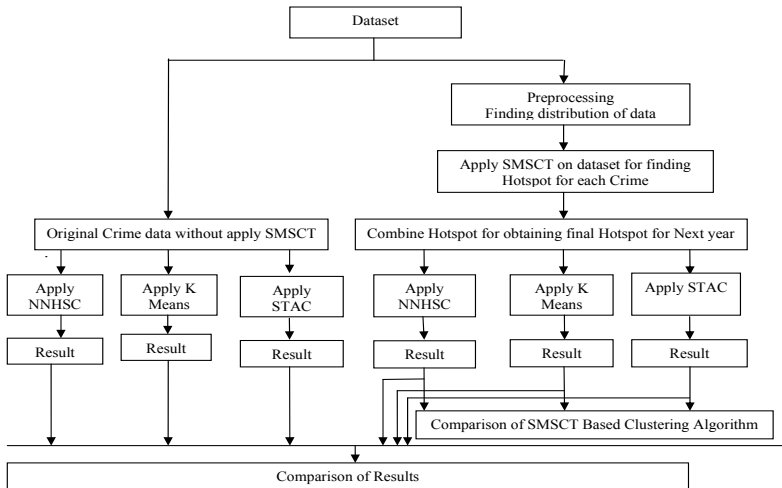


Fig. 3.1 Proposed model for Crime Prediction based on SMSCT Technique

Data Set Selection

For this work Indian crime data of various cities from 2010 to 2013 have been collected. Data set consist longitude and latitude of city and event count of five different type of crime.

Preprocessing

In this work, data are firstly preprocessed for finding out the distribution of data. For this purpose two preprocessing technique i.e. standard deviation ellipse and convex hull have been used.

Standard Deviation Ellipse

The standard distance deviation shows the dispersion of the incidents around the mean center.

Convex Hull

The convex hull is a boundary drawn around the distribution of points, it represents a polygon that circumscribes all the points in the distribution.

Sparse Matrix Analysis based Spatial Clustering Technique

To find out the hotspot location of next year based on analysis of previous years time series, data spatial clustering technique based on sparse matrix analysis have been proposed.

The steps of SMSCT technique are as follow:

Step-I: Retrieve crime data from the data set in the yearly grid. (Grid is divided into cell where each cell represents the particular city).

A1	A2	A3
-	-	-
-	-	An

Year 1 Data Grid

A1	A2	A3
-	-	-
-	-	An

Year 2 Data Grid

A1	A2	A3
-	-	-
-	-	An

Year n Data Grid

Step-II: Add all the values of same cell from starting year grid to last year grid.

Next Year

A1	A2	A3
-	-	-
-	-	An

Next Year Data Grid of Final Hotspot

Where $A1 = A1(1^{st} \text{ year}) + A2(2^{nd} \text{ year}) \dots A_n(n^{th} \text{ year})$

Step-III: If resultant value contains at least one event of specified crime type than it is consider as hotspot and assign the value 1 otherwise coldspot and assign the value 0 in specified cell.

Step-IV: Apply sparse matrix technique for removing coldspot from the final grid and obtaining hotspot location for specified crime type.

Step-V: Merge all the crime type hotspot location for obtaining final hotspot location of next year.

Clustering

After obtaining the final hotspot location of crime for next year, apply three type of clustering techniques for finding similar group of crime incident.

NNHSC

The nearest neighbor hierarchical spatial clustering (NNHSC) is a constant-distance clustering that groups points together on the basis of spatial proximity. The user defines a threshold distance and the minimum number of points that are required for each cluster, and an output size for representing the clusters with ellipses [12].

K-Means

The K-means clustering is a procedure for partitioning all the points into K groups in which K is a number assigned by the user. This algorithm finds K seed locations in which points are assigned to the immediate cluster [13].

STAC

The Spatial and Temporal Analysis of Crime (STAC) is a variable-distance clustering routine. It initially associates points together on the basis of a constant search radius, but then combines clusters that overlap [14].

Dataset

To test the different approach used by our model, the Indian crime data set is used. The dataset has details of six type of crime in various city of India. The location of each data point is described in the data set by Euclidian coordinates or Latitude and Longitudes.

Experimental Setup

The model present in this paper works in windows environment. It will run much better on a 2.6 GHz computer (or faster) with more than 2GB of RAM. The Clustering Output is shown by using a geographical tool ArcGis.

Experiment Result And Analysis

Result of Preprocessing

Preprocessing shows the distribution of crime incident location used in the data set either in the form of Standard deviation ellipse or Convex Hull.



Result of SMSCT Technique

By Applying SMSCT technique on the data set based upon analysis of four year crime data, hotspot location are found for each type of crime which are shown in table. There are four type of values

which are output in each table. **TRACT** – Crime location, **LON** – Longitude, **LAT** – Latitude, **OFFENCE** – Type of offence.

