Self-perceived psychological factors contributing to road rage at Empangeni in KwaZulu-Natal

By
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A dissertation submitted in partial fulfillment of the requirements for the degree of Master of Arts (Counselling Psychology) in the Department of Psychology, University of Zululand.

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Declaration

This is to declare that this dissertation, titled: **A study on self-perceived psychological factors contributing to road rage at Empangeni area**, represents my own work both in conception and in execution. All sources that I have used or quoted have been indicated and acknowledged by means of complete references.

_______________________  
Vuyani Vitalis Nyezi (Mr.)

_______________________  
Date
Dedication

I dedicate this dissertation to my sister Nosipho Nyezi. I am what I am today because of your sacrifice and believing in me.
Acknowledgement

First and foremost, I want to thank my Heavenly father for all opportunities, resources and strength to complete this dissertation. In addition to God’s help, I would like to express my sincere gratitude to those who have contributed in varied ways to the completion of this study.

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Abstract

The main objective of this study was to find out the self-perceived psychological factors that may contribute to road rage in Empangeni. A phenomenological approach was adopted in this study to facilitate the understanding of the information gathered. The sample consisted of 10 participants, 9 males and 1 female. All participants were the drivers. Open-ended questions were asked from the participants.

The findings of this study revealed the following themes: impatience, frustrations and anger; substance abuse contribution to bad driving; bad mood leading to aggressive driving; disrespecting other road users; poor compliance with the rules of the road; prolonged hours of driving leading to fatigue; family and work related problems impacting on drivers; attention and focus; gender issues; and bad driving viewed on media (television) impacting on drivers. The study concluded with a brief discussion on the limitations of the study and recommendations for future research.
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CHAPTER ONE
INTRODUCTION TO THE STUDY

1.1. Introduction

This is a study which has not received a lot of the attention especially within the South African context. The phenomenon of road rage is perceived to be growing all over the world probably caused by the increase of cars on the road and so increased traffic congestion and the high levels of stress in modern life. There are regular media reports on this issue and survey findings in Britain indicate that the majority of drivers have been subjected to some form of road rage behavior (Marshall & Thomas, 2000).

The concept of road rage, however, is not new and was already identified in the 1960s as a problem. There is no widely accepted definition of the term road rage, but it is now commonly associated with any form of aggressive driving from verbal abuse, obscene gestures, tailgating, hooting repeatedly, flashing lights, cutting in the traffic driving slowly in the passing lane, going through red traffic lights, to more serious incidents that result in violence, damage and death. Road rage is an increasing problem. The United States (US) government has named `aggressive drivers' as one of the most serious transportation problems facing legislatures today (James, 1997).

Road rage is the cause of many accidents and there have been instances of murder, too. In Cape Town for instance, there was a man who was beaten to death with a hockey stick. James (1997) defines road rage as a `persistent state of hostility behind the wheel, demonstrated by acts of aggression on a continuum of violence, and justified by righteous indignation. In short, road rage is a term used to refer to violent behavior violence exhibited by drivers in traffic.
1.2. Theoretical Background to the study

South Africa has a very high road accident rate. According to the Auto-mobile Association (AA) Traffic Safety Audit (1998), South Africa had the third highest road fatality rate of 20 countries examined in their study. One of the possible contributory factors to the high accident and injury rate is road rage (Ballenger, 1999).

More than half (54%) of South African drivers claim to have been on the receiving end of aggressive or threatening driving behavior in the past 12 months. This has dropped from a previous survey conducted in August 2005 that 67% of those interviewed reportedly experienced some aggressive behavior at them in the most recent 12 months. At the time, more than one in ten people (11%) reported experiencing aggressive behavior where the person actually got out of their vehicle to threaten them (Ballenger, 1999). This has dropped marginally to 8% in May 2007.

The AA Foundation for Traffic Safety found that between 1990 and 1996 road rage contributed to 218 deaths and 12,610 injuries. The study analyzed 10,037 police reports and newspaper stories about traffic accidents that led to violence. What is more, this AA foundation also found that road rage incidents increased nearly 7 percent each year within that six-year period. Some experts blame the increase on longer commutes, which have led to more people on the roads (Ballenger, 1999).

According to Deffenbacher and Lynch (2003) who found out what instigates more road rage, they compared aggressiveness, risk-taking and personality traits of high-anger drivers with those of low-anger drivers, those who focus their attention on safe driving, rethink anger-provoking situations in less negative ways and use calming or distracting behaviors, such as turning on the radio.

Deffenbacher and Lynch (2003) revealed that high-anger drivers:

- Engage in hostile, aggressive thinking.
- Take more risks on the road.
- Get angry faster and behave more aggressively.
• Have more accidents.
• Experience more trait anger, anxiety and impulsiveness.

Anger is not a chronic experience for high-anger drivers, but something prompted by different triggers or events on the road. It's about encountering provocations events on the road that are frustrating and provoking in some way and then what they bring to the wheel that determines how angry they will get (Deffenbacher & Lynch, 2003)

1.3. Objectives of the Study

The objectives of the study were as follows:

- To find out self-perceived psychological factors that contribute to road rage.
- To investigate the views and comments of drivers about the road rage.
- To find out the drivers’ experiences of road rage around the area.
- To promote tolerance and understanding amongst other drivers in relation to the understanding of events that may lead to aggressive driving.

1.4. Motivation of the Study

The researcher was highly motivated through the observations made a few years ago in the Empangeni main roads on aggressive driving. The current researcher wanted to find out if there were any psychological factors contributing to such bad behavior which resulted in high accident rates within the area.

1.5. Research methodology

The study adopted a qualitative approach which allowed for a rich and detailed description of participants’ experiences. The researcher planned to develop a phenomenological question which allowed participants a space to answer more fully or freely the aspects of their experiences about road rage. This allowed for personal interpretations and perceptions as well as the actual nature of the participants experiences to emerge (Barker, Pistrang & Elliot, 1994)
The accidental technique was used in this study. The sample consisted of 10 University of Zululand students who are always driving in different areas of Empangeni and who were willing to share their views and experiences on the concept of road rage. On accidental sampling, the selection is based on availability or ease of inclusion. The interviewer selected whoever was willing to talk and the sample was further made accidental by selecting the most intelligible participants (Dane, 1990).

Once the data had been collected a phenomenological approach was used to analyze the data. In conjunction with the above approach an interpretive form of analysis was used to extract common themes that emerge from participants’ views and experiences (Denzin & Lincoln, 2000).

1.6. Resumé

This chapter has discussed the introductory part of the research study. The next chapter will look at the literature review to understand the concept of road rage and most importantly the underlying self-perceived psychological factors from different previous researchers who made thorough investigations on the research topic or related articles about road rage.
CHAPTER TWO
LITERATURE REVIEW

2.1. Introduction

This chapter presents a review of literature which examines or determines what is already written and known about the topic to be studied so that a comprehensive picture or understanding of the state of knowledge on the topic can be obtained.

2.2. Overview of road rage

"Road Rage" is a term that is believed to have originated in the United States. In its broadest sense it can refer to any display of aggression by a driver. However, the term is often used to refer to the more extreme acts of aggression, such as a physical assault, that occur as a direct result of a disagreement between drivers (Joint, 1995). The response to a stressful situation may often be anger. When we are confronted by a frustrating situation we often resort to aggression. This is often no more than verbal abuse. However, there are circumstances in which we may resort to physical violence.

Joint (1995) further stated that in the late 1980s, drivers in the United States, were apparently frustrated by increasing congestion, hence they began fighting and shooting each other on a regular basis, victims of what the popular press termed "road rage." There is nothing to suggest that road rage is distinct from any other form of anger. But for many of us driving has become one of the most frustrating activities we are regularly engaged in.

The term road rage has become common vernacular to describe any displays of anger while driving, although such displays are also referred to as “angry or aggressive driving.” Angry or aggressive driving may range from mild displays of anger, such as following too closely on another driver’s bumper, to more serious forms of violence, such as physical assault and vehicular homicide. There is some evidence to suggest that milder forms of aggressive driving
may escalate into more serious incidents (Novaco, 1991). Whereas a considerable amount of attention in the counseling literature has been devoted to the assessment and treatment of maladaptive anger in general, little attention has been paid to the specific case of driving anger. Driving anger may be in need of more attention, especially given that anger may be experienced more frequently, while driving than during other activities. Consequences of road rage include negative outcomes associated with aggressive expression of anger as well as greater risk of hazardous driving, traffic violations, and accidents (Novaco, 1991).

2.3. Basic definitions

2.3.1. Human aggression

*Human aggression* is any behavior directed toward another individual that is carried out with the *proximate* (immediate) intent to cause harm. In addition, the perpetrator must believe that the behavior will harm the target, and that the target is motivated to avoid the behavior (Bushman & Anderson, 2001, Baron & Richardson, 1994, Berkowitz, 1993, Geen, 2001). Accidental harm is not aggressive because it is not intended. Harm that is an incidental by-product of helpful actions is also not aggressive, because the harm-doer believes that the target is not motivated to avoid the action (e.g., pain experienced during a dental procedure). Similarly, the pain administered in sexual masochism is not aggressive because the victim is not motivated to avoid it indeed; the pain is actively solicited in service of a higher goal (Baumeister, 1989).

2.3.2. Frustration

The word frustration is one of the many psychological concepts originating in everyday speech that is all too susceptible to radically different meanings (Amsel, 1958). Frustration is the blocking or prevention of a potentially rewarding or satisfying act or sequence of behavior; or the emotional response to such hindrance (Colman, 2006).
2.3.3. Frustration and aggression

Dollard, Doob, Miller, Mowrer and Sears (1939), started their monograph with a sweeping generalization as their core assumption: "Aggression is always a consequence of frustration". This statement means, they were quick to note, that (a) "the occurrence of aggressive behavior always presupposes the existence of frustration" and (b) "the existence of frustration always leads to some form of aggression".

2.3.4. Aggressive driving

Is defined in this study as an incident in which an angry or impatient motorist or passenger intentionally injures or kills another motorist, passenger, or pedestrian, or attempts to injure or kill another motorist, passenger, or pedestrian, in response to a traffic dispute, altercation, or grievance. It is also considered "aggressive driving" when an angry or vengeful motorist intentionally drives his or her vehicle into a building or other structure or property (Mizell, 1997).

2.3.5. Road rage

According to Smart, Asbridge, Mann and Adlaf (2003), there is no general accepted definition of road rage, although it has been defined as a situation where a driver or passenger attempts to kill, injure, or intimidate a pedestrian or another driver or passenger or to damage their vehicle in a traffic incident. A grossly disproportional outburst of aggression by the driver of a motor vehicle in response to a perceived discourtesy or transgression by another road user, sometimes indicative of an * intermittent explosive disorder or other form of * impulse-control disorder (Colman, 2006).

2.3.6. Violence

Violence is aggression that has extreme harm as its goal (e.g., death). All violence is aggression, but many instances of aggression are not violent. For example, one child pushing another off a tricycle is an act of aggression but is not an act of violence (Berkowitz, 1993, Geen, 2001).
2.3.7. Hostile vs. Instrumental Aggression

*Hostile aggression* has historically been conceived as being impulsive, thoughtless (i.e., unplanned), driven by anger, having the ultimate motive of harming the target, and occurring as a reaction to some perceived provocation. It is sometimes called affective, impulsive, or reactive aggression. Instrumental aggression is conceived as a premeditated means of obtaining some goal other than harming the victim, and being proactive rather than reactive (Berkowitz, 1993, Geen, 2001). Their recent analysis Bushman and Anderson (2001) modified these definitions in two ways. First, they distinguish between proximate and ultimate goals. They view intention to harm as a necessary feature of all aggression (as in purely hostile aggression models), but it is necessary only as a proximate goal. Second, they distinguish between different types of aggression at the level of ultimate goal. Thus, both robbery and physical assault are acts of aggression because both include intention to harm the victim at a proximate level. However, they typically differ in ultimate goals, with robbery serving primarily profit-based goals and assault serving primarily harm-based goals. In short, their definition allows them to discuss the commonalities in and distinctions between affective and instrumental aggression, while including aggression that has mixed motives.

2.4. Genetic Factors in Aggression

There are several ways in which genetic factors in aggression have been investigated. In the 1960s and 70s a popular theory was that males who have inherited an extra Y chromosome are more 'male' and therefore, more aggressive; however, this hypothesis as been shown to be incorrect. Nevertheless, animal breeding studies consistently show that it is possible to select for aggressiveness and twin and adoption studies in humans suggest that genes influence aggressive behaviour; more recently, psychologists and biologists have developed a better understanding of how genes can influence behaviour by using new technology to investigate the genetic mechanisms that lead to increased aggressiveness (Ratcliffe 1994, cited in Anderson and Bushman, 2002).
2.4.1. XYY Karyotype

During the 1960s chromosome studies on 315 patients in a maximum security hospital for patients with dangerous, violent, or criminal propensities in Carstairs, Scotland. Out of the 315 patients, 15 were found to have chromosomal abnormalities, including 9 who had an extra Y chromosome. Since the Y chromosome is the male sex chromosome and the incidence of XYY in the general population is 1 in 1000, this suggests that having an extra Y chromosome may have predisposed these men to increased aggressive behaviour. Nevertheless, six other patients in the sample had chromosomal abnormalities, including one with XXY karyotype and one with a condition known as mosaicism, where one individual has more than one set of genes (Milunsky, 2000 cited in Anderson and Bushman, 2002),

Further research into the XYY karyotype has revealed that although XYY participants are on average taller than the general population, there is no evidence of increased aggression or higher than average testosterone levels. This suggests that the XYY karyotype is not related to aggression at all (Ratcliffe 1994, cited in Anderson and Bushman, 2002).

2.4.2. Heritability Studies

Research on humans has also supported the notion that genes are an important factor in aggressiveness. Anderson and Bushman (2002), citing Rutter (1990) carried out a meta-analysis of twin studies on criminality and found that dizygotic twins have concordance rates between 13 & 22%, while Monozygotic Twins have concordance rates between 26 & 51%. Since both types of twins grow up together in the same environment, the differences between the two are likely to be due to genetics. However, it is important to consider that as monozygotic twins do not show a 100% concordance rate there must be an environmental contribution to aggressiveness.