TRACT	LON	LAT	OFFENCE
Mumbai	72.87766	19.07598	Murder
Agra	78.00807	27.17667	Murder
Nasik	73.7898	19.99745	Murder
Pune	73.85674	18.53043	Murder

TRACT	LON	LAT	OFFENCE
Mumbai	72.87766	19.07598	Robbery
Agra	78.00807	27.17667	Robbery
Indore	75.85773	22.71957	Robbery
Lucknow	80.94668	26.84651	Robbery

TRACT	LON	LAT	OFFENCE
Mumbai	72.87766	19.07598	Kidnap
Delhi	77.22496	28.63531	Kidnap
Bhili	81.37806	21.20888	Kidnap
Bhopal	77.41261	23.25993	Kidnap

TRACT	LON	LAT	OFFENCE
Delhi	77.22496	28.63531	Hurt
Agra	78.00807	27.17667	Hurt
Bhilai	81.37806	21.20888	Hurt
Bhopal	77.41261	23.25993	Hurt

TRACT	LON	LAT	OFFENCE
Mumbai	72.87766	19.07598	Burglary
Delhi	77.22496	28.63531	Burglary
Agra	78.00807	27.17667	Burglary
Bhili	81.37806	21.20888	Burglary

TRACT	LON	LAT	OFFENCE
Mumbai	72.87766	19.07598	Pickpocket
Delhi	77.22496	28.63531	Pickpocket
Agra	78.00807	27.17667	Pickpocket
Indore	75.85773	22.71957	Pickpocket

After merging all the hotspot obtained according to different crime type final hotspot for next year are obtained.

TRACT	LON	LAT
Mumbai	72.87766	19.07598
Delhi	77.22496	28.63531
Agra	78.00807	27.17667
Bhili	81.37806	21.20888

Table 6.2.7 Predicted hotspot for next year 2014

Result of Clustering Techniques

After obtaining the final predicted value for next year, clustering technique are applied for grouping similar type of location in a multiple group.

Result of NNHSC for Original Dataset

By Applying Nearest Neighbor Hierarchal Spatial Clustering algorithm on the original dataset twelve different clusters have been found.

Cluster	Mean X	Mean Y	Density
1	72.78634	20.48462	0.006028
2	83.37951	24.80211	0.004780
3	86.67047	22.04364	0.005003
4	75.91047	23.30167	0.005974
5	79.76221	26.82437	0.009952
6	81.34597	21.18579	0.976893
7	71.96633	26.57735	3.245650
8	80.13478	16.16153	0.003214
9	77.62858	29.4759	1.253707
10	75.90639	17.65992	763.9437
11	84.79409	19.31496	763.9437
12	80.16658	13.19928	763.9437



Result of NNHSC for Proposed Data set

By Applying Nearest Neighbor Hierarchal Spatial Clustering algorithm on the proposed dataset, ten different clusters have been found:

Cluster	Mean X	Mean Y	Density
1	83.39694	25.04271	0.000246
2	72.72239	20.12864	0.000216
3	79.44327	26.88842	0.000335
4	87.18770	22.81520	0.000284
5	80.22092	16.10704	0.000284
6	85.50054	20.02451	0.002817
7	81.14617	21.13436	40.754839
8	75.48415	23.37640	0.000131
9	77.49404	29.19570	0.032663
10	71.81518	26.62569	0.090891



Result of K-Means for Original Dataset

By Applying K-Means Clustering algorithm on the dataset, five different clusters have been found:

Cluster	Mean X	Mean Y	Mean Sqr Error
1	79.79288	13.41402	849.990763
2	80.37332	17.00579	4142.540522
3	73.75073	18.93218	11194.63116
4	83.83567	23.41188	45204.80477
5	74.69627	24.19458	57303.87098



Result of K-Means for Proposed Data set

By Applying K-Means Clustering algorithm on the proposed dataset, five different clusters have been found:

Cluster	Mean X	Mean Y	MeanSqrError
1	83.07759	25.4357	5365.46571
2	80.47146	16.8815	3620.916487
3	82.7259	21.14759	3063.61781
4	73.11031	21.69475	4393.73457
5	79.75136	13.43788	839.497076



Result of STAC for Original Dataset

By Applying STAC Clustering algorithm on the original dataset : nine different clusters have been found:

Cluster	Mean X	Mean Y	Density
1	83.54155	25.14251	0.006949
2	72.83124	21.23201	0.004880
3	76.28029	23.09007	0.008778
4	81.68458	21.47633	0.045005
5	85.50054	20.02451	0.112680
6	77.61651	27.90599	1.804891
7	79.79288	13.41402	44.00768
8	75.32799	18.37757	1.873293
9	80.76589	16.50865	46.06792



Result of STAC for Proposed Data Set

By Applying STAC Clustering algorithm on the dataset, three different clusters have been found.

Cluster	Mean X	Mean Y	Density
1	82.98418	24.55383	0.000153
2	74.40935	22.17456	0.000086
3	85.85376	20.37929	54.250183



Comparison Table

DataSet	Number of Clusters		
	NNHSC	K-Means	STAC
Original Dataset	12	5	9
Proposed Dataset	10	5	3

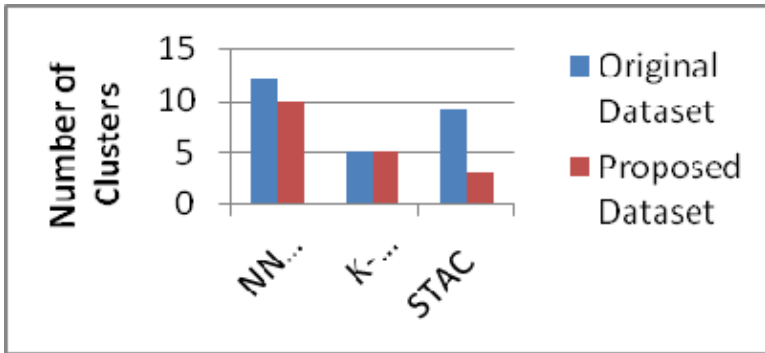


Table 7.1 Comparison of Clusters Obtained by NNHSC, K-MEANS and STAC

Table 7.1 shows the Comparative Analysis of Clustering Techniques Applied to Original and Preprocessed Dataset. In our experiment, we obtained different results of both clustering algorithms. According to Table 7.1, we evaluate cluster for both original and preprocessed dataset for grouping the similar type of crime incident locations. When NNHSC applied on original dataset, then number of cluster found is 12, and after processing when STAC based NNHSC applied on dataset then number of cluster found is 10. Similarly, for other two clustering algorithm applied on original dataset found 5 and 9 clusters respectively and after preprocess when these two SMSCT based clustering technique is applied on dataset, then number of clusters found is 5 and 3 respectively. The result found that similarity measure of similar crime incident location is increased and our results of SMSCT based clustering algorithms obtain more efficient result.

Number of Clusters		
SMSNAT based NNHSC	SMSNAT based K-Means	SMSNAT based STAC
12	5	9
10	5	3

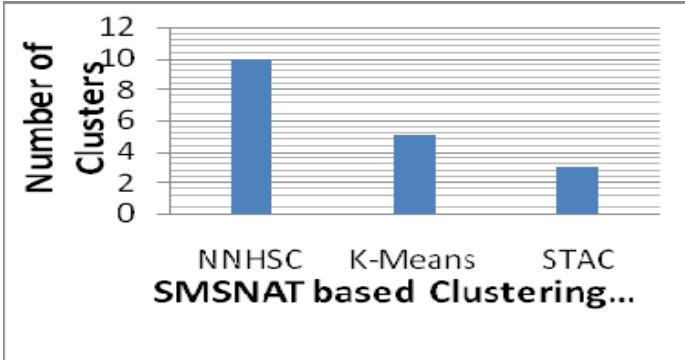


Table 7.2 Comparison of Clusters Obtained by SMSNAT NNHSC, K-MEANS and STAC Algorithms

Table 7.2 shows the Comparison of Clusters Obtained by SMSCT based NNHSC, K-Means and STAC clustering algorithm. According to table 7.2 when SMSCT based Nearest Neighbour Clustering algorithm is applied on preprocess dataset than number of cluster found is 10. Similarly when SMSCT based K-Means and STAC clustering algorithm is applied to preprocess dataset than number of cluster found is 5 and 3 respectively. On comparing these three SMSCT based clustering algorithm minimum number of cluster found is 3 by SMSCT based STAC Algorithm. When number of cluster is decrease it means each cluster group more number of similar crime incident location. In our work the result found that similarity measure of similar crime incident location is increased in SMSCT based STAC clustering algorithm and STAC is best clustering algorithm for analyzing crime incident location and for predict future crime location.

Conclusion

In this paper a Sparse Matrix Analysis based Spatial Clustering Technique for Serial Crime Prediction Model is presented. This technique mainly worked on geographical information of the serial crime incident. Firstly crime data are preprocess through various distribution techniques and then sparse matrix analysis based spatial clustering technique are applied on a four year time series data and find out the hotspot location for next year, after that three clustering techniques are used to grouping the similar crime incident The effectiveness of proposed approach over the existing clustering algorithm has been illustrated using Indian crime data. The approach can play important role for analyzing and solving crime related problem. This work given an effective technique for finding the future crime hotspot based on previous years time series data.

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Decipherment of Obliterated Handwriting by Hyperspectral Image Spectrometry

Ranjeet Kumar Nigam* Priyanka Mishra**

Keywords

Decipherment, Hyperspectral Image Spectrometry, Obliterated Handwriting and Wavelength.

Abstract

Decipherment of obliterated handwriting is always a challenging task for forensic document examiners because, of its intensive nature of masking like overwriting, crossing with pen or pencil or by spreading ink or dark fluid to the original content for destructing the appearance of writing rather than its actual removing. The present work is focused on to reveal the intentionally obliterated concealed handwriting, by using the application of the advance instrument, Hyperspectral Image Spectrometry which is non- destructive in nature. The obliterated handwriting was analysed and processed at narrow spectral bandwidth ranges from 400nm to 1000nm with a step of 20nm for revealing the concealed handwriting. Three different types of problems are discussed in which pencil writing obliterated with ball pen, pencil writing obliterated with pencil and ball pen writing obliterated with ball pen, which cannot be discerned visually. The potential of hyperspectral imaging (HSI) as a technique for forensic document problems was evaluated specifically for decipherment of obliterations on questioned documents. The results obtained by the tool are found better than any other contemporary instruments.

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Introduction

Questioned document examination (QDE) is the forensic science discipline pertaining to documents that are in dispute in a court of law. The primary purpose of questioned/forensic document examination is to answer questions about a disputed document using a variety of scientific processes and methods.

A document examiner is often asked to determine if a questioned item originated from the same source as the known item(s), and then present their opinion on the matter in court as an expert witness. Other common tasks include determining what has happened to a document, determining when a document was produced, or deciphering information on the document that has been obscured, obliterated or erased.