Anderson and Bushman (2002), citing an adoption study by Mednick, Gabrielli and Hutchings (1987) shows an interesting interaction between genes and the environment. The researchers studied the criminal records of all Danish children adopted outside their biological family between 1924 and 1947. They reasoned that if the criminal records of adopted children were
more similar to those of their biological parents than their adopted parents then this would suggest a genetic component in aggression. The results did show that having a criminal biological father increased the risk of criminality, but the highest risk was for those with a criminal biological father and a criminal adoptive father.

The heritability studies above, although providing support for a genetic contribution to aggressiveness are limited in that they studied criminality, rather than aggressiveness and not all crime is violent. In fact, Anderson and Bushman (2002), citing Mednick et al (1987) reported that the largest effect in their study was for non-violent crime.

2.4.3. Molecular Genetics

New technology has enabled researchers to examine DNA at the molecular level. Researchers are now able to investigate the proteins a particular sequence of DNA codes for, which cells in the body express those proteins and the role of that protein in the body. Molecular geneticists are then able to collaborate with psychologists to examine any effects of genetic differences on behaviour. This type of research has produced a number of breakthroughs in the effect of genes on aggressive behaviour (Rutter, 1990 cited in Anderson & Bushman, 2002).

2.4.4. Mono Amino Oxidase A gene Promotor

The pro-motor region of a gene is a sequence of DNA that promotes gene transcription, which is the first step in the process of gene expression; gene expression is the process by which a gene creates a protein. Differences in the pro-motor region of the MAO-A gene have been associated with increased aggressiveness. The MAO-A gene produces Monoamine Oxidase, a chemical that is involved in the breakdown of the neurotransmitters serotonin, dopamine and norepinephrine in synapses.

There are a number of versions (alleles) of this gene, each with a different number of repeats of a particular sequence of DNA in the pro-motor region. The number of repeats of this sequence determines the amount of MAO produced. The shorter version (2 repeats), which produces less
MAO, is associated with high aggression and has been called the “warrior gene” by some researchers (Moffat, 2000 cited in Anderson and Bushman, 2002).

It is thought that having too little MAO leads to the brain being flooded with too much serotonin, norepinephrine and dopamine, which eventually leads to a lowered sensitivity to these neurotransmitters. Other studies have shown low serotonin activity to be associated with aggression and this fits with the data, as low sensitivity is equivalent to low activity.

Anderson and Bushman (2002), citing Moffat (2000) conducted a longitudinal study of 422 males in New Zealand. He studied their history of abuse and criminal convictions, their penchant for violence and any symptoms of antisocial personality disorder. His findings showed that the 2 repeat MAOA allele did increase the risk of being convicted of a violent crime; however, this was only when participants also suffered abuse as children. This is a clear example of a gene-environment interaction, the gene only exerts its effect in particular environmental conditions.

Anderson and Bushman (2002), citing a more recent research by Guo (2001) has revealed further insights into the effect of genes on aggression. Saliva samples were taken from 1,100 males in grades 7 through 12 whose DNA and social-control measures were available through the National Longitudinal Study of Adolescent Health. Anderson and Bushman (2002), citing Guo (2001) found similar results to Moffat (2000) with the two-repeat MAOA allele being associated with violent delinquency, but only when participants experienced failure at school and had to repeat a year.

Anderson and Bushman (2002), citing Guo (2001) also found that that an allele of a DRD2 gene (178/304) was associated with violent delinquency. The DRD2 is the gene that manufactures the D2 dopamine receptor. A gene environment interaction was also found with the DRD2 gene: there was only an association with delinquency when parents did not have regular meals with the adolescents. Having only one biological parent at home also dramatically increased the rate of delinquency in those with the 178/304 allele. This suggests that parental involvement in the
child's development is a critical factor in those with this particular genetic risk factor for aggression.

Another gene identified by the Anderson and Bushman (2002), citing Guo (2001) study was the DAT1 gene, which codes for a dopamine transporter. Transporters remove neurotransmitters from synapses and stop them exerting their action. The research showed that inheriting a 9 repeat allele of DAT1 from both parents lowered the incidence of aggressive and risky behaviour.

2.5. Biological factors of aggression

2.5.1. Hormones & Aggression

2.5.1.1. Testosterone, aggression and dominance

A research conducted by Kreuz and Rose (1972) has found higher levels of testosterone, a male sex hormone, as associated with higher levels of aggression in various animal species, including rats and primates. Many studies have shown high testosterone levels are associated with aggression, antisocial behavior, and violent criminal behavior. Among young men, beginning criminal activities at an early age appears to be correlated with higher testosterone levels (Kreuz & Rose, 1972). Although the relationship between aggression and testosterone is robust, some researchers have suggested it is not so simplistic (Dabbs & Ruback, 1988). Testosterone is related to various other behaviors and experiences that may be tied together in a broader theory of dominance. For example, higher testosterone levels are related to success in athletic and nonathletic competition. Success in athletic and nonathletic competition has also been found to be related to increases in testosterone over the course of the competitive event. Studies (Olweus, 1983) suggest that testosterone may actually correlate with dominance. Support may also be found for Berkowitz's contention that aggression is simply one way to attain dominance (Dabbs & Ruback, 1988) and that socialization may influence the specific behaviors used to gain dominance.
Testosterone is an androgen. It is made by Leydig cells in the male testis, as well as the adrenal cortex and ovary of both sexes. Testosterone in men is secreted into the bloodstream in spurts, so levels can change dramatically within minutes. The hormone is released in a circadian rhythm in both sexes, highest and most variable in the morning, lower and more stable during the afternoon. Synthetic testosterone such as testosterone propionate is a synthetic drug which is absorbed more easily, and has longer lasting effects than the naturally occurring hormone.

Testosterone has

- **androgenic** (masculinizing) effects
- **anabolic** (protein tissue building) exploited by athletes to build muscle mass, reduce fat, and improve performance

There is evidence that androgens affect aggression:

- aggression and androgen levels covary on a seasonal basis - e.g. red deer
- aggression increases with increased levels of androgen at puberty (Dabbs & Ruback, 1988).

Dabbs and Morris (1990) found that antisocial behavior in individuals with high testosterone levels was moderated by socioeconomic status (SES). Among military veterans of high SES, high testosterone levels did not predict significantly higher risk of engaging in antisocial behaviors. The evidence for testosterone's influence on dominant and aggressive behavior is clear. The mechanism for this influence is a subject for further discussion. Some neurotransmitters have been implicated in aggressive and dominant behavior. Of these, serotonin in particular has received a great deal of attention.

### 2.5.2. Neurotransmitters & Aggression

#### 2.5.2.1 Serotonin, aggression and dominance

An inverse correlation between serotonin (5-HT) and aggression was first reported in the 1950s. Since that time, studies in both humans and animals have confirmed this robust relationship,
particularly in certain types of aggression. Impulsive aggression is associated with reduced activity in the 5-HT systems. Dabbs and Morris (1990) cited studies that indicate reduced 5-HT activity may increase the likelihood of aggression in response to unpleasant stimuli by lowering the threshold for aggressive response. Many studies have linked 5-HT and its metabolite 5-HIAA to aggression and antisocial behaviors. Brown, Goodwin, Ballenger, Goyer, and Major (1979) found a life history of aggression was inversely correlated ($r = -.78$) with 5-HIAA levels in cerebrospinal fluid (CSF) in 24 male naval recruits with personality disorders (Dabbs & Morris, 1990).

In support of the impulsive aspect of the link between aggression and serotonin, Coccaro cited several studies. For example, males who murdered their sexual partners had lower CSF 5-HIAA levels compared with males who murdered people other than their sexual partners. Virkkunen, Nuutila, Goodwin, and Linnoila (1987) found impulsive arsonists had lower CSF 5-HIAA levels than other criminals and found an inverse correlation with criminal acts ($r = -.46$). In summarizing the reviewed studies, Coccaro proposed reduced serotonin activity reduces the activity of the neuronal processes that inhibit aggression. He described the resulting state as hyperresponsivity to aversive stimuli (Dabbs & Morris, 1990).

Serotonin levels are affected by dominance rank.

- 5-HT level is higher in dominant than subordinate male vervet monkeys
- Removing dominant male changes dominance hierarchy within remaining animals.
- New dominant male shows increase in his 5-HT level.
- Restoring previously dominant male provokes restores original 5-HT levels (Dabbs & Morris, 1990).

**2.5.2.2. Interactions between testosterone and serotonin**

Studies by Bonson and her associates have examined the combined influences of testosterone and serotonin on dominance in rats (Bonson & Winter, 1992). They found that increased testosterone increased the dominance behavior of naturally nondominant rats. Furthermore, they found that administration of a serotonin agonist (booster) reversed the influence of the increased
testosterone, returning these rats to nondominant status. They scried what they considered to be an operationalization of aggression, which they then equated to dominance. (As the previous discussion suggests, however, it may not be appropriate to equate dominance and aggression.) They used a model for rat aggression based on studies by Gentsch (1988) and other investigators. In this model, two rats trained to obtain sugar pellets from a very small dish are put in a cage simultaneously. Dominance is defined as one rat of the pair successfully obtaining 20 of the 30 pellets delivered in a session. Although some of the reported behaviors used to obtain pellets were classic examples of aggressive rat behavior, many times the behaviors were not necessarily aggressive. For example, the dominant rat would engage in "headweaving" behavior to obtain the pellet (Bonson & Winter, 1992).

2.6. Neuropsychology of Aggression & Fear

2.6.1. Brain and aggression

Hypothalamus

- Studied rage in cats with lesions that detached 'higher' from 'lower' parts of the brain. They concluded that the hypothalamus organizes attack behaviour and the cerebral cortex normally inhibits the release of aggression.
- In the 1960s Flynn found that electrical stimulation of lateral hypothalamus elicits predatory aggression in cats, whereas stimulation of the medial hypothalamus elicited vicious attack behaviour.

Amygdala

- lesioning amygdala has 'taming' effect in animals - The Kluver-Bucy Syndrome 1939
- the role of the amygdala is complex. Some studies report that amygdalectomy increases aggression others report that it has a taming effect. The amygdala may modulate output from the hypothalamus. Eggar & Flynn found that (1) attack behaviour produced by
stimulating the hypothalamus can be inhibited by stimulating the basomedial nucleus of the amygdala. (2) attack behaviour produced by stimulating the hypothalamus can be facilitated by stimulating the lateral nucleus of the amygdala.

- amygdalectomy reduces violent human behaviour - side effect - loss of emotion
- temporal lobe epilepsy - which involves the amygdala - can involve violent behaviour
- rabies is caused by a virus that damages the temporal lobe. Rabid animals are violently aggressive.
- amygdalectomy can disrupt dominance hierarchies in monkeys -
- Autopsies of Charles Whitman who carried out a sniper attack from the University Tower at Texas in 1966, showed he had a tumor pressing on his amygdala (Christie & Barfield, 1972)

**Fear and the amygdala**

The central nucleus of the amygdala may be a control centre for fear, receiving fear-related sensory information and transmitting fear-related motor instructions.

Christie and Barfield (1972) suggest that the amygdala receives input from three areas: the thalamus, cortex and the hippocampus. Certain brain structures have interactions with serotonin and testosterone. The hypothalamus and amygdala are prominently associated with both testosterone and serotonin. Serotonin in particular has been shown to be influential in various brain structures involved in aggression. Consistent with the importance of the hypothalamus for regulating eating behavior and aggression, studies have shown that diet affects the level of 5-HT in the hypothalamus. First, serotonin comes from tryptophan, an amino acid that is available only from food.

A diet low in tryptophan increases predatory aggression. Second, overall dietary satiation seems to increase serotonin levels. In these studies, higher levels of 5-HT and 5-HIAA in the hypothalamus and amygdala were associated with decreased aggression. Testosterone has also been implicated in aggression through actions in certain brain structures. Studies have shown testosterone action in the amygdala is associated with aggressiveness between males and that the hypothalamus and amygdala both have many receptor sites for testosterone. Christie and Barfield
(1972) found that implants of testosterone in the hypothalamus restore aggressive behavior in castrated rats.

2.7. DOMAIN SPECIFIC THEORIES OF AGGRESSION

Main theories of aggression guide most current research. The theories themselves overlap considerably, which is what instigated early attempts to integrate them into a broader framework (Anderson, Deuser & DeNeve, 1995).

2.7.1. Cognitive Neoassociation Theory

Berkowitz (1989, 1990, 1993) has proposed that aversive events such as frustrations, provocations, loud noises, uncomfortable temperatures, and unpleasant odors produce negative affect. Negative affect produced by unpleasant experiences automatically stimulates various thoughts, memories, expressive motor reactions, and physiological responses associated with both fight and flight tendencies. The fight associations give rise to rudimentary feelings of anger, whereas the flight associations give rise to rudimentary feelings of fear. Furthermore, cognitive neoassociation theory assumes that cues present during an aversive event become associated with the event and with the cognitive and emotional responses triggered by the event. In cognitive neoassociation theory, aggressive thoughts, emotions, and behavioral tendencies are linked together in memory (Collins & Loftus, 1975). Concepts with similar meanings (e.g., hurt, harm) and concepts that frequently are activated simultaneously (e.g., shoot, gun) develop strong associations. When a concept is primed or activated, this activation spreads to related concepts and increases their activation as well.

Cognitive neoassociation theory also includes higher-order cognitive processes, such as appraisals and attributions. If people are motivated to do so, they might think about how they feel, make causal attributions for what led them to feel this way, and consider the consequences of acting on their feelings. Such deliberate thought produces more clearly differentiated feelings of anger, fear, or both. It can also suppress or enhance the action tendencies associated with these feelings. Cognitive neoassociation theory not only subsumes the earlier frustration aggression
hypothesis (Dollard et al, 1939), but it also provides a causal mechanism for explaining why aversive events increase aggressive inclinations, i.e., via negative affect (Berkowitz, 1989). This model is particularly suited to explain hostile aggression, but the same priming and spreading activation processes are also relevant to other types of aggression.