The obliteration in handwriting is often found intentionally where the culprit wants to hide the original content by using different ways like overwriting, crossing or coloured with pen or pencil. The forensic questioned document community has encountered difficulty visualizing obliterated writing using conventional methods. Conventional methods for visualization of obliterated writings do not adequately visualize writing when obliteration is made with the same class of color ink, or when graphite pencil writings are obliterated by ink. A number of methods have been suggested for analysis of obliterated writing in literatures. To obliterate means to blot out so as not be readily or clearly readable. Writing may be intentionally obliterated to render them indecipherable by covering or obscuring with marking, overwriting, blots of ink or rubbing with pencil or carbon paper etc. which are examined by their spectral features because each ink has unique spectral signature.

Technically the Hyperspectral can be measured either by scanning each point of an object with spectrometer or by recording series of the images taken at narrow spectral band. In case of forensic

document examination, the hyper-spectrum is reflection (or/ and luminescence) spectral data set measured at each point of a questioned document. Hyperspectral imaging (HSI) is a novel optical technique in which number of narrow contiguous bands, over a large range of wavelengths, can be viewed to yield a complete spectral profile at each pixel in the image. Hyperspectral imaging (HSI) has evolved as the product of conventional two-dimensional imaging and spectroscopy.

The present work is based on the incredible utilization of the tool Hyperspectral Image Spectrometry, also known as "Forensic XP-4010D" - a non destructive tool for solving the various problems pertaining to forensic questioned document examination. The hyperspectral imaging (HSI) provide abroad spectrum range of illumination sources for revealing the concealed writing or hidden content.

Materials and Methods

The tool Hyperspectral Image Spectrometry was developed by National Research Institute of Electronics and Cryptology, Turkey having wide range of illumination system ranges from 400nm to 1000nm.

Technical Specification

These are few of the specification of the instrument-

- High Resolution digital CCD colour camera with 1360 x 1024 pixel RGB output.
- Broad spectral ranges from 400nm to 1000nm.
- Powerful zoom (10X), focusing and auto-iris.
- Wide field scanning operations on images etc.

Hyperspectral Imaging

The hyper spectrum is fully automated system used to analyze the small difference between microscopic features of the questioned document for forensic analysis. The hyperspectral imaging

technique provides the scan frames images of the exhibit point by point at thirty different wavelengths ranges from 400-1000nm with a step of 20nm, causes the obliterated handwriting become visible because of its exceptional sensitivity and broad spectral ranges permits to detect very slight difference in inks. The instrument precisely captures optical visible and near infrared spectrum of each image point, records resulting hyper spectrum and, sequentially, processes the spectrum by special algorithm to enhance questioned features. Finally the results obtain in gray scale mode which is more reliable for distinguishing the colour difference at very high level.

Exhibits marked here as (a), (b) and (c) used for the purpose of experimental work are masked, in which pencil writing obliterated with ball pen, pencil writing obliterated with pencil and ball pen writing obliterated with ball pen respectively.

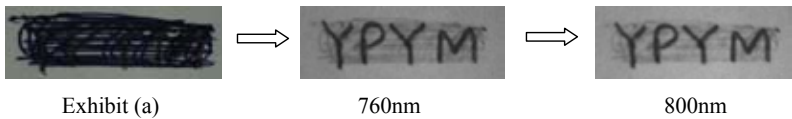


Fig.1. Concealed handwriting deciphered as “YPYM” at 760nm and 800nm of pencil writing obliterated with ball pen.

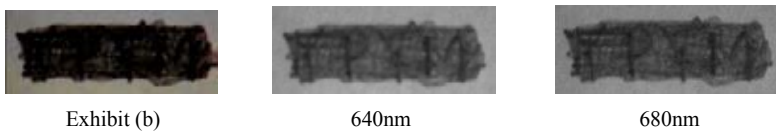


Fig.2. Concealed handwriting deciphered as “YPYM” at 580nm and 600nm of pencil writing obliterated with pencil.

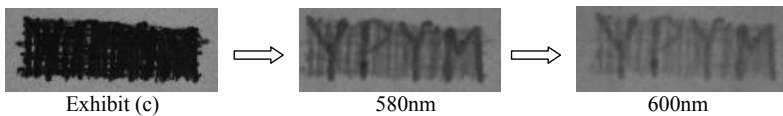


Fig.3. Concealed handwriting deciphered as “YPYM” at 580nm and 600nm of ball pen writing obliterated with ball pen.



Fig.4. Hyperspectral images of Exhibit (a) (where pencil writing obliterated with ball pen) at 30 different wavelengths ranges from 400nm to 1000nm with a step of 20nm.