2.7.2. Social Learning Theory

According to social learning theories Bandura (1983, 2001), Mischel (1973, 1999) and Mischel and Shoda (1995), people acquire aggressive responses the same way they acquire other complex forms of social behavior either by direct experience or by observing others. Social learning theory explains the acquisition of aggressive behaviors, via observational learning processes, and provides a useful set of concepts for understanding and describing the beliefs and expectations that guide social behavior. Social learning theory especially key concepts regarding the development and change of expectations and how one construes the social world is particularly useful in understanding the acquisition of aggressive behaviors and in explaining instrumental aggression. For example, Patterson’s work on family interactions and the development of antisocial behavior patterns relies heavily on this approach (Patterson, DeBaryshe & Ramsey, 1989).

Bandura (1977) also argues that people learn to behave aggressively through reinforcement and observation. There are numerous examples of reinforced human aggression:

- Controlled aggression in sport is usually required to win
- Aggressive children often get their own way with other children
- In many societies male dominance and aggression is respected and prized.

Bandura further argue that aggressive behaviour tends to be more prevalent in situations where aggressive role models are present. For example:

- Aggressive and delinquent children tend to have parents who frequently display (model) aggressive behaviour.
- Parents who abuse their children tend to be victims of abuse themselves.
2.7.3. Script Theory

Huesmann (1986, 1998) proposed that when children observe violence in the mass media, they learn aggressive scripts. Scripts define situations and guide behavior: The person first selects a script to represent the situation and then assumes a role in the script. Once a script has been learned, it may be retrieved at some later time and used as a guide for behavior. This approach can be seen as a more specific and detailed account of social learning processes. Scripts are sets of particularly well-rehearsed, highly associated concepts in memory, often involving causal links, goals, and action plans (Abelson, 1981, Schank & Abelson, 1977). When items are so strongly linked that they form a script, they become a unitary concept in semantic memory.

Furthermore, even a few script rehearsals can change a person’s expectations and intentions involving important social behaviors (Anderson, 1983, Anderson & Godfrey, 1987). A frequently rehearsed script gains accessibility strength in two ways. Multiple rehearsals create additional links to other concepts in memory, thus increasing the number of paths by which it can be activated. Multiple rehearsals increase the strength of the links themselves. Thus, a child who has witnessed several thousand instances of using a gun to settle a dispute on television is likely to have a very accessible script that has generalized across many situations. In other words, the script becomes chronically accessible. This theory is particularly useful in accounting for the generalization of social learning processes and the automatization (and simplification) of complex perception-judgment-decision-behavioral processes.

2.7.4. Excitation Transfer Theory

Excitation transfer theory by Zillmann (1983) notes that physiological arousal dissipates slowly. If two arousing events are separated by a short amount of time, arousal from the first event may be misattributed to the second event. If the second event is related to anger, then the additional arousal should make the person even angrier. The notion of excitation transfer also suggests that anger may be extended over long periods of time if a person has consciously attributed his or her heightened arousal to anger. Thus, even after the arousal has dissipated the person remains ready to aggress for as long as the self-generated label of anger persists.
2.7.5. Social Interaction Theory

Social interaction theory Tedeschi and Felson (1994) interprets aggressive behavior (or coercive actions) as social influence behavior, i.e., an actor uses coercive actions to produce some change in the target’s behavior. Coercive actions can be used by an actor to obtain something of value (e.g., information, money, goods, sex, services, safety), to exact retributive justice for perceived wrongs, or to bring about desired social and self identities (e.g., toughness, competence). According to this theory, the actor is a decision-maker whose choices are directed by the expected rewards, costs, and probabilities of obtaining different outcomes. Social interaction theory provides an explanation of aggressive acts motivated by higher level (or ultimate) goals. Even hostile aggression might have some rational goal behind it, such as punishing the provocateur in order to reduce the likelihood of future provocations. This theory provides an excellent way to understand recent findings that aggression is often the result of threats to high self-esteem, especially to unwarranted high self-esteem (i.e., narcissism) (Baumeister, Smart & Boden, 1996, Bushman & Baumeister, 1998).

2.7.6. Aggression in Freudian Psychoanalytic Theory

Freud argued that all human beings possess two important instincts, the life instinct (Eros) and the death instinct (Thanatos). The conflict between life and death instincts results in self-destructive tendencies which lead to aggressive behavior “The Ego and the Id” (Mergargee, 1966 cited in Anderson and Bushman, 2002).

The struggle between life and death instincts creates a build up of tension in our unconscious mind. This tension needs to be released, either through suitable outlets such as sport (sublimation) or onto others (displacement). Failure to relieve these aggressive impulses may result in an outburst of uncontrollable aggression. Freud’s theory is also known as the hydraulic model of aggression (Mergargee, 1966 cited in Anderson and Bushman, 2002).

Anderson and Bushman (2002), citing Mergargee (1966) stated that there is some evidence that brutal crimes are often committed by very controlled individuals with no history of violent crime,
and they are often triggered by a seemingly trivial incident. These individuals repress their anger and resentment over a period of years before their aggression explodes into hatred and violence. In many cases, there is evidence of early childhood trauma which appears to increase the risk of these aggressive incidents.

Freud’s conception of aggression can be likened to a pressure-cooker (or hydraulic system); aggressive energies accumulate and are discharged to alleviate psychic pressures. Aggression is therefore caused by internal conflict. Freud believed that society must provide appropriate channels to re-direct this energy constructively e.g. the encouragement of competition and physical exercise (Mergargee, 1966 cited in Anderson and Bushman, 2002).

2.7.7. Motivational Theories

The Frustration-Aggression theory by Dollard et al (1939) is essentially a behaviourist approach that suggests aggression is a learned response to frustration. Frustration occurs when an individual is exposed to external situations (stimulus) that cause discomfort or anger (e.g. prolonged queuing, overcrowding, failure to achieve a goal, etc). Frustration is cumulative – it builds up in an individual until it is discharged via an aggressive act (response). The frustration-aggression hypothesis is sometimes known as drive-reduction theory.

Dollard et al claim that:
- Frustration always causes aggression, and;
- Aggression is always caused by frustration.

How does this compare with Freud?

The Frustration-Aggression hypothesis is a translation of Freudian concepts into learning theory. Like Freud, aggression is a drive that must be satisfied to reduce bodily tension and maintain relative harmony; reducing the aggressive drive (through aggressive behaviour) is a pleasurable experience which we learn at an early age. Unlike Freud, aggression is caused by external, social factors rather than internal conflict (Dollard et al, 1939).
The Frustration-Arousal Hypothesis:
According to Berkowitz (1989), frustration produces anger (state of arousal or ‘readiness’) rather than aggression.
Step 1: Anger is experienced (the context of the situation determines whether anger or some other emotion is felt).
Step 2: Anger gives rise to aggression only in the presence of specific environmental cues (or triggers). Triggers may include loud music, television violence, and the effects of drugs and alcohol.

Empirical Evidence:
There is considerable empirical support for the concept of readiness and its emphasis on cognitive and environmental factors in aggression.
Aggressive cues include:
- Television (TV)
- Loud noise
- Presence of weapons
- Alcohol and drug-induced states
- Temperature
- Overcrowding.

Berkowitz (1989) revealed on his studies that angry participants who witnessed a violent boxing film (made angry by receiving several electric shocks by a confederate), gave more electric shocks to the confederate when the opportunity arises than those who were shown a non-violent film (i.e. an exciting track race). The ‘violent’ film acts as the environmental trigger, When the confederate was called Kirk (after Kirk Douglas who played the losing boxer), he received more electric shocks than if he was called Bob (neutral name). It appears that when participants encounter someone who reminds them of a victim, in respect of situations where aggression is overtly rewarded (i.e. a boxing victory), anger is likely to be converted to aggression.
2.7.8. The Ethological approach to Aggression

Aggression is **instinctive** in all species and an **evolutionary necessity**, allowing individuals to adapt to their environment, survive and reproduce successfully. Competition for limited resources, defending territory and rivalry in mating are all biological imperatives for the **self-preservation** for any species, including humans. Anderson and Bushman (2002), citing Ardrey (1966) in *The Territorial Imperative* states that people continually strive to acquire land and possessions, developing strong attachments to them, and defending them against trespassers. However, Ardrey has been criticised for grossly simplifying the complex nature of human behaviour.

**Konrad Lorenz - The Father of Ethology**

Probably this is the most famous and comprehensive account of human aggression from a biological perspective. Anderson and Bushman (2002), citing Lorenz’s (1970) book emphasizes at great length the similarities between animal and human aggressive behavior. He defines aggression as “the fighting instinct in beast and man which is directed against members of the same species”. He believes that, unlike animals, human aggression has become distorted and destructive.

The major difference between animal and human aggression is **reutilization**, which refers to a way of discharging aggression in a fixed, stereotyped pattern where fights between members of the same species result in relatively little physical harm, although a victor usually emerges from the confrontation. For example, wolves will end their fight with the loser exposing its jugular vein before further damage is inflicted.

Sometimes conflict between two threatening animals is avoided at the outset by a display of **appeasement rituals** (or gestures). For example, competing jackdaws will not fight each other because, usually, one of the individuals will offer the plumage of its neck to the aggressor which disengages aggressive conflict. In this way, both birds continue to survive unharmed.
Anderson and Bushman (2002), citing Ardrey (1966) argues that in humans, most of these rituals have been discarded, since we no longer have to confront our enemy face-to-face. In the absence of appeasement rituals, warfare can be conducted using weapons of immense destruction. According to Lorenz, human warfare is unnatural and a corruption of what is basically a constructive drive

2.7.9. Normative Theory

Anderson and Bushman (2002), citing Mann (1981) states that aggression can be the product of belonging to a group. First described the ‘mindlessness’ of the mob, where submergence within the relative obscurity of the group allows an individual to behave without inhibition. Documents cases of crowd behaviour and their reactions to suicide jumpers reflect that where a crowd exceed 300 people, individuals are significantly more inclined to shout ‘jump’.

2.8. SELF-CONTROL AND AGGRESSION

According to Carver and Scheier (1981) focus is on the link between self –regulation (more colloquially known as self –control) and aggression. It was proposed that self-control failure is a pervasive and under appreciated cause of violence. If one were to list all the factors that have been shown to cause aggression, one would have a long list; anger, frustration, deprivation, opportunity for instrumental gain, desire for power, modeling and media violence, heat, and scapegoating only begin to cover this list. The length of this list is an impressive tribute to the energies of aggression researchers as well as a testimony to the multiplicity of factors that can cause aggression. But it also raises its own theoretical challenge; if so many factors cause aggression, why is aggression not far more common than it is?

To put the other way, it is clear that many people encounter many of the causes of aggression quite frequently without becoming aggressive. It is probably safe to say that during the past week most Americans have been angered or frustrated, have been exposed to media violence, have wanted something that someone else had, or experienced one of the other causes of aggression (Geen, 1990). Why do most Americans not aggress on that occasion? Why do the causes of
aggression so often fail to cause aggression? Thus, aggression research has perhaps succeeded too well in its initial challenge of identifying the causes of aggression. This success presents a second challenge, which is to explain why aggression is less frequent and pervasive than its causes (Geen, 1990).

2.9. SELF CONTROL FAILURE AND VIOLENCE

Gottfredson and Hirschi (1990) argue for a General Theory of crime stating that lack of self-control may be the broadest and most important cause of crime. Because of the importance of their argument, it shall be summarized here.

Gottfredson and Hirschi (1990) contend that the research effort to explain specific crimes misses some crucial points that become apparent when one focuses on understanding criminality in general. In their view, certain people are characterized by chronic deficits in self-control, and these people are the ones most likely to commit crimes. To support their position, they provide considerable evidence contradicting the popular view that criminals specialize in only one type of crime and are in other respects similar to everyone else. Gottfredson and Hirschi (1990)’s review shows repeatedly that most people who are arrested for some crime are later arrested for a different kind of crime. Therefore it is misleading to try to explain why someone becomes a thief or a rapist. Instead, one must understand that most such crimes occur in the context of a broad criminal life-style, in which laws are generally not respected.

2.10. THE GENERAL AGGRESSION MODEL (GAM)

Aggression research focuses on discovering what biological, environmental, psychological, and social factors influence aggressive behavior, and on how to use these discoveries to reduce unwarranted aggression. These factors can be categorized as features of the situation or as features of the person in the situation. The following list of personological and situational input variables is illustrative of key causal factors. Though this list is somewhat biased towards recent research and is not comprehensive, discussing it in a GAM framework leads to a simpler and
more comprehensive understanding of human aggression than is possible using the mini-theory approach so commonly used throughout contemporary psychology. Specifically, GAM indicates the types of underlying processes to examine and see how various inputs lead to aggressive (or nonaggressive) behavior (Bushman & Baumeister, 1998).

2.10.1. Person Factors

Person factors include all the characteristics a person brings to the situation, such as personality traits, attitudes, and genetic predispositions. Stable person factors are those that display consistency across time, across situations, or across both. This consistency is largely the result of the person’s consistent use of schemata, scripts, and other knowledge structures (Mischel 1999, Mischel & Shoda, 1995). In a very real sense, personality is the sum of a person’s knowledge structures. Knowledge structures also influence what situations a person will selectively seek out and what situations will be avoided, further contributing to trait-like consistency. Together, person factors comprise an individual’s preparedness to aggress.

2.10.2. Traits

Certain traits predispose individuals to high levels of aggression. One recent breakthrough, for example, was the discovery that certain types of people who frequently aggress against others do so in large part because of susceptibility towards hostile attribution, perception, and expectation biases (Crick & Dodge, 1994, Dill, Anderson & Deuser, 1997). Another recent breakthrough contradicts longstanding beliefs of many theoreticians and the lay public alike: A type of high self-esteem (and not low self-esteem) produces high aggression. Specifically, individuals with inflated or unstable self-esteem (narcissists) are prone to anger and are highly aggressive when their high self-image is threatened (Baumeister, Smart & Boden, 1996, Bushman & Baumeister, 1998, Kernis, Grannemann & Barlay, 1989). Both discoveries fit the GAM knowledge structure approach quite well.
2.10.3. Sex and aggression

Males and females differ in aggressive tendencies, especially in the most violent behaviors of homicide and aggravated assault. The ratio of male to female murderers in the United States is about 10:1. Laboratory studies often show the same type of sex effect, but provocation dramatically reduces sex differences in physical aggression, and specific types of provocation differentially affect male and female aggression (Bettencourt & Miller, 1996). The preferred types of aggression also differ for males and females. Males prefer direct aggression, whereas females prefer indirect aggression (Scarpa & Raine, 2000).

Space limitations preclude detailed discussion of how biological factors operate within GAM. Briefly, we believe that genetic and other biological factors operate via influences on learning, decision-making, arousal, and affective processes (Scarpa & Raine, 2000).

Gender is a factor that plays a role in both human and animal aggression. Males are historically believed to be generally more physically aggressive than females (Coie & Dodge, 1997, Maccoby & Jacklin, 1974), and men commit the vast majority of murders (Buss, 2005). This is one of the most robust and reliable behavioral sex differences, and it has been found across many different age groups and cultures. There is evidence that males are quicker to aggression Anderson and Bushman (2002), citing Frey (2003) and more likely than females to express their aggression physically. When considering indirect forms of non-violent aggression, such as relational aggression and social rejection, some scientists argue that females can be quite aggressive although female aggression is rarely expressed physically (Archer, 2004).

Although females are less likely to initiate physical violence, they can express aggression by using a variety of non-physical means. On Bellona Island, a culture based on male dominance and physical violence, women tend to get into conflicts with other women more frequently than with men. When in conflict with males, instead of using physical means, they make up songs mocking the man, which spread across the island and humiliate him. If a woman wanted to kill a man, she would either convince her male relatives to kill him or hire an assassin. Although these two methods involve physical violence, both are forms of indirect aggression, since the aggressor
herself avoids getting directly involved or putting herself in immediate physical danger (Buss, 2005).

2.10.3.1. Male aggression

Wright and Wrangham (1998) present an interesting analysis of male violence in terms of evolutionary psychology. They argue that:

- **Chimpanzees** and humans are the only species in which groups of males hunt and kill members of their own species.
- Therefore murder is not a unique *culturally determined* human behaviour.
- Chimpanzees patrol their territorial borders in a group and will kill an **isolated** animal from a neighbouring group. Under these circumstances there is **little risk** that the aggressor will be seriously injured whereas the victim will either be killed, or seriously harmed.
- Some forms of human violence involve an accurate assessment of the risk of injury (e.g. the Mafia are reputed to wait for a numerical advantage before they attack their victim).

2.10.3.2. Female aggression

Until recently, relatively little attention was focused on female aggression. Campbell (1999) argues that "lower rates of aggression by women reflect not just the absence of masculine risk-taking but are part of a positive female adaptation driven by the critical importance of the mother's survival for her own reproductive success."

Campbell (1999) reviews evidence that: women show greater fear of physical harm compared to men.

For example:

- women show more fear of open spaces, dogs, snakes, insects, and rodents than men
- women are less likely to engage in hazardous sports, dangerous driving, military combat, and drug abuse, than men
women are more afraid of being victims of crime involving aggression, and are more likely to visit a doctor to seek advice on preventative care, than men

- women commit fewer violent crimes than men Campbell (1999) women show less concern for status compared to men greater adoption of dispute resolution strategies that involve a low risk of physical harm by women compared to men

- female 'maternal aggression' to defend their offspring; paternal aggression is rarer female menopause - an infertile period after the birth of the last child will ensure its survival.

It is interesting to reflect on this film's treatment by censors in the light of Campbell's argument that "Women's aggression has been viewed as a gender-incongruent aberration or dismissed as evidence of irrationality. These cultural interpretations have "enhanced" evolutionarily based sex differences by a process of imposition which stigmatises the expression of aggression by females and causes women to offer exculpatory (rather than justificatory) accounts of their own aggression.

### 2.10.4. Beliefs

Many types of beliefs play a role in preparedness to aggress. Efficacy-related beliefs are particularly important (Bandura, 1977). Those who believe that they can successfully carry out specific aggressive acts (self-efficacy) and that these acts will produce the desired outcomes (outcome efficacy) are much more likely to select aggressive behaviors than those who are not so confident of the efficacy of aggressive acts. Aggression-related beliefs significantly predict future levels of aggressive behavior (Huesmann & Guerra, 1997). The source of such beliefs in children is often the family (Patterson, 1989).

### 2.10.5. Attitudes

Attitudes are general evaluations people hold about themselves, other people, objects, and issues (Petty & Cacioppo, 1986). Positive attitudes towards violence in general also prepare certain individuals for aggression. More specific positive attitudes about violence against specific groups of people also increase aggression against those people. For example, attitudes about violence against women are positively related to sexual aggressiveness against women (Malamuth, Linz,
Heavey, Barnes & Acker, 1995). Males prone to aggress against women are not generally aggressive against all people in all situations; rather, they specifically target women (but not men) who have provoked them (Anderson, 1996).

2.10.6. Values

Values and beliefs about what one should or ought to do seem to play a role in aggression preparedness. For many people, violence is a perfectly acceptable method of dealing with interpersonal conflict, perhaps even a preferred method. For example, the value system in parts of the southern and western regions of the United States dictates that affronts to personal honor must be answered, preferably with violence. There is evidence that some youth gang violence results from similar codes of honor and personal respect (Baumeister & Boden, 1998).

2.10.7. Media

Behaviors like aggression can be learned by watching and imitating the behavior of others. A considerable amount of evidence suggests that watching violence on television increases the likelihood of short-term aggression in children though for a dissenting viewpoint (Freedman, 2002). Individuals may differ in how they respond to violence. The greatest impact is on those who are already prone to violent behavior. Adults may be influenced by violence in media as well. A long-term study of over 700 families done by Freedman (2002) found "a significant association" between the amount of time spent watching violent television as a teenager and the likelihood of committing acts of aggression later in life. The results remained the same in spite of factors such as family income, parental education and neighborhood violence.

Although exposure to violence in media is associated with likelihood of short-term increases in aggression, none of these studies provide evidence for a definitive causal mechanism. Instead, violence in media may be one of many factors, or it may play a maintenance role since violent media tend to be selected by people who are prone to violence (Freedman, 2002).
2.11. Situational Factors

Situational factors include any important features of the situation, such as presence of a provocation or an aggressive cue. Like the person factors, situational factors influence aggression by influencing cognition, affect, and arousal.

Aggressive cues are objects that prime aggression-related concepts in memory. For instance, Berkowitz and LePage (1967) found that the mere presence of guns (versus badminton racquets and shuttlecocks) increased the aggressive behavior of angered research participants for a meta-analytic confirmation of this phenomenon. More recently, our understanding of the weapons effect has been enhanced by the discovery that weapon pictures and words automatically prime aggressive thoughts (Anderson, Benjamin & Bartholow, 1998). Other situational variables that increase aggression, such as exposure to violent television, movies, or video games, also appear to do so via cognitive cueing effects (Anderson & Dill, 2000).

Perhaps the most important single cause of human aggression is interpersonal provocation (Berkowitz, 1993, Geen, 2001). Provocations include insults, slights, other forms of verbal aggression, physical aggression, and interference with one’s attempts to attain an important goal, and so on. One emerging line of research concerns workplace violence, aggression, and bullying (Anderson and Bushman, 2002), citing (Folger & Baron, 1996). One study Baron and Byrne (1991) found that perceived injustice was positively related to workplace aggression.

Frustration can be defined as the blockage of goal attainment. Most provocations can be seen as a type of frustration in which a person has been identified as the agent responsible for the failure to attain the goal. Even frustrations that are fully justified have been shown to increase aggression against the frustrating agent (Dill & Anderson, 1995) and against a person who was not responsible for the failure to attain the goal (Geen, 1968). More recent work has shown that displaced aggression, wherein the target of aggression is not the person who caused the initial frustration, is a robust phenomenon (Pedersen, Gonzales & Miller, 2000). Whether such frustration effects operate primarily by influencing cognitions, affect, or arousal is unclear.
Other research by Berkowitz (1993) has shown that even nonsocial aversive conditions (e.g., hot temperatures, loud noises, unpleasant odors) increase aggression. Acute aversive conditions, such as pain produced by immersing a hand in a bucket of ice water, increase aggression (Berkowitz, 1981). General discomfort, such as that produced by sitting in a hot room, can also increase aggression; this effect appears to be mediated primarily by increasing negative affect, though there may be cognitive and arousal processes at work too (Anderson & Dill, 2000).

Pain and discomfort also increase aggression. Even the simple act of placing one's hands in warm water can cause an aggressive response. Hot temperatures have been implicated as a factor in a number of studies. One study completed in the midst of the civil rights movement found that riots were more likely on hotter days than cooler ones. Students were found to be more aggressive and irritable after taking a test in a hot classroom. Drivers in cars without air conditioning were also found to be more likely to honk their horns (Anderson & Dill, 2000).

Various drugs such as alcohol and caffeine can also increase aggression (Bushman, 1993). These effects appear to be indirect rather than direct; Bushman (1997) found that aggression-facilitating factors (e.g., provocation, frustration, aggressive cues) have a much stronger effect on people who are under the influence of drugs than on people who are not.

Alcohol impairs judgment, making people much less cautious than they usually are. It also disrupts the way information is processed (Bushman, 1993, 1997). A drunken person is much more likely to view an accidental event as a purposeful one, and therefore act more aggressively. Illicit drugs such as cannabis have been shown to reduce performance on tasks relevant to skillful automobile driving. Additionally, cannabis users have been shown to have twice the expected frequency of Road traffic Accidents (RTAs) (Milner, 1977). Illicit drug users have a higher prevalence of psychiatric disorder, and they are also more likely to exhibit violent behavior. Both prescription and illicit drugs may be a part of the aetiology of road rage, through a direct effect on driving performance and through an association with mental illness. Early studies have implicated the role of life events in RTAs (Selzer, Rogers & Kern, 1968).
The role of alcohol in RTAs has been consistently documented. Alcoholics are more likely to die in RTAs, they are responsible for twice the number of RTAs and violations (Selzer, Rogers & Kern, 1968) and there is a direct linear relationship between blood alcohol concentration and the extent of impairment of various functions in driving an automobile. The effect of alcohol still remains, albeit much smaller, when other psychological and psychiatric variables are taken into account. Alcohol has a disinhibitory effect, and can unleash aggressive behavior. Could alcohol unleash the aggression in road rage, as it does for other forms of violence such as suicide, homicide and domestic violence RTAs may be viewed as two distinct classes of behavior: errors and violations.

The types of incentives that can increase aggression are as numerous as the number of objects that people want or desire. Indeed, the whole advertisement industry rests on the goal of making people want more things (Kilbourne, 1999). By increasing the value of an object, one changes the implicit or explicit perceived cost/benefit ratios, thereby increasing premeditated, instrumental aggression. Momentary appearance of an incentive, such as money left on a table, can also influence aggression in a less premeditated way.

The effects of overcrowding on aggression are difficult to calibrate or predict, primarily because, unlike noise and temperature, overcrowding is a wholly subjective environmental feature. Direct measures of population density or available space can be correlated experimentally with aggression levels, but only when the density is perceived by the subjects of the experiment to constitute overcrowding. These findings are relevant to the driving scenario, and perhaps more specifically to traffic congestion. Very slow or stationary traffic situations present typical conditions in which driver aggression can be allowed to reach detrimental levels. The environmental influences mentioned above, heat and noise, may well exert the most influence in congestion, and a sense of overcrowding is certainly most likely to arise there (Connell, 1996).

Connell (1996) explained that the incidence of violent crime is widely reported to increase during the summer months. While a causal link between hot weather and aggression is commonly supposed to exist, experimental evidence to support this view is sparse, and the interpretation and comparison of laboratory and "real world" surveys is difficult. The central problem is one of
controllability; regardless of the commitment an experimental subject might have to the study, and the social restraints that may act to preclude his abandoning the project, the fact remains that if the heat the experimenter generates artificially becomes unbearable the subject can insist on its level being reduced, or can call an end to the experiment. This knowledge appears to have a profound effect on laboratory studies of heat and aggression -- most of the frustration and irritation extreme heat incurs can be seen to originate in the extent to which this situation is beyond the individual's control.

Research suggests that noise is an unusual environmental influence on aggression, because it influences the intensity of aggression which has already been provoked, rather than adding to other variables which might together culminate in aggression. To an extent this can be seen as a result of the direct effect of noise on frustration rather than aggression. The probability of finding any causal link between noise and the presence or intensity of aggression appears to rely on the level of control the subject has over the noise. If the individual has no control over the volume or duration of an irritating noise, the level of aggression provoked by something else is likely to be raised. Such noise tends to produce stress, and makes concentration more difficult, so that any further infringements will probably be reacted against, and individuals who already find themselves in an aggression-producing situation will aggress more intensely. The ramifications this has for the driving environment are clear: In congestion, for example, the noise of other vehicles and even car stereos may inhibit the driver's tolerance of frustration so that any aggression will be displayed at a higher and potentially more dangerous level. Noise is perhaps, therefore, a unique predictor of and influence on aggression because of its ancillary relationship to other environmental factors (Connell, 1996).

According to Bradshaw, Groenewald, Laubscher, Nannan, Nojidana and Norman (2003), in South Africa in 2001, 27% of all injury-related deaths were as a result of road traffic collisions. For the same year, the National Department of Transport indicated that South African road users had 512 000 crashes, which caused 7900 deaths and 150 000 injuries. The cost of this carnage to the South African economy was estimated to be approximately R13.8 billion (Bradshaw et al, 2003). However, for 2000, the South African National Burden of Disease Study projected the country’s
traffic fatality burden to be in the region of 18 000 deaths per annum, in which case, the economic costs would also be much higher (Hoctor, 2001).