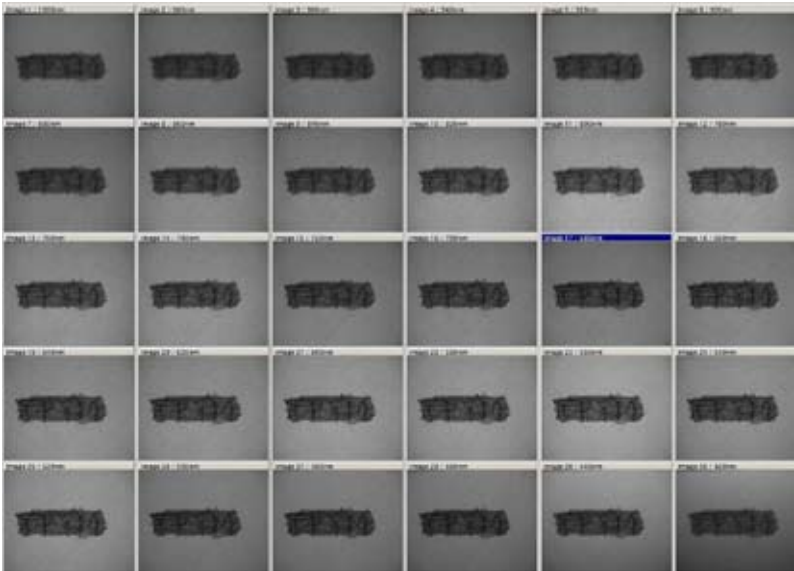


Fig.5. Hyperspectral images of Exhibit (b) (pencil writing obliterated with pencil) at 30 different wavelengths ranges from 400nm to 1000nm with a step of 20nm.



Fig.6. Hyperspectral images of Exhibit (c) (ball pen writing obliterated with ball pen) at 30 different wavelengths ranges from 400nm to 1000nm with a step of 20nm.

Results and Discussion

The observation of the experimental works shows that the Hyperspectral image spectrometry is a very advance and effective instrument which provides a comprehensive examination of obliterated writings. The tool facilitate to obtain spatial information of every points of subject by passing light of different wavelength, and get a image set of 30 thirty different wavelengths with an interval of 20nm. The Hyperspectral imaging of the exhibit (a) shows that the pencil writing obliterated with ball pen become visible from 700nm to 1000nm, in case of exhibit (b) where pencil writing obliterated with pencil become slightly visible at 540nm to 900nm and in the exhibit (c) where ball pen writing obliterated with ball pen become visible from 660nm to 740nm (Fig. 1 to Fig. 6) very precisely.

The subjects examined at few or single wavelength are usually not sufficient to observe the different spectral characteristics on a document. The spectral comparator like VSC-5000 has single point spectrum measurement i.e. one broad spectral band (only light intensity is measured) so it becomes unable to decipher

the extensive or nearly very similar type of ink obliterations but the tool hyperspectral image spectrometry allows numbers of (hyperspectral) narrow spectral bands i.e. wide field imaging to reveal the hidden content very precisely.

Conclusion

After the scientific examination of the exhibits, it has been seen that the instrument Hyperspectral Image Spectrometry have great potential for forensic document examination to reveal the hidden content in case of obliteration, where different type of writing media have been used. The techniques like hyperspectral imaging (HSI) used to decipher the obliterated writing are very remarkable and conclusive to form a definite opinion. The results are visually very effective for court presentation and explanation.

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Automated Teller Machine (ATM) Frauds and Security

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Keywords

ATM Frauds, ATM Security, Card Skimming, Shoulder surfing

Abstract

The growth of technology brought by the advent of Automated Teller Machines (ATMs) that occupies an important position in the internet banking and-banking portfolio. It has given the relaxed life to consumers allowing them to financial information; access the cash at "Anytime Anywhere Anyplace" without any problem. It offers a real convenience to those who are on the run in their everyday life, but at the same time, it also carries a big element of risk. Whatever benefits accruable to parties are almost lost through frauds perpetrated through card-related transactions on ATMs. This paper presents brief information related to type of ATMs frauds [i.e. Card Trapping, Cash Trapping/False Presentation, Social Engineering/Phishing, Malware, Operational Fraud (Dispenser Manipulation, Fraudulent Issuance & Fraudulent Placements), Physical Attack, Card Skimming & Shoulder surfing] and its security [i.e. Track ATM Fraud Elsewhere, Leverage on Technological Improvements, Address Human Resource Issues, Rethink What Constitutes Physical Security, Stock Management & Cyber Security, etc.] that provided a solution of still enjoying the dividends of ATM cards and its attendant vulnerabilities.

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Introduction

ATM uses have an important role in the e-banking in the India as well as in the world. The service of ATM has provided their customers an excellent life permitting their user to access cash and other necessary financial information. The concept of ATM is based on banking Anytime, Anywhere and Anyplace. It provides a genuine expediency to those persons who cannot travels or run daily life while carrying money. The crime related to ATM fraud is increasing with time and no one can show leniency in money related crime.

ATM is a terminal deployed by bank or other financial institutions or organizations, which enables the customers to make a balance enquiry, to make a money transfer, to deposit cash, to withdraw cash and other financial queries. The aim of ATM is to provide fast and convenient services to his customers and are basically self services banking terminals ⁽¹⁾.

ATMs have given a lot of relief in the financial sectors. Now a days no one has time to stand in line in the bank for cash withdrawal in front of clark. Even to customers, a major problem of financial transactions is too solved by Automated Teller Machines that costumers can take ⁽²⁾.

ATM card is a regular card that is used at any ATM to withdraw/ deposit money, check account balance and money/ funds transfers.

Authentication methods for ATM cards have little changed since a their introduction in the 1960's. Typically, this authentication design involves a trusted hardware device called as ATM card or token. Every users have a personal identification number (PIN) which is usually the means to verify the identity of the user. However, due to the limitations of such design, an intruder in possession of user's device can discover the user's PIN with brute force attack. In card cases, a typical four digit PIN, one in every 10,000 users will have the same number ⁽³⁾.

India's First ATM Fraud - The Chennai City Police have busted an international gang involved in cyber crime, with the arrest of Deepak Prem Manwani (22), who was caught red-handed while breaking into an ATM in the city in June last. The dimensions of the city cops' achievement can be gauged from the fact that they have netted a man who is on the wanted list of the formidable FBI (Federal Bureau of Investigation, United States). At the time of his arrest, he has ₹7.5 lakh knocked off from two ATMs in the city (T Nagar and Abiramipuram). Earlier he had walked away with ₹50,000 from an ATM in Mumbai. While investigating Manwani's case, the Chennai police stumbled upon a cyber crime involving scores of persons across the globe⁽⁴⁾.

ATM Fraud Trends – Cyber Expert, Mike Urban, Senior Director of Fraud Solutions at Fair Isaac says that, the reason behind ATM frauds is simple because criminals like cards and PINs. If any criminal trace the data behind magnetic stripe and PIN, then it is a free gift for criminal to withdraw the money from that account. There is no barrier, no making an authentic card to be used at a retails. While this crime is much harder to perpetrate, criminals prefer this over other types of crimes like credit card fraud, such as signature-based fraud⁽⁵⁾.

The front and back side of the ATM card shown in the **figure (1)**. Front side includes-

- Customer name
- Card number
- Validity of card
- Visa Flag/ Maestro and 3D hologram

The back side of the card includes

- Signature Panel
- Magnetic stripe
- Contact



Figure (1): Shows front and back side of an ATM card ⁽⁶⁾.

Types of cards

Bank cards available to a customer in India can be classified on the basis of their usage and payment by the card holder. There are three types of cards in India:

- Debit cards
- Credit cards
- Prepaid cards

The Usages of Debit Cards- The debit cards are used to purchase goods (shopping) withdraw cash from an ATM and services at Point of Sale (POS)/E-commerce (online purchase) both domestically and internationally (provided it is enabled for international use). So, this card can be used only for domestic fund transfer from one person to another.

The Usages of Credit Cards - The credit cards are used for the purchase of goods and services at Point of Sale (POS) and E-commerce (online purchase)/ through Interactive Voice Response (IVR)/Recurring transactions/ Mail Order Telephone Order (MOTO). Credit cards can be used for domestically and internationally (provided it is enabled for international use). It can be used to withdraw cash from an ATM and also for transferring funds to bank accounts, credit cards, debit cards, and prepaid cards inside the country.

The Usages of Prepaid Cards- The usage of prepaid cards depends on who has issued these cards. These cards issued by the banks can

be used to withdraw cash from an ATM, shopping in malls, purchase of goods and services at Point of Sale (POS)/E-commerce (online purchase) and for domestic fund transfer from one person to another person. Such prepaid cards are also known as open system prepaid cards. However, the prepaid cards issued by authorized non-bank entities can be used only for purchase of goods and services at Point of Sale (POS)/E-commerce (online purchase) and for domestic fund transfer from one person account to another account. Such prepaid cards are known as semi-closed system prepaid cards. These cards can be used only nationally.

Types of ATM Frauds

ATM fraud is a Global Problem, approximately every country facing this problem. Crimes at ATM's have become a nationwide issue that faces not only customers but also bank operators⁽⁸⁾.

3.1 Card Trapping- A crook installs something to block the cash from dispensing out of an ATM. A customer will then go inside the bank for help and will return to find the cash stolen by a thief.

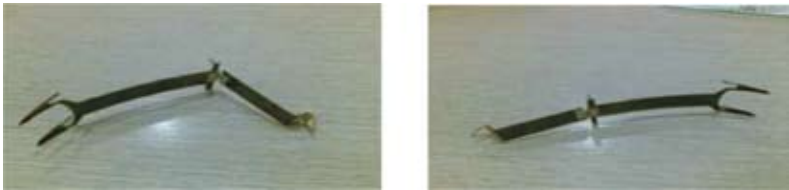


Figure (2): Card trapping device (9).



Figure (3): Use of trapping device in an ATM (10).

Cash Trapping/False Presentation⁽¹¹⁾-This fraud involves placement of money traps or false presenters in front of an ATM dispenser. During the course of an otherwise normal transaction, an ATM dispenses notes into the trap rather than present the money to the customer. Assuming the ATM has malfunctioned, the customer leaves. Now, again criminal returns, removes the money trap or false presenter, and then leaves with cash that was intended for the customer. Cash trapping commonly succeeds with insider involvement.

Operational Fraud (Dispenser Manipulation, Fraudulent Issuance & Fraudulent Placements),

Dispenser manipulation- In this type of operational fraud case, the ATM is set up to dispense big denominations as smaller ones, thereby giving out more money than should be dispensed. This is possible by insider help or remote commandeering.

Fraudulent issuance- Here, a bank employee deliberately issues the card(s) and PIN(s) to wrong claimants in disregard of the issuance verification procedures.

Fraudulent placements - This is a case where ATM card production requests are made without any sign of interest from the account owner. This is commonly done by bank employees.

Physical attacks ⁽¹²⁾ - Physical attacks are usually perpetrated to gain access to the cash and all valuable ATM components like presenter and depositor, the top hat and the safe, or in some other cases, the whole ATM. It depends on the fact that which component is targeted.