2.12. Levels of aggressive road behaviors

Which include:

- Level 1: non-threatening expressions of annoyance such as complaining and/or yelling to one’s self and/or fellow passengers in response to another driver’s behavior.
- Level 2: aggressive driving, i.e. mild, verbal or gestural expressions of anger, directed at the perceived offending motorist - includes the use of insensitive or obscene gestures and inappropriate and excessive use of the horn and lights.
- Level 3: road rage (mild), i.e. threatening and intimidating behaviours such as trying to cut another car off the road or following/chasing another driver in anger.
- Level 4: road rage (extreme) i.e. direct confrontational behaviour such as arguing with or assaulting another motorist (Bradshaw et al, 2003)

Other high-risk’ or ‘other hazardous’ driving behaviour refers to deliberate and dangerous driving but where there is no intentional aggressive interaction (for example running red lights, weaving in traffic, driving above the speed or legal alcohol limit). By depicting aggressive road behaviour along a continuum, we suggest that all categories of these aggressive behaviours are related to road safety, public health and criminal justice. Whereas aggressive driving (characterized by instrumental aggression) is regarded as a traffic offence, road rage, on the other hand, is characterized by hostile aggression and is regarded as criminal behavior (Matzopoulos, 2002).

2.13. Driving and Aggressive Emotion

There are several reasons why driving might be more likely to give rise to anger and aggression than walking. The exertion of walking might help tap any pent-up aggression, so that the act itself might help prevent the possibility of aggressive behavior. Driving, on the other hand, may provide a greater field for stress and tension to accumulate, without providing an outlet. Congestion is also undoubtedly an issue. Few drivers can claim to have never found themselves caught up in dense traffic which impedes their progress, whereas on most streets a pedestrian's
progress is limited primarily by his or her physical capability. Drivers must also adhere to stringent limitations placed on their speed and movement, prescribed directly (by speed limits or variations in the number of lanes available) and indirectly (by congestion). This means that it is easier for the driver to ascribe his frustration at being impeded to an ambiguous source, especially if he sees no reason for the obstruction (Connell, 1996).

Road user behavior is often the result of the driver's frustration at being unable to progress unimpeded by traffic, but they also suggest that this kind of frustration could be provoked by a similar situation involving any means of transportation: consider, for instance, walking in a hurry along a very long and narrow corridor without any chances to pass a large person walking very slowly in front! Our aim, then, is to determine why "pedestrian rage" does not exist; if road rage has simply provided a convenient handle on which coincidental and unrelated incidents can be hung and thereby be given more weight, or if the driving environment provides a unique situation liable to give rise to aggressive behavior (Connell, 1996).

2.14. The Role of Hate and Racism

Average of 38 violent traffic incidents each year are the result of racism and hate. These incidents are perpetrated by the full spectrum of humanity; Whites, Blacks, Asians, Hispanics, and others. However, most violent traffic incidents that are labeled "racist" actually start out as an accident or near accident, a disagreement over right of way, a dispute about a parking space, or other confrontation that is not, at first, racially related. As tempers flare, racial insults are exchanged and the "traffic dispute" suddenly becomes "racial" in nature. True hate-related disputes are perpetrated by groups (usually) of males (usually) who are clearly bigoted and clearly looking for trouble. In addition to racial groups, these incidents are perpetrated by members of a wide range of religious organizations (Mizell, 1997).

Mizell (1997) also mentioned that it should be noted, however, that hundreds of traffic disputes involving interracial conflict have had nothing to do with hate or racism. Like other violent traffic disputes, these incidents are simply arguments between two motorists who overreact to being cut
off, being impatient with a traffic jam, or are stunned by a near-accident. Only 16 of the traffic disputes in the study were hate-based from the beginning.

2.15. Situational/Environmental Conditions

Novaco (1991) demonstrated that traffic congestion and travel impedance can negatively affect mood, behavior, and health of commuters. Simply stated, daily driving, particularly in conditions of high traffic congestion, can be a source of annoyance and stress. But do the stress and irritation associated with traffic congestion lead to angry and aggressive driving? The findings have been mixed. Some researchers Hennessy and Wiesenthal (1997) have found driver anger and aggression to be reported more often in high-congestion conditions than in low-congestion conditions, whereas others Lajunen and Parker (2001) have not found any relationship between congestion and reports of driver anger and aggression. Perhaps there is an interaction effect such that some individuals are more predisposed to respond with anger under conditions of congestion or impedance while driving. For example, drivers who are generally prone to getting angry while driving may be particularly anger-prone and aggressive under high impedance conditions (Deffenbacher & Lynch, 2003).

There may also be different reactions of individuals depending on whether they perceive beingimpeded as a result of another driver (e.g., someone driving too slow) versus other situational conditions (e.g., road construction). Similar to other forms of aggression, aggressive driving behavior is believed to occur under conditions of anonymity, that is, when drivers are less visible to other drivers. Ellison, Govern, Petri and Figler (1995) conducted a field study of drivers in convertibles, half with their tops up (representing the anonymous condition) and half with their tops down (representing the identifiable condition). The procedure involved having a confederate driver pull in front of the vehicles at a stoplight and remain stationary when the light turned green.

Drivers in the anonymous condition were observed to display longer durations of horn-honking and more frequent horn honks than were displayed by drivers in the identifiable condition. These findings suggest that an enclosed vehicle may provide a driver with a sense of anonymity, which
in turn may increase the likelihood of aggressive behavior. In a more recent study, randomly assigned college students to anonymous or identifiable driving conditions using a computer-based program that assesses simulated driving behavior. Participants in the anonymous condition were told to imagine driving in a convertible with the top up, while participants in the identifiable condition were instructed to imagine driving in a convertible with the top down. Participants in the anonymous condition displayed significantly greater average speeds, more running of red lights, more collisions, and more hitting of pedestrians than did the participants in the identifiable condition. Another environmental factor that has been examined as a potential contributor to aggressive driving behavior is aggressive stimuli (Deffenbacher, Huff, Lynch, Oetting & Salvatore, 2000).

The presence of aggressive stimuli was manipulated as a variable in the computer driving simulation program. In the aggressive stimuli condition, participants were exposed to aggressive text displayed on the computer screen in the form of billboards and building signs, whereas neutral text was displayed in the no-aggressive-stimuli condition. The researchers observed more aggressive driving behavior in the participants who were exposed to the aggressive stimuli (Deffenbacher et al, 2000).

2.16. Personality/Dispositional Factors

Research has examined dispositional and personality factors that may contribute to aggressive driving. A high level of general stress while driving is one potential factor that may make individuals prone to driving anger and aggression. Hennessy and Wiesenthal (1997) found that drivers with a disposition to view driving as generally stressful tend to report engaging in more driving aggression than do drivers who consider driving to be less stressful. This may be the result, in part, of perceptions or appraisals of driving situations. For example, highly stressed drivers may be more likely to perceive other drivers as a source of frustration, thereby increasing their own aggressive behavior (Gulian, Matthews, Glendon, Davies & Debney, 1990). Driving stress may also interact with other factors, such as conditions of high congestion, to produce aggressive driving (Hennessy & Wiesenthal, 1997).
Attribution theory has been used to explain aggressive driving behavior as a function of the attributions individuals make about their own behavior and that of other drivers. For example, when committing a traffic violation, drivers tend to attribute their own behavior to situational factors, but when another driver commits the violation, the behavior is more likely to be attributed to dispositional factors. This attribution bias may be a potential source of aggression because drivers may underestimate the extent to which their own aggressive driving behavior can cause anger in other drivers. There may also be a tendency in some drivers to interpret the intent of other drivers (who drive aggressively) as hostile and personally vindictive, especially when there is an absence of cues to indicate clear intent. This factor, known as hostile attribution bias, was examined in the context of driving in a study conducted by (Matthews & Desmond, 1995).

2.17. Cognition

Some input variables influence aggressive behavior by increasing the relative accessibility of aggressive concepts in memory. Frequent activation of a concept results in its becoming chronically accessible, whereas an immediate situational activation results in making the concept accessible for a short time. The temporary increase in the accessibility is often called priming. A host of factors, such as media violence, can prime aggressive thoughts (Anderson & Dill, 2000).

2.18. Affect

Input variables can also directly influence affect, setting the stage for later effects on aggressive behavior. For example, pain increases state hostility or anger (Berkowitz, 1993). Uncomfortable temperatures produce a small increase in general negative affect and a larger increase in aggressive affect (Anderson & Deuser, 1996). Exposure to violent movie clips also increases hostile feelings. Many personality variables are related to hostility-related affect. For example, trait hostility as measured by self-report scales is positively related to state hostility (Bushman, 1995).

2.19. Work-related tension

Brewer (2000) believed that one of the factors that may contribute to a differential response is the employment status of drivers in skilled and unskilled work. Job-induced tension may be higher
for those drivers working in jobs that place high demands on them such as deadlines and production quotas and yet allow little opportunity for autonomy contributing to a person’s frustration. Typically these jobs are routine and located in the non-managerial level of the work organization.

For women, work stress represented 6.4% of total injuries and for men 1.6%. From 1993/94, the incidence of women claiming work stress has increased at a faster rate than for men. The highest incidence of claims was for workers aged between 40 and 49 years. Although rail and road transport ranks the ninth worst affected industry, it had relatively lower total and median cost of claims. Locomotive, bus and truck drivers followed by guards and security officers had the highest number of claims within the rail and road transport group (Brewer, 2000).

2.20. Travel demands

Personal commute trip, frequency of work trips, trip times, distance travelled, physical factors and traffic conditions are included. Physical factors such as road conditions and traffic congestion can have an effect on mood and perception with a subsequent effect on overall efficiency and safety of driving performance. Data were collected but not included in this paper (Brewer, 2000).

2.21. The conceptual framework of road rage

In terms of measuring the response of road rage, the response was limited to self-reporting of driving anger and aggressive behavior chasing another vehicle, arguing or threatening another driver outside the vehicle, or physical assault at one extreme through to cutting off, shouting, gesturing or flashing lights at the other. For the purposes of this study the response measured assumed either with or without intent. Risk-taking behavior is associated with identity formation and will vary by age and gender. Identity formation marks the transition from adolescence to adulthood in many cultures and sub-cultures by specific rites de passage. Historically, this process was more pronounced for boys than girls, who are required to ‘prove their manhood’ through risk-taking and engaging in acts of ‘daredevil adventure.’ Today, girls and young women are asserting their identities and this may be reflected in similar behavior. Driving behavior of young people in particular may be associated with a sense of invulnerability connected with
identity formation whereby they feel impervious to physical threats to their safety on the roads (Brewer, 2000).

To understand driver response fully, risk-taking behavior also needs to be acknowledged. The nature of the risk includes exceeding the speed limit, not complying with traffic regulations, overtaking vehicles, racing another driver off at the traffic lights and engaging in other competitive behavior. Risk-taking is also associated with generalized and specific beliefs. Generally, risk-taking is supported by the truism that ‘accidents happen to others’ as well as by the overall decline in road mortality and morbidity statistics. This generalized belief is often associated with the ignorance of the consequences of risk-taking behavior. Specifically, risk-taking is associated with the person’s belief that risk-taking is exciting. There is a specific exhilaration for drivers when they intentionally exceed the speed limit, overtake or engage in competitive behavior with another vehicle. If, in doing so, drivers are not apprehended by a police officer, caught by radar, experience no mishap or feel that the duration of their trip was shortened; risk-taking is positively, and not negatively, reinforced. Positive reinforcement is often associated with a denial of the reality of risk-taking behavior (Brewer, 2000).

2.22. **Road rage: South African minibus taxi drivers versus light motor vehicle drivers**

Binge (2003) mentions that according to the Auto-mobile Association (AA) Traffic Safety Audit (1998), South Africa had the third highest road fatality rate of 20 countries examined in their study. One of the possible contributory factors to the high accident and injury rate is road rage. There is a huge minibus taxi industry in South Africa. These minibus taxi drivers are generally perceived by other road users as being reckless and lawless drivers. This perception often precipitates road rage behavior, either in anticipation of, or in retaliation against, perceived unacceptable behavior on the part of minibus taxi drivers. There is little available information on the minibus taxi industry in South Africa. The industry is also characterized by on-going violent ‘taxi wars’ over taxi routes.

Binge (2003) also believes that passengers also put taxi drivers under pressure in terms of where to stop and speed (too slow or too fast). The ‘taxi wars’ are on-going and also affected the study
under discussion in this article. There is little money for repairs to vehicles or panel beating, and the insurance excess for taxi drivers in accidents is about R4 500 according to one training officer. There are still no fringe benefits such as annual or sick leave, although there are now moves afoot to try and regulate the taxi industry and obtain at least basic working conditions for the drivers.

According to Lonero (1999) cited in Binge (2003), there is a perception that road rage incidents are increasing in frequency and severity worldwide. Media reports emphasize extreme driving incidents because they make a good story. Certainly, media headlines worldwide are full of sensational headlines as can be seen by consulting the references of the work of researchers into road rage around the world. The South African press is no exception.

Baron and Byrne (1991) have the perception that the content of many movies and television programing is violent, showing little compassion or respect for the rights of others. These influences tend to desensitize their audiences to violence and aggression. A common aspect of road rage seen in many countries is the element of having to 'punish' the other driver for perceived misbehavior, threats or insults. Larson believes this aspect often leads directly to violence. Some people in South Africa see the law as toothless; authorities seem not to be available at the required moment and so they deem it right to mete out punishment themselves.

Lonero (1999) and Larson (1997) cited in Binge (2003) all found that the stress caused by time pressure caused all subjects to react more aggressively on the road. This was also mentioned by some members of the pilot group in this study. Whether road rage exists as a separate phenomenon or not, aggressive driving results in undesirable consequences and action should be taken to reduce it. Research is needed to identify the phenomenon and examine its aspects in order to base solutions on proper information.

2.21. Resumé

This chapter has looked at a number of studies which explain road rage in detail and has given examples of how road rage occurs. Briefly road rage has been explained as a situation where a driver or passenger attempts or kill, injure, or intimidate a pedestrian or another driver or
passenger or to damage their vehicle in a traffic incident. The following chapter discusses methodology which focuses on methods of how the research study was carried out. It, therefore, includes all the necessary procedures of this study such as the population, sampling, how the data was collected and analyzed.
CHAPTER THREE
RESEARCH METHODOLOGY

3.1. Introduction

In this chapter the research design, sampling design, method of data collection, and method of scoring in qualitative research and data analysis will be described. This chapter will explain in detail various research methods of collecting data that were employed in this study and how the methods were executed, mostly research methods that provided the most reliable data. This chapter also includes the procedures for conducting this research. The purpose of this research is to explore the feelings and views about road rage in Empangeni area.

3.2. Research methodology

This study adopted a qualitative approach since the aim of the research study was to capture the profound views and experiences of the participants. A quantitative research would not be considered, and a more in-depth, holistic, qualitative approach would be used. Qualitative research methods also aim at allowing participants to voice out their feelings, attitudes, concerns, thoughts and opinions. In this research study, participants were asked open-ended questions. Open-ended questions allow the participants to communicate their experiences in their own words without any restriction. The data of qualitative research are most commonly obtained through interviews and observations and can be used to describe individuals, groups and social movements (Shaungnessy & Zechmeister, 1990). Qualitative research provides a rich source of information based on experiences of participants. Researchers prefer to focus on the qualities, processes and meanings of individual differences and contexts, rather than on measurement and casual relationships.
3.3. Sampling

The accidental sampling technique was used in this study. The sample consisted of 10 University of Zululand students who are always driving in different areas of Empangeni and who were willing to share their experiences. On accidental sampling, the selection is based on availability or ease of inclusion. The interviewer selected whoever was willing to talk and the sample was further made accidental by selecting the most intelligible participants (Dane, 1990) and all questionnaires were distributed in this way. All questionnaires were completed and returned. The age of participants ranged from 20 to 42 years old. The participants covered a variety of faculties like arts, science and commerce, comprised of undergraduates and postgraduates.

According to Boxill, Chambers and Wint (1997), accidental sampling is a type of non-probability sampling which involves the sample being drawn from that part of the population which is close to hand. That is, a sample population selected because it is readily available and convenient. The researcher using such a sample cannot scientifically make generalizations about the total population from this sample because it would not be representative enough. Accidental sampling is also called or known as availability sampling and convenience sampling. That is, a sample population selected because it is readily available and convenient.

It may be through meeting the person or including a person in the sample when one meets them or chosen by finding them through technological means such as the internet or through phone. The researcher using such a sample cannot scientifically make generalizations about the total population from this sample because it would not be representative enough (Cochran & William, 1977). This type of sampling is most useful for pilot testing. Several important considerations for researchers using convenience samples include:

1. Are there controls within the research design or experiment which can serve to lessen the impact of a non-random convenience sample, thereby ensuring the results will be more representative of the population?
2. Is there good reason to believe that a particular convenience sample would or should respond or behave differently than a random sample from the same population?
3. Is the question being asked by the research one that can adequately be answered using a convenience sample?

In social science research, snowball sampling is a similar technique, where existing study subjects are used to recruit more subjects into the sample (Cochran, 1977).

3.4. Phenomenological research

The purpose of the phenomenological approach is to illuminate the specific, to identify phenomena through how they are perceived by the actors in a situation. In the human sphere this normally translates into gathering ‘deep’ information and perceptions through inductive, qualitative methods such as interviews, discussions and participant observation, and representing it from the perspective of the research participant(s). Phenomenology is concerned with the study of experience from the perspective of the individual, ‘bracketing’ taken-for-granted assumptions and usual ways of perceiving. Epistemologically, phenomenological approaches are based in a paradigm of personal knowledge and subjectivity, and emphasize the importance of personal perspective and interpretation. As such they are powerful for understanding subjective experience, gaining insights into people’s motivations and actions, and cutting through the clutter of taken-for-granted assumptions and conventional wisdom (Stan, 1999).

Phenomenological approach is descriptive and qualitative in nature. According to Engler (1985) the word phenomenology is derived from the Greek word “phenomenon” which means that which appears or shows itself. Thus, phenomenology is focused on describing the data, or the given of immediate experience. In psychology, phenomenology has emerged to mean the study of human existence and consciousness (Zungu, 2008).

Phenomenological research describes as accurately as possible the phenomenon as it appears, rather than explaining it in a given framework (Giorgi, 1985). The phenomenological method, therefore, is concerned with the description of the original experience of a particular phenomenon (Edwards, 2001). Phenomenology maybe described as an approach in which the researcher
attempts to suspend all preconceptions in order to allow the original lived experience in reality to reveal itself.

3.5. Data analysis: Phenomenological approach

A phenomenological approach was used in the analysis of the qualitative data in this research. As Ngcobo (2007) highlights that a phenomenological research procedure conforming to the format outlined by Rabbets & Edwards (2001), can be applied in the following steps:

- The identification of a phenomenon.
- The selection of the subjects/participants.
- The first description and protocol.
- Repeated reading of protocols in order to make sense of the whole.
- Synthesize meaning of units into statements regarding the participant’s experience.
- Discussion of themes.

For the qualitative data collected, the researcher used the analysis which involved the identification and analysis of themes and patterns of similarity within qualitative research (Braun & Clark, 2006). It is not grounded in any particular theoretical and epistemological framework and can therefore be applied across a wide range of qualitative research approaches (Braun & Clark, 2006). These were then grouped into themes and qualitative analysis.

One of the aims of phenomenological inquiry is to derive the essential features (description) of the experiences of raw protocols. The researchers make sense out of and collect similar themes from the raw data (Blanch, Durrheim & Painter, 2006)

3.6. Research instrument

There are several tools available to the qualitative research (such as observation, survey or questionnaire, interviews etc.) to collect research data. For the main purpose of this research study the researcher chose to use a questionnaire with one open-ended question. Open-ended
questions allow the participant to respond with a “wide range of possible answers” (Vadum & Rankin, 1998). Since there are no limitations placed on the responses received by open-ended questions the researcher would be able to capture the richness of the participants’ experience as it actually appears in his or her conscious and this varies greatly from generalized description of things independent of the experiences. The manner in which a researcher structures the questions posed to the participant is imperative (Zungu, 2008).

Emphasis should be placed on fresh experiences rather than reflective descriptions, by asking “what did you experience or feel?” questions like this yield responses of an experiential nature (Vaille & Hallug, 1989). This would also give the participants an opportunity to express their feelings, thoughts and suggestions (Barker, Pistrang & Elliot, 1994).

3.7. Voluntary participation

Research requires people to reveal information about them, information that may be unknown to their friends and associates. Therefore participants must participate voluntarily (Babbie, 2003), in the present research, the participants were informed that their participation is completely voluntary and that they could withdraw their consent and discontinue participation without any prejudice.

3.8. Procedure

The proposal for this research was initially presented to the University of Zululand Department of Psychology research panel for comments, analysis and input. Ethical clearance was obtained according to the University regulations for conducting research. The current researcher personally distributed questionnaires to 10 (ten) research participants to make sure that the questionnaire was going to make sense to the research sample.

Rahilly (1993) recommends six important criteria for participants in the research:

i. Participants must have a capacity to express themselves with relative ease;
ii. They must have the capacity to sense and express their inner feelings and emotions without shame and inhibition;

iii. They must have the ability to sense and to express the real experiences that accompany these feelings;

iv. The participants must have experienced the phenomenon or situation under investigation at a relatively recent date;

v. An atmosphere that the participants find sufficiently relaxing to enable them to put the necessary time and orderly thought into reporting or writing about what was happening to them, should be created and

vi. A spontaneous interest in their experiences ought to be evident.

3.9. Ethical Considerations

The participants signed an informed consent before taking part in this research study. Participants were informed about the nature of the study, the procedure of the study and their rights. Written informed consent was obtained from every participant. Participants were then given freedom to decide whether to participate in the study or not. Confidentiality of data was ensured by not identifying the participants (Hysamen, 2001).

Ethical principles are primarily concerned with protecting the rights, dignity and welfare of research participants. Bailey (1987) states that it is important to give a full explanation to participants about the nature of the study, its procedures and their ethical rights. They are at liberty to comprehend information and make a choice as to whether they voluntarily consent to participate or decline participation in the study. The full explanation of the study was given to the prospective participants and it was emphasized that participation was voluntarily.

3.10. Resumé

This chapter has discussed the necessary procedures on how this research study was conducted. The next chapter primarily focuses on presentation of all findings and discussions, the
presentation of all data using table and thematic analysis. Briefly, the next chapter presents the findings and discusses them in detail.
CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION OF THE FINDINGS

4.1. Introduction

This chapter focuses on the presentation of data collected from research participants. The purpose of this chapter is to provide the analysis of the gathered data. This chapter will also find an optimal way of interpreting the information provided by the participants. A phenomenological approach was chosen to analyze the data, with the intention of accessing accurate and clear descriptions of participants’ experiences as well as their views on the concept of road rage. The data analysis is to provide meaningful insight about experiences and presentation on the emerging themes found in raw data. The overall themes will also be integrated with the literature to qualify the research. Integrating it with existing literature will also give way for the formation of new literature from the arguments posed by the participants.

4.2. Qualitative data

Each participant’s data is provided below together with the major themes arising out of their responses.

*Participant 1 (31 years old female, black, post graduate)*

Views and feelings regarding road rage

“*Road rage is influenced a lot by people that are not patient. They anger easily and do stuff or say that ignites a mini war on the road.*”

“It is there and I feel it’s influenced by our cultural background. If you are a female like me, they tend to think lowly of my driving and just do as they wish in front of me on the road. The whole
thing that says the man is a (the head) and the woman is the follower even applies on the road. This causes me to be furious.

“The last point is that people that do not abide to the laws of the road also contribute to it e.g. overtaking on a sharp curve, passing the red robot and driving basically on the bumper.”

Emerging themes for participant 1

- Drivers are impatient;
- Culture and gender issues; and
- Poor compliance with the rules of the road.
- Anger.

Participant 2 (39 years old male, black, post graduate)

Views and feelings regarding road rage

“Impatience, disrespecting, selfishness, undermining other road users, negative attitude, lost of ubuntu (humanism), taxis are always rushing to make more money, competition of those who have better cars, always want to prove a point to fellow drivers.”

Emerging themes for participant 2

- Drivers are impatient;
- Disrespectfulness;
- Drivers have negative attitude towards others;
- Loss of Ubuntu (sense of caring for the other is lacking);
- Sense of competitiveness on quality of the cars;
- Taxi drivers as problematic.
Participant 3 (20 years old male, black, undergraduate)

Views and feelings regarding road rage

“Failure to comply with the rules of the road, drunken drivers and driving with invalid licenses. Some they do not show signals when they intend to change. People may fail to; for example, pull hand-brakes when at a stop street. Overtaking when it is not appropriate to do so. Taxi drivers may end up shouting each other if you give people lifts because they are their customers. Taxi drivers stealing each other clients.” Media has influence like movies.

Emerging themes for participant 3

- Not complying with the rules of the road;
- Abusing alcohol and driving;
- Media exposure;
- No respect towards other drivers;
- Drivers without licences;
- Problematic taxi drivers.

Participant 4 (23 years old male, race not indicated, undergraduate student)

Views and feelings regarding road rage

“Reckless driving is the main factor some do it because of gender issues and some it’s because of some racial issues. This results in insulting of the drivers and may sometimes cause them to fight as a result. When are driving along with people who cannot respect road signs, they provoke your anger.”

“Cars which are not in good conditions is another factor. For instance, imagine if you are following a car which is travelling at the speed of 40 km/h from Empangeni to Unizulu, this is provoking your anger, especially when you know that by 08h30 you have to be in class.”
“Female drivers being another factor. The majority of female drivers are hesitant drivers, meaning that they show the signs of lack of experience when they drive. This means that when you are driving along with a lady, you must be extra careful as if you are sharing the road with a learner.”

Emerging themes for participant 4

- Reckless driving with anger;
- Racial issues on the road;
- Some cars are not supposed to be on roads;
- Gender issue: females perceived as problematic drivers;
- Failure to obey the rules of the road;
- Anger.

Participant 5 (no age indicated, male, black, undergraduate)

Views and feelings regarding road rage

“Drunken driving, stress, cell phones which lead to people to loss focus while driving. Prolonged driving without rest you become sleepy. Show-offs by youth when they are in love. Domestic violence is another factor. Some employers would tell their drivers that they will pay them according to the number of loads they take which get drivers exhausted on the road.”

Emerging themes for participant 5

- Drunken driving;
- Stress related issues and anger or frustrations;
- Loss of concentration due to use of cellphones whilst driving;
- Prolonged driving; and exhaustion propagated by taxi owners on their employees (taxi drivers);
- Domestic violence.

**Participant 6 (42 years old male, black, postgraduate)**

**Views and feelings regarding road rage**

“Family problems and work-related problems. To be on the road on daily basis. The pressure most from office that you have to pick somebody from airport at certain times and being late you have to try and find the way to be there before time. To being sick and become impatient and short-tempered and not having enough time to rest.”

“Conditions of roads around the area are not up to the standards. There are pot holes in most of the roads.”

**Emerging themes for participant 6**

- Family and work-related problems;
- Prolonged hours of driving (fatigue);
- Impatience towards other drivers;
- Dilapidated roads and
- Being sick and stressed while driving.

**Participant 7 (25 years old male, black, undergraduate)**

**Views and feelings regarding road rage**

“Most drivers have impatience, disrespect, lost of interest, lack of concentration with reckless driving and abusing alcohol.”
Emerging themes for participant 7

- Drivers are impatient;
- Disrespect by other drivers;
- Lack of interest and concentration;
- Reckless driving and
- Alcohol abuse.

Participant 8 (31 years old male, black, postgraduate)

Views and feelings regarding road rage

“Overtaking by taking someone’s space, lights-using dim and bright lights improperly, speed limits, ophram indicators, brakes distractions, impatient, conversation on the road by drivers which causes distractions in the middle of the road, disrespecting other drivers and cell phones especially on the robots and not admitting their mistakes.”

Emerging themes for participant 9

- Drivers are impatient;
- Not complying with the rules of the road;
- Disrespecting other drivers;
- Having anger and frustrations; and
- Not admitting or apologizing for one’s mistake and
- Lack of concentration by drivers as a result of using cellphones and conversing with others whilst driving.
Participant 9 (29 years old male, black, postgraduate)

Views and feelings regarding road rage

“Road rage may also result from stress and unresolved issues. Alcoholism and any substance abuse may cause rage and intolerance. The presence of traffic officials on the roads plays a major role.”