Because safe contains the cash and it is the first common target. The perpetrator's efforts focus on the locks, handles and hinges of the safe. In some cases criminals steal the ATM hard drive by attaching skimming devices or USB devices to download malware. The presenter and depositor can be subject to attacks where perpetrators attempt to access an ATM's cash sources (deposits) therefore they will use several methods: cutting (using gas cutter), drilling, pulling the safe door, burning devices (torch), using pry bars, bombs and

other explosive devices. Other physical attacks include attempt to remove the ATM and move it to another location (theft of ATM), ramming the ATM with a car or truck, pulling it by using a chain and a car, or lifting it by from its foundation with forklift.

Phishing - It is a common way of crime. Criminals use many types of fraud email to attract bank users by fake offers or fake websites. Using the technique of resembling, they resemble the original websites of many academics, financial or institutions and seduce the user by gifts and other awards and ask detail of his personal information such as account number, PIN number, credit card number or Security Authentication Key (all personal detail of user). The most common type of phishing e-mail purports to be a security message requesting user to validate his personal details or security questions. However, criminals use this technique and find the user details.

How to protect from phishing?

- Always memorize: Never access Internet Banking through any link in an e-mail address.
- Always use official website of bank and Internet Banking Retail Login page for secure internet banking. Bank sites are secured and a padlock symbol displayed in the original e-web page.
- Use a unique e-PIN so no one can trace it and change it regularly. Never show/give your e-PIN to anyone – not even to bank employees because bank employees are not always trusted.
- Be very suspicious of any e-mail or phone call received from a business or person that asks for your personal details like account or credit/debit card information, PIN number, personal ID number, passport, and unless you have initiated the transaction. Similarly, be careful of any communication that wants your personal information and asks you to update or confirm it.

- Activate SMS on your mobile number so that whenever any transition happens, a SMS comes on the user number.
- Continuously check your transactions. Review your order confirmations, credit card and bank statements as soon as you receive them to make sure you are being charged only for transactions that you have made. Immediately report any suspicion to bank.

Malware – Several cyber security and cyber crime researchers say that there are many malware codes having power to control the ATMs. Spider Labs, the forensics and research arm of TrustWave, found a Trojan family of malware that infected 20 ATMs in Eastern Europe. The researchers advise that any time when cyber war starts, then the malware may be also a tool for attack over the banks and credit unions, in the world. The criminals use malware to take over the ATM to steal data, PINs and cash.

Skimming- Skimming is a technique to access the data of ATM card (account information from credit or debit card). These informations is stolen by decoding the magnetic strip on the back of ATM card which has ATM data stored.

Skimming can happen in two ways: At the ATMs kiosk and at the shopping complex, shops or restaurants. At the ATMs kiosk, criminals use a device and this device is inserted in the ATM card slot. So, when any user insert his card then this skimming device extract all informations stored in the magnetic strip of card. This data is then wirelessly transferred to the criminals laptop or other device and then this information are used to make the cloned card and withdraw cash at overseas ATMs, or online shopping. In second method, card is swiped in many restaurants and shops. The card is swiped on the skimmer (to collect data) and then the card or electronic data capture machine to make a genuine change. But only employees of the shops or restaurants can do so. Skimming through ATMs is more dangerous⁽¹³⁾.

Shoulder Surfing- Shoulder surfing involves watching a person using an ATM pin pad. Criminals normally take his position, so he can

capture the entries of his / her PIN. Shoulder surfing is also possible through the installation and use of miniature video cameras aimed to record PIN entry.

Other types of crimes

Ghost ATMs - These ATM are be also called as “Ghost ATMs”. In this type of ATM transaction cannot, be performed because the ATM card reader is blocked by someone. So when any customer swipe his card in ATM and enters his PIN number, then ATM is unable to do transaction but card swiped and PIN number entered is present in the ATM. Criminals use this data and make a transaction from the ATM.

Ram Raids - Criminals continue to target ATMs in various ways, with “RAM” raids happening more often in the US. Ram raids are used by criminals who physically break down the ATM from any place like any institution or public place. In Texas, the number of ram raids has spurred institutions to cooperate with law enforcement, and a special task force has been formed to fight the raiders criminal. The opportunity that some non-hardened criminals see is an external ATM that can be pulled out, loaded with money. “So in terms of crimes of opportunity, people feeling desperate will attempt this crime.”

PIN ID's - One of the other trends noticed is where criminals are testing systems to identify PINs. It is also a similar technique where the criminal captures the data by using a magnetic stripe. They then go to an online bank site with a script written on several well known PINs, and run it against the site until they get a match.

Automated PIN Changes - Another trend seen is when criminals go through the financial institution's telephone banking service to change PIN numbers. By using the ANI to change the information on the phone they appear like they are calling from the consumer's phone. If these type of criminals find the basic information of a card holder like, user name, card account number, last four digits of the social security code then they're trying to take that information and go to the call center and change the PIN number

over the phone. Thus, while more time-consuming, the overhead cost is cut to near nothing other than their own work to deceive the bank call center. Now, by using this changed PIN, the criminals create the account.

SMS attacks - “Smishing” is the attack that comes through the Short Message Service (SMS) or text site on a smart phone or a cell phone. In this technique criminals target the persons and ask for his personal details such as account number, and PIN. When criminal finds the information makes then he makes the clone of ATM or debit card and withdraws the money.