Emerging themes for participant 9

- Stress and unresolved issues or frustration;
- Alcohol and Substance abuse;
- Intolerance on roads;
- Lack of visibility of traffic officers on the roads.

Participant 10 (24 years old male, black, undergraduate)

Views and feelings regarding road rage

“Not following the road laws by drivers causes road rage e.g. not stopping at the stop sign and wanting to go in first whilst you know that you came after the car you found there.”

“Overtaking at awkward places on the road such as on a busy road or if there is an accident then the taxi drivers make a new road side overtaking the cars in the front.”

“I think lack of patience and being so moody is mostly what causes road rage and no respect for fellow drivers are the main cause that contribute to the formulate of road rage.”

“Some people cause road rage around the area because of depression and other psychiatric illnesses.”
Emerging themes for participant 10

- Cultural and gender issues;
- Not complying with the rules of the road;
- Lack of patience and respect;
- Driving when you are emotionally unstable.

4.3. Discussion of the common emerging themes

This section looks at common themes that were extracted from participants’ views and experiences on the concept of road rage. These themes constitute the discussion that follows. The researcher used the phenomenological framework to analyze the responses from the participants. This process resulted in a qualitative description of the participants’ experiences and views of the concept of road rage. This portion of the study looks at summarizing and integrating the emerging themes from the responses of the participants to overall themes, and linking it with theoretical foundations.

4.3.1. Impatience, frustrations and anger

Road user behavior is often the result of the driver's frustration at being unable to progress unimpeded by traffic, but most participants also suggest that this kind of frustration could be provoked by a similar situation involving any means of transportation.

In Cognitive Neoassociation Theory, Berkowitz (1989) has proposed that aversive events such as frustrations, provocations, loud noises, uncomfortable temperatures, and unpleasant odors produce negative affect. In this instance, the study findings reveal that road rage is caused by impatience associated with frustrations and anger of the driver. In cognitive neoassociation theory, aggressive thoughts, emotions, and behavioral tendencies are linked together in memory (Collins & Loftus 1975). Concepts with similar meanings (e.g., hurt, harm) and concepts that frequently are activated simultaneously (e.g., shoot, gun) develop strong associations. When a concept is primed or activated, this activation spreads to related concepts and increases their
activation as well. Dollard et al (1939) claim that: frustration always causes aggression, and aggression is always caused by frustration. One participant believed that most people enter their cars and drive with a whole lot of problems either at home or at work. This as a result causes them not to be on right frame of mind while driving and become impatient and have anger.

Most provocations can be seen as a type of frustration in which a person has been identified as the agent responsible for the failure to attain the goal. Even frustrations that are fully justified have been shown to increase aggression against the frustrating agent (Dill & Anderson 1995) and against a person who was not responsible for the failure to attain the goal. The current study findings and recent literature relate that displaced aggression, wherein the target of aggression is not the person who caused the initial frustration, is a robust phenomenon (Pedersen, 2000).

This notion also collates with the Frustration-Aggression theory by Dollard et al (1939) essentially a behaviorist approach that suggests aggression is a learned response to frustration. Frustration occurs when an individual is exposed to external situations (stimulus) that cause discomfort or anger (e.g. prolonged queuing, overcrowding, failure to achieve a goal, etc).

Previous research findings suggest that anger and aggression increase owing to traffic congestion and as a result some drivers become so impatient or the poor driving towards others. The results of available studies had shown consistent evidence. Police said that some drivers’ actions are due to his impatience and anger. This supports the notion that most drivers who appear to be causing bad driving are those who get paid according to the workloads and deliveries, for instance, taxi drivers and truck drivers. The lack of patience might also be linked with other psychological cause of bad driving such as distress that is happening at home, work or social levels. Drunk drivers sometimes display poor decision making and subsequently misinterpret the situation they are in.

According to Berkowitz and LePage (1967), the frustration-arousal hypothesis, frustration produces anger (state of arousal or ‘readiness’) rather than aggression. Anger is experienced (the context of the situation determines whether anger or some other emotion is felt).
4.3.2. Substance abuse contributing to bad driving

Recent findings explain that various drugs such as alcohol and caffeine can also increase aggression (Bushman, 1993). These effects appear to be indirect rather than direct; Bushman (1997) found that aggression-facilitating factors (e.g., provocation, frustration, aggressive cues) have a much stronger effect on people who are under the influence of drugs than on people who are not. In relating these findings, current study also found that most drivers around the area consume alcohol while driving. Most participants emphasized that alcohol abuse is common in this area and it really needs attention. They elaborated that most road rage incidents happened because drivers were under the influence of alcohol.

Berkowitz and LePage (1967), gave views which support the notion of substance abuse that anger gives rise to aggression only in the presence of specific environmental cues (or triggers). Triggers may be the effects of drugs and alcohol. Alcohol impairs judgment, making people much less cautious than they usually are. It also disrupts the way information is processed (Bushman, 1993, 1997). A drunk person is much more likely to view an accidental event as a purposeful one, and therefore act more aggressively.

Illicit drugs such as cannabis have been shown to reduce performance on tasks relevant to skilful automobile driving. Additionally, cannabis users have been shown to have twice the expected frequency of Road Traffic Accidents (RTAs) Illicit drug users have a higher prevalence of psychiatric disorder, and they are also more likely to exhibit violent behavior (Milner, 1977). In supporting this common theme from the participants, Brewer (2000) states that among the potential psychological factors that contribute directly or indirectly to road mortality and morbidity are the effects on driving behavior of alcohol and drug usage which leads to fatigue, lack of concentration and attention span as well as a range of physiological factors. Abusing alcohol is always seen and witnessed as the most common cause of bad driving on daily basis. Substance abuse has always been evident and many participants believe that there are other psychological factors which correlate with it or which happen as a result of it.
Recent studies confirm that violent behavior is more likely to be exhibited by individuals with psychiatric disturbance, in particular those with substance and alcohol abuse and dependence. Substance abuse on its own plays a huge role in causing bad driving. Subjects with alcohol and drug use disorders were twice as likely to report violent behavior. Substance abuse seems to play a huge role in road rage and it is linked with other psychiatric disorders. The findings from recent studies confirm this thought from the current research study that substance abuse is the real problem which affects most drivers of Empangeni area. Most drivers believe that alcohol usage around the entire area is common and it really needs urgent attention.

Selzer, Rogers and Kern (1968) also stated that there is a direct linear relationship between blood alcohol concentration and the extent of impairment of various functions in driving. The effect of alcohol still remains, albeit much smaller, when other psychological and psychiatric variables are taken into account. Alcohol has a disinhibitory effect, and can unleash aggressive behavior.

**4.3.3. Bad mood leading to aggressive driving**

In providing a better understanding of the effects of daily driving, Novaco (1991) demonstrated that traffic congestion and travel impedance can negatively affect mood, behavior, and health of commuters. Simply stated, daily driving, particularly in conditions of high traffic congestion, can be a source of annoyance and stress and as a result drivers become moody. Most participants on this study revealed that daily stressful situations play a crucial role in people’s life. On this thought, it was believed that drivers encounter stressful events both at work and at home. One participant believed that some people are moody especially when people drive afternoon after stressful work where there might be a certain incident that happened at work. He further elaborated that consider a situation where a certain parent is having difficult time at home with his family, and now even at work, things go wrong. Obvious that person might drive anyhow (carelessly and recklessly and make displacement (redirecting ones’ stress to the other)

Selzer, Rogers and Kern (1968) also supported this notion in their study that one of the main factors influencing driver behavior was mood. A greater number of unsafe drivers were affected
by mood to a much larger extent than the safe drivers. It was suggested that this may be due to the fact that, for many of the unsafe drivers, the act of car driving is regarded as an expressive, rather than practical, activity. Being in a bad mood appears to have an adverse effect on driving behavior and this effect appears to be most pronounced among unsafe drivers.

### 4.3.4. Disrespecting other road users

Mizell (1997) found out that dozens of violent aggressive driving incidents have occurred because the occupants of one vehicle disrespected the occupants of a second vehicle. The researcher discovered that those drivers, who drive old vehicles in some cases, are not respected by those who drive fancy or latest cars. There have been reports by many participants that most drivers tend to be inconsiderate. This has been evidenced mostly when it comes to comply with the rules of the roads. To practically demonstrate this behavior, some participants commented mostly about stops streets where the rules mention that the driver who has arrived first should or can have a right of way. In other cases, drivers who are heading towards the circle find it difficult to comply with the rules. There are a numbers of road rules that are being not obeyed. Mistakes are happening on roads on daily basis simply because no one is ever perfect as human beings but some people find it embarrassing to ask for forgiveness. Attitudes are general evaluations people hold about themselves, other people, objects, and issues (Petty & Cacioppo, 1986). Some drivers were reported by some participants as having or displaying negative attitude towards other drivers.

In a car it is also difficult to feed back to another party, e. g. to apologise for one’s mistakes. Likewise, a relatively minor error of judgment may have potentially dangerous consequences in the eye of the other party, provoking defensive or hostile responses. It is also easy to misinterpret someone else’s maneuvers as hostile or threatening

### 4.3.5. Poor compliance with the rules of the road

Brewer (2000) explains that to understand driver response fully, risk-taking behavior also needs to be acknowledged. The nature of the risk includes exceeding the speed limit, not complying
with traffic regulations, overtaking vehicles, racing another driver off at the traffic lights and engaging in other competitive behavior. The current study findings were consistent with the recent literature that most drivers do not obey the rules of the road. One participant said he was freaked out by a taxi driver who did not stop on a four-way stop and the taxi nearly smashed his car had he not thoroughly checked or was not vigilant. Most of the main roads around Empangeni are not two-way roads moving on the same direction. This simply means that drivers may not be allowed to compete, more especially unofficial races. The researcher has found out that most drivers believe that the rules of the road are not obeyed in the area. Drivers have a tendency of driving anyhow and not caring about the rules.

Binge (2003) further explained that according to the Auto-mobile Association (AA) Traffic Safety Audit (1998), South Africa had the third highest road fatality rate of 20 countries examined in their study. There is a huge minibus taxi industry in South Africa. These minibus taxi drivers are generally perceived by other road users as being reckless and lawless drivers. This perception often precipitates road rage behavior, either in anticipation of, or in retaliation against, perceived unacceptable behavior on the part of minibus taxi drivers.

The researcher has found out that, in linking the current study results with the previous studies, taxi drivers have been under a lot of pressure and criticism regarding road rage. Binge (2003) supports this concept that passengers also put taxi drivers under pressure in terms of where to stop and speed (too slow or too fast). There is little money for repairs to vehicles or panel beating, and the insurance excess for taxi drivers in accidents is about R4 500 according to one training officer. There are still no fringe benefits such as annual or sick leave, although there are now moves afoot to try and regulate the taxi industry and obtain at least basic working conditions for the drivers. There has been a growing tendency of some drivers who practice prohibited behaviors on busy road on daily basis.

4.3.6. Prolonged hours of driving leading to fatigue

Personal commute trip, frequency of work trips, trip times, distance travelled, physical factors and traffic conditions are included. Physical factors such as road conditions and traffic congestion
can have an effect on mood and perception with a subsequent effect on overall efficiency and safety of driving performance (Brewer, 2000).

This perception often precipitates road rage behavior, either in anticipation of, or in retaliation against, perceived unacceptable behavior on the part of minibus taxi drivers. This correlates the notion that almost every minibus taxi driver around the area works under a lot of pressure from their employers and as they get paid according to the work they did on daily basis. Truck drivers and other drivers who are always on road were found to be having or displaying a lot of fatigue and lack of concentration.

Moreover, driving anger was associated with risky driving behaviors, such as reckless driving, and with crash-related conditions, such as loss of concentration, loss of vehicular control, and calls while driving. Drivers who find themselves driving everyday for all day long, appeared to be more exposed in reckless driving and being exhausted. This frequent driving might also lead to risky driving and find themselves not complying with the rules of the road.

4.3.7. Family and work related problems impacting on drivers

In supporting this point of view, recent studies found out that drivers with high level of stress tend to cause more problems on roads. Highly stressed drivers may be more likely to perceive other drivers as a source of frustration, thereby increasing their own aggressive behavior (Gulian et al, 1990). Driving stress may also interact with other factors, such as conditions of high congestion, to produce aggressive driving. An individual may have had a bad day at work or troubles at home or might have personal issues and redirect them to others. The issue of displacement might also be displayed by most drivers at personal levels. This has also been a most common theme in this study. Most drivers maintained that people tend to display lack of concentration, fatigue and other stressful signs. Most participants believed that drivers tend to abuse alcohol and engage themselves in risky behaviors because of family issues, especially their personal problems. The recent findings were consistent with the argument from the study participants that family problems can lead to loss of interest, lack of concentration and reckless driving or fatigue.
Joint (1995) on the other hand, supported this impression that most drivers experience a lot of stressful situations especially within their home context. He further explains that an individual may be experiencing troubles at home. Often it may be difficult to tackle the cause of the frustration. It may, therefore, lie dormant; indeed the driver may not even identify feelings of frustration.

However, failure to indicate or a poor maneuver by another driver may be enough to trigger a release of the pent-up frustration which is directed towards the offending driver. In addition, there are a number of psychological factors that explain why driving, in particular, should cause this frustration to manifest.

Excitation transfer theory by Zillmann (1983) notes that if two arousing events are separated by a short amount of time, arousal from the first event may be misattributed to the second event. If the second event is related to anger, then the additional arousal should make the person even angrier. This theory relates to the current study that some people might have troublesome events at home or even at work and they might not cope well and eventually find it difficult to face driving. The notion of excitation transfer also suggests that anger may be extended over long periods of time if a person has consciously attributed his or her heightened arousal to anger. Thus, even after the arousal has dissipated the person remains ready to aggress for as long as the self-generated label of anger persists.

4.3.8. Gender issues

Gender is a factor that plays a role in both human and animal aggression. Males are historically believed to be generally more physically aggressive than females (Coie & Dodge 1997, Maccoby & Jacklin 1974), and men commit the vast majority of murders (Buss 2005). This is one of the most robust and reliable behavioral sex differences, and it has been found across many different age groups and cultures. There is evidence that males are quicker to aggression and more likely than females to express their aggression physically. When considering indirect forms of non-violent aggression, such as and social rejection, some scientists argue that females can be quite
aggressive although female aggression is rarely expressed physically (Archer, 2004). The study findings suggest that men appear to be more aggressive than women, and they engage themselves in dangerous activities while driving.