Pharming- As similar in nature to e-mail phishing, pharming seeks to obtain personal or private information (usually financial related) through domain spoofing. This is made by using a spammed with malicious and mischievous e-mail and request user to visit spoof links or websites which appear legitimate, pharming ‘poisons’ a DNS server by infusing false information into the DNS server, resulting in a user’s request being redirected elsewhere. Users browser, however, will show that he is at the correct website, which makes pharming a bit more serious and more difficult to detect. Phishing attempts to scam people one at a time with an e-mail while pharming allows the scammers to target large groups of people at one time through domain spoofing.

Solutions for safe use of ATM

Track ATM fraud everywhere- The Banking Industry must consider a global view of ATM fraud by tracking crimes related to ATMs in every part of the world, and proactively develop solutions to minimize their materialization and the related losses.

Leverage on technological improvements- Deployment of biometric capabilities in ATMs authentication systems. With biometrics, fraudulent incidents can be minimized, as an added layer of authentication is introduced that ensures that even with the correct pin information and possession of another person’s ATM card, the user’s biometric features cannot easily be faked. Migrate

to EMV-chip based card readers as magnetic strip is vulnerable to skimming. Activate E-alerts so as to notify the account owner of movement on his/her account, especially debits. Consider viable ink stain technologies that will ruin and make unusable any discarded banknotes.

Address human resource issues- Train the staff handling card requests and PIN issuances. Establish clear job descriptions and accountabilities for the staff handling card/PIN requests and issuances. Review remuneration of front office staff.

Rethink what constitutes Physical security- Engage the firms providing physical security to interest them into broadening their understanding of security requirements that are adaptive to human behavior. Use of effective surveillance systems; CCTVs, sensors that detect physical attacks, especially in remote location

Stock management- Institute effective oversight over card operations, origination, production, storage and issuance. Consider stock management and tracking systems.

How to protect yourself?

In the case of e-banking and ATM using, security is must because money loss is a big shock for a user. Only care and security can make a customer safe. Few points for a safe banking:

- A- In the case of using an Internet Explorer 7 by customer and the address bar turns RED, then do not continue, as this is an indication that you are connected with a fake website.
- B- User can also confirm that he is connected to the right server not with a fake site by clicking on the gold padlock icon and then click on "View Certificates" to see you are connected to the right server or not.
- C- If user suspects that he is a victim of phishing, pharming or any other cyber crime, then immediately report the incident to bank.

Tips for a secure use of ATM

The secure use of ATM is a tough issue for a customer. It depends on following points ⁽¹⁴⁾-

- A. Choosing of ATM
- B. Using an ATM
- C. Managing ATM Use

Choosing an ATM

- If possible, use ATM's which is used by many users. Otherwise, choose well-lit, well-placed ATM's where user feels comfortable.
- Look at the whole ATM area before approaching it. In general avoid using the ATM if there are any suspicious looking individuals around or if it looks too isolated or unsafe.
- Avoid opening your purse, bag or wallet while in the queue for the ATM. Have your card ready in your hand before you approach the ATM.
- Notice if anything looks unusual or suspicious about the ATM indicating it might have been altered. If the ATM appears to have any attachments to the card slot or keypad, do not use it.
- Check for unusual instructions on the display screen and for suspicious blank screens. If you suspect that the ATM has been tampered with, proceed to another ATM and inform the bank.
- Avoid ATM which has messages or signs fixed to them indicating that the screen directions have been changed, especially if the message is posted over the card reader.
- Banks and other ATM owners will not put up messages directing you to specific ATMs, nor would they direct you to use an ATM, which has been altered.

Using an ATM

- Be especially cautious when strangers offer to help you at an ATM, even if your card is stuck or you are experiencing difficulty with the transaction. You should not allow anyone to distract you while you are at the ATM.
- Check that other individuals in the queue keep an acceptable distance from you. Be on the lookout for individuals who might be watching you enter your PIN.
- Stand close to the ATM and shield the keypad with your hand when keying in your PIN (you may wish to use the knuckle of your middle finger to key in the PIN).
- Follow the instructions on the display screen, and do not key in your PIN until the ATM requests you to do so.
- If you feel the ATM is not working normally, press the Cancel key and withdraw your card and then proceed to another ATM, reporting the matter to your financial institution.
- Never force your card into the slot.
- Keep your printed transaction record so that you can compare your ATM receipts to your monthly statement.
- If your card gets jammed, retained or lost, report this immediately to the bank and/or police using the help line provided or nearest phone.
- Do not be in a hurry during the transaction, and carefully secure your card & cash in your wallet, handbag or pocket before leaving the ATM.

Managing ATM Use

- Always memorize PIN and if required to write PIN, then use a disguised writing and always keep it secure in a safe place. Never carry your PIN number in a written form.
- Never disclose your PIN to anyone, whether to family member, bank staff or police.
- Do not use obvious and guess numbers for PIN like your date of birth.

- Change your PIN from time to time and, if you think it may have been compromised then change it immediately.
- Set your daily ATM withdrawal limit at your branch at the level you consider reasonable.
- Regularly check your account balance and bank statements and report any discrepancies to your bank immediately.

Conclusion

ATM safety is a priority work of banks but it cannot be successful without the information and support of customers. Every ATM fraud case must be registered and investigated by special cell of cyber experts and police officers. A better awareness can ensure the secure use of ATM.

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