In supporting this notion of gender and aggression, a long history of research has found higher levels of testosterone, a male sex hormone, are associated with higher levels of aggression in various animal species, including rats and primates. Many studies have shown high testosterone levels are associated with aggression, antisocial behavior, and violent criminal behavior. Among young men, beginning criminal activities at an early age appears to be correlated with higher testosterone levels (Kreuz & Rose, 1972).

Positive attitudes towards violence in general also prepare certain individuals for aggression. More specific positive attitudes about violence against specific groups of people also increase aggression against those people. For example, attitudes about violence against women are positively related to sexual aggressiveness against women (Malamuth et al, 1995). Males prone to aggress against women are not generally aggressive against all people in all situations; rather, they specifically target women (but not men) who have provoked them (Anderson & Deuser, 1996). From the current study findings, drivers who are women appeared very agitated, having fear and uncomfortable on roads because they feel that men are violent towards them as women.

Support may also be found for Berkowitz (1993)'s contention that aggression is simply one way to attain dominance (Dabbs & Ruback, 1988) and that socialization may influence the specific behaviors used to gain dominance.

In supporting the findings of this study, Campbell (1999) reveals evidence that women show greater fear of physical harm compared to men. For example: women are less likely to engage in hazardous sports, dangerous driving, military combat, and drug abuse, than men; women are more afraid of being victims of crime involving aggression, and are more likely to visit a doctor to seek advice on preventative care, than men; women commit fewer violent crimes than men;
and women show less concern for status compared to men. greater adoption of dispute resolution strategies that involve a low risk of physical harm by women compared to men. Some male participants expressed their thoughts on women that they drive too slowly and they irritate them. One participant elaborated that it really provokes him to drive behind female drivers because they lack skills and they drive badly.

To demonstrate men aggression towards women further more, Mizell (1997)’s findings revealed a case of a woman who was shot and killed "because she was driving too slowly. In another case a woman was shot because "the bitch hit my new Camaro". The research study reveals that some male drivers tend not to respect female drivers as they strongly believe that female drivers lack necessary skills and experience in driving. Some male participants stated that one needs to be extra careful when driving along female drivers.

The researcher on the other hand found that most male drivers still have the tendency to believe that females are still not supposed to be doing such risky activities like driving. In these days, female drivers are also exposed in driving industry. This is also evident and seen in taxi industry, where female drivers also taxi drivers.

4.3.9. Bad driving viewed on media (television) impacting on drivers

Baron and Byrne (1991) have the perception that the content of many movies and television programing is violent, showing little compassion or respect for the rights of others. These influences tend to desensitize their audiences to violence and aggression. A common aspect of road rage seen in many countries is the element of having to ‘punish' the other driver for perceived misbehavior, threats or insults. This aspect often leads directly to violence. Some people in South Africa see the law as toothless; authorities seem not to be available at the required moment and so they deem it right to meet out punishment themselves.

According to Berkowitz and LePage (1967), the Frustration-Arousal Hypothesis, frustration produces anger (state of arousal or ‘readiness’) rather than aggression. Anger gives rise to
aggression only in the presence of specific environmental cues (or triggers). Triggers may include loud music, television violence, and the effects of drugs and alcohol. One participant explained that most University students have televisions and computers where they watch action or violent movies and eventually act violently. He further maintained that in our society a boy grows up acting aggressively and they learn it from the society. Other situational variables that increase aggression, such as exposure to violent television, movies, or video games, also appear to do so via cognitive cueing effects (Anderson & Dill, 2000). The participants in this study perceived aggression as precipitated by media accessibility and exposure.

According to social learning theories Bandura (1983), Mischel (1973), Mischel and Shoda (1995), people acquire aggressive responses the same way they acquire other complex forms of social behavior either by direct experience or by observing others. Social learning theory explains the acquisition of aggressive behaviors, via observational learning processes, and provides a useful set of concepts for understanding and describing the beliefs and expectations that guide social behavior.

Bandura (1977) argues that people learn to behave aggressively through reinforcement and observation. There are numerous examples of reinforced human aggression: controlled aggression in sport is usually required to win, aggressive children often get their own way with other children, in many societies male dominance and aggression is respected and prized.

Freedman (2002) supported this thought that behaviors like aggression can be learned by watching and imitating the behavior of others. A considerable amount of evidence suggests that watching violence on television increases the likelihood of short-term aggression in children though for a dissenting viewpoint (Freedman, 2002). Individuals may differ in how they respond to violence. The greatest impact is on those who are already prone to violent behavior. Adults may be influenced by violence in media as well. A long-term study of over 700 families found "a significant association" between the amount of time spent watching violent television as a teenager and the likelihood of committing acts of aggression later in life. The results remained the same in spite of factors such as family income, parental education and neighborhood violence.
Although exposure to violence in media is associated with likelihood of short-term increases in aggression, none of these studies provide evidence for a definitive causal mechanism. Instead, violence in media may be one of many factors, or it may play a maintenance role since violent media tend to be selected by people who are prone to violence (Freedman, 2002).

In supporting a notion by one participant, Huesmann (1986, 1998) proposed that when children or young adults observe violence in the mass media, they learn aggressive scripts. Scripts define situations and guide behavior: The person first selects a script to represent the situation and then assumes a role in the script. Once a script has been learned, it may be retrieved at some later time and used as a guide for behavior. This approach can be seen as a more specific and detailed account of social learning processes.

### 4.3.10. Intolerance

Some participants had a strong feeling that most drivers have lost of Ubuntu (sense of caring for the other is lacking). As a result, they have developed negative attitudes on roads. Attitudes are general evaluations people hold about themselves, other people, objects, and issues (Petty & Cacioppo, 1986). Positive attitudes towards violence in general also prepare certain individuals for aggression. More specific positive attitudes about violence against specific groups of people also increase aggression against those people. In supporting this notion, some male drivers have developed intolerance especially against women. For example, attitudes about violence against women are positively related to sexual aggressiveness against women (Malamuth et al, 1995). Males prone to aggress against women are not generally aggressive against all people in all situations; rather, they specifically target women (but not men) who have provoked them (Anderson & Deuser, 1996).

Driving, on the other hand, may provide a greater field for stress and tension to accumulate, without providing an outlet. Congestion is also undoubtedly an issue. As a result of this, some drivers find it difficult to behave as they are supposed to and become intolerant. Few drivers can claim to have never found themselves caught up in dense traffic which impedes their progress, whereas on most streets a pedestrian's progress is limited primarily by his or her physical
capability. Drivers must also adhere to stringent limitations placed on their speed and movement, prescribed directly (by speed limits or variations in the number of lanes available) and indirectly (by congestion). This means that it is easier for the driver to ascribe his frustration at being impeded to an ambiguous source, especially if he sees no reason for the obstruction (Connell, 1996).

Attribution theory has been used to explain aggressive driving behavior as a function of the attributions individuals make about their own behavior and that of other drivers. For example, when committing a traffic violation, drivers tend to attribute their own behavior to situational factors, but when another driver commits the violation, the behavior is more likely to be attributed to dispositional factors. This attribution bias may be a potential source of aggression because drivers may underestimate the extent to which their own aggressive driving behavior can cause anger in other drivers. There may also be a tendency in some drivers to interpret the intent of other drivers (who drive aggressively) as hostile and personally vindictive, especially when there is an absence of cues to indicate clear intent. This factor, known as hostile attribution bias, was examined in the context of driving in a study conducted by (Matthews & Desmond, 2002).

4.4. Conclusion

Chapter four has given an in-depth understanding of data that was collected in chapter three. The stories of participants have been retold in the form of vignettes. Common emerging themes have been extracted from the collected data. If one were to list some of the cognitive and environmental factors that have been shown to cause aggression, one would have a long list; anger, frustration, deprivation, opportunity for instrumental gain, desire for power, modeling and media violence, heat, and scapegoating, loud noise, presence of weapons, alcohol and drug-induced states and overcrowding. On the other hand, drivers of the area also tend to disrespect other road users and not comply with the rules of the road. There are also drivers who are exposed to prolonged driving and this leads them to have fatigue and loss of concentration. Family and work problems affect a lot of drivers and as a result some drivers display displacement. Aggressive driving is also associated with some gender issues. Some males have strong aggression towards women and there is also media violence which promotes aggressive
behavior while driving. Judging from the results, it is clear that drivers in this area, at some point, don’t have the spirit of Ubuntu (the humanity) to other drivers while driving. They appear to be inconsiderate and not willing to cooperate with other road users.

4.5. Resumé

This chapter has focused on a discussion of themes that emerged. These themes were found and discussed through the use of a phenomenological approach to research data analysis. The next chapter looks at conclusion, recommendation, and limitations of the research study. The recommendation and limitations form a crucial part for the future research studies to be conducted which are related on the topic.
CHAPTER FIVE

CONCLUSION, RECOMMENDATIONS AND LIMITATIONS

5.1. Introduction

The focus of this chapter is to draw conclusions on the study and to present the limitations that were encountered when conducting this research study and also look at what the researcher recommends for future research.

5.2. Conclusion

The researcher surmised that a number of factors may contribute to road rage in Empangeni area. Even though this research study came up with few self-perceived psychological factors that are not in the current literature but most of the factors were reaffirmed. Participants’ views and experience on the concept of road rage suggest that substance abuse has been a significant problem in modern society, particularly in youth and males. The researcher discovered that substance abuse is one of the main factors that contribute to road rage in Empangeni area. This factor is linked with a number of other factors because if people are drunk, they can be impatient, disobey roads’ rules and eventually disrespect other road users. An alcoholic can never recognize his/her fault even if it is clear because their state of mind is altered.

Other factors were also found to be linked with the result of substance abuse such as impatience, anger and frustration and not complying with the rules of the road. However, failure to indicate or a poor maneuver by another driver may be enough to trigger a release of the pent-up frustration which is directed towards the offending driver. In general, participants found that a lot of drivers in this area believe that most drivers do not obey the rules of the road at all. It was revealed that people are unable to obey even the simply rules such as speed limits and giving signing before turning, etc.

In some cases it appears that incidents of road rage are caused by simple misunderstandings between drivers. A driver may make a momentary error of judgment but the perception of another
is that he is driving aggressively. It is likely that the cause of the road rage extends beyond the immediate incident. A high level of general stress while driving is one potential factor that may make individuals prone to driving anger and aggression. This may be the result of perceptions of driving situations. For example, highly stressed drivers may be more likely to perceive other drivers as a source of frustration, thereby increasing their own aggressive behavior (Gulian et al, 1990). Family and work-related issues were also amongst the contributing factors to road rage. Most drivers might be the parents in their families and having said that they might experience some problems at home.

A driver may make a momentary error of judgment but the perception of another is that he or she is driving aggressively. It is likely that the cause of the road rage extends beyond the immediate incident. An individual may have had a bad day at work or troubles at home. Driving stress may also interact with other factors, such as conditions of high congestion, to produce aggressive driving. Driving anger was associated with risky driving behaviors, such as reckless driving, and with crash-related conditions, such as loss of concentration, loss of vehicular control, and close calls while driving.

There has been a perception that the content of many movies and television programing is violent, showing little compassion or respect for the rights of others. These influences tend to desensitize their audiences to violence and aggression. Gender is another factor that plays a role in both human and animal aggression. The recent findings were consistent with the argument of some participants who believed that men appear to be more aggressive than women, and they engage themselves in dangerous activities while driving and more likely than females to express their aggression physically. There is evidence that males are quicker to aggression. Judging from the study findings, men tend to be more agitated and find it difficult to cope well when driving behind women. Some participants had a strong feeling that most drivers have lost of Ubuntu (sense of caring for the other is lacking). As a result, they have developed negative attitudes on roads.
5.3. Recommendations

Having concluded the study it is important to make the following recommendations:

1. Drivers should be encouraged to develop a spirit of humanity (ubuntu) to other drivers and a sense of responsibility to their own growth and to the welfare of the community.

2. All drivers are encouraged to work hand-in-hand with other drivers regardless of any other issue they may have while driving.

3. The department of transport could also use a number of programs where all drivers may benefit by learning on how to control their issues, have patient to other drivers especially learner drivers and take responsibility while driving.

4. Drivers should drive well and be courteous, so they will avoid offending other drivers. Additionally, drivers should learn to deal constructively with their own anger. This approach recognizes the importance of dealing with both frustration and aggression, but since it is a voluntary program, it is unclear how well this strategy will work.
5.4. Limitations of the study

1. The size of the sample was small, so generalization of the findings is not possible.

2. The study did not have a 50-50 balance in terms of gender of the participants.

3. The study did not attempt to include any consideration of driving experience on the part of participants themselves, which would have an effect on their responses.
5.5. References


Francis Fukuyama Caroline S. Wagner. This project was conducted in RAND's Science and Technology Policy Institute.


APPENDIX: Questionnaire

Psychology Department
University of Zululand
P/Bag X1001
Kwa-Dlangezwa
3886

Dear Participant

Self-perceived psychological factors contributing to road rage in the Empangeni area.

The attached questionnaire forms part of a research study in respect of a Masters degree in Counseling Psychology. It is hoped that the information obtained will contribute to our understanding of the factors contributing to road rage in this area.

Your participation in this study is voluntary. I would, however, appreciate if you would complete the attached questionnaire. The questionnaire should not take longer than 15 minutes. In this study, your participation is completely anonymous and confidential.

Your participation in this study is highly appreciated.

Thank You
Yours sincerely
Mr. V.V. Nyezi (Counselling Masters Student)

Supervised by
Mr. T.S. Kunene
"I understand the nature and purpose of this study and participate freely and voluntarily. I, therefore, understand that by completing the questionnaire below, I indicate my consent.”

Questionnaire

Biographical details
Gender : 
Age : 
Nationality : 
Race : 
Level of study :

Please fill in the space below by indicating your views and feelings about self-perceived psychological factors that may contribute to road rage in this area that you are in.

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Thank you a lot for your participation