

MINI-REVIEW

## COGNITIVE DISTORTIONS DURING LAW ENFORCEMENT SHOOTING

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### Abstract

Nine systematic studies examining law enforcement reactions during shooting accidents have been published. The research shows that during critical incidents the substantial majority of officers experience specific perceptual distortions. Most commonly experienced distortions are visual or aural. Most frequently reported visual distortion is a tunnel vision, which was present in roughly half of the cases. Altered subjective perception of time was found in all studies researching that problem. Distorted memory and dissociation was reported in more forms in particular studies. All studies used very similar methodology where most of the studies used mailed surveys or questionnaires. The sample size of systematic studies examining law enforcement reactions during the shootings is in majority of studies relatively small up to hundred subjects. All the published studies are on descriptive levels and are not connected with theoretical background. Other studies researched dissociation during critical law enforcement incidents. Future ways of cognitive distortions during the research of shooting incidents are discussed.

*Key words: Law enforcement shooting; Police shooting; Cognitive distortions; Perceptual distortions; Memory distortions; Peritraumatic dissociation*

### 1. INTRODUCTION

Cognitive distortions is the term introduced in the clinical literature by Beck (1976, 1985), who using this term described patterns of biased information processing related to the negative affect. The term perceptual distortion is mostly used for description of phenomena experienced during the periods of extreme stress and describes a lack of correspondence between the way a stimulus is commonly perceived and the way an individual perceives it under special conditions (Hancock, Szalma & Weaver, 2002; Hancock & Weaver, 2005). In this context, study of cognitive distortions during the law enforcement shootings presents important field of research that is useful for understanding of basic mechanisms related to stress influences and also for numerous application in preventive and clinical practice.

### 2. COGNITIVE DISTORTIONS DURING LAW ENFORCEMENT SHOOTINGS

In general this research may be applied for understanding stressful influences per se but it is also applicable for understanding specific problems (Engel & Smith, 2010; Behr, Ivanitskaya, Glaser, Erofeev, & Kanali, 2004), for example the effect of the perceived weapon threat on the

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attention and memory of the threatened person (metaanalysis described by Steblay, 1992) with significant applications for improvement of the law enforcement training.

Mainly this research on cognitive distortions in the periods of extreme stress enables to study consequences of such extreme stress and may help to explore relations between cognitive distortions and following symptoms<sup>6</sup>. For example, several studies explored different forms of dissociations and their influence on the etiology of Posttraumatic Stress Disorder (PTSD) (Briere, Scott & Weathers, 2005) or relation of Acute Stress Disorder (ACD) and Posttraumatic Stress Symptoms (PTSS) (Classen, Koopman, Hales & Spiegel, 1998). In this context, several authors also studied relationship between peritraumatic dissociation during extreme stress periods and posttraumatic stress symptoms in various populations such as Vietnam War veterans (Marmar et al., 1994), road traffic accident survivors (Ursano et al., 1999; Murray, Ehlers & Mayou, 2002) or World Trade Centre Disaster survivors (Knutelska, Schmeidler & Hollander, 2003; Haj-Yahia, Tishby & de Zoysa, 2009).

All the literature found on perceptual distortions during the shootings was written exclusively by the law enforcement psychologists. In police psychology the attention of psychologists was originally aimed on the most stressful situation of the police work and officer-involved-shooting (Fishkin, 1988; McMain, 1986; Solomon & Horn, 1986). In this context, specific term the post-shooting-trauma was consequently introduced in connection with the officer-involved-shooting. The other term – “deadly force” had been used in connection with the law enforcement shooting. This judiciary term was quoted in the law enforcement psychology mainly due to legal reasons.

In the 1980s, the concept of traumatic event in the law enforcement psychology became more broadened and other traumatic situations other than shootings have been identified and studied. Particularly useful for this study was research performed by Mitchell & Bray (1990) who defined the critical incident as an event that has a sufficient emotional power to overcome usual coping abilities of the individual. In this context, also Nielsen (1981) defines traumatic, unexpected and serious threat to the well-being of the individual that contains an element of loss and involves disruption of individual values or assumptions about the environment. Specifically applied terminology by McMain (1991) defines critical incident as the situation that reminds the officer of his limits and overwhelms the individual's ability to cope to some degree with the traumatic experiences (Loo, 1986; Gersons, 1989; Miller, 1995; Ross & Alison, 1999; Carlier, Voerman & Gerson, 2000; Chopko, 2010). Similarly, Miller (2006) described the specific psychological reactions in context of various administrative, legal, mental health and peer support services. Majority of studies were devoted to the strength of PTSD symptoms and effectiveness of psychotherapy (Sewell & Crew, 1984; Loo, 1986; Gerson, 1989; Miller, 1995; Kureczka, 2002; Karlsson, Christianson, 2006). Efficiency of post-traumatic debriefing of the law enforcement officers involved in shooting scenarios was also examined (for example Ross & Alison, 1999; Carlier, Voerman & Gersons, 2000; Chopko, 2010). The symptoms and strengths of different outer stressors following the shooting scenarios (such as the agency's investigation procedures or criminal proceedings) was also investigated in some studies, for example (Gudjonsson & Adlam, 1983; Brown, Fielding & Grover, 1999; Patterson, 2001; Hodgins, Creamer & Bell, 2001; Brubaker, 2002; Plaxton-Hennings, 2004).

### **3. SUMMARY OF THE BIBLIOGRAPHY ON REACTIONS DURING POLICE SHOOTINGS**

Despite of the fact that shootings incidents are known traumatic events for law enforcement officers, there has been so far only nine systematic studies published examining the law

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<sup>6</sup> This is probably the intention why the majority of the studies found by the author of this review the following consequences explored as described thereafter.

enforcement reactions during the shootings. Chronologically these are the works of Nielsen (1981), Solomon & Horn (1986), Manolias & Hyatt-Williams (1986), Hillas & Cox (1986), Campbell (1992), Honig & Roland (1998), Klinger (2001), Artwohl (2002)<sup>7</sup> and Honig & Sultan (2004). Some of the works studied reactions following the shooting were also published (Nielsen, 1981; Solomon & Horn, 1986; Campbell, 1992; Honig & Roland, 1998; Klinger, 2001; Honig & Sultan, 2004). Some other studies were directly focused on dissociation during critical law enforcement incidents (Reiser & Greiger, 1984; Martell, Rivard, Dietz & Widawski, 2002; Fagan et al. 2006). Sample size of the mentioned eight studies examining law enforcement reactions during the shootings is comparable and relatively small, ranging from 25 subjects (Manolias & Hyatt-Williams, 1986) to 348 subjects Honig & Roland (1998). The ninth work is the exception, in the work by Honig & Sultan (2004) the size sample has 982 subjects.

All studies used a very similar methodology. Majority of the studies used mailed survey or questionnaire methodology, while studies of Manolias & Hyatt-Williams (1986) and Hillas & Cox (1986) used a structured interview. Campbell (1992) used personally administered questionnaire supported by an interview.

Despite of the fact that the mentioned research studies have certain limitations as for the sample size and sometimes are methodologically controversial, these studies strongly suggest that during critical incidents the substantial majority of the officers experience specific perceptual distortions that occur in the relatively high numbers of cases in the range from 43% (Hillas & Cox, 1986) to 95% (Klinger, 2001). In all studies most commonly experienced distortions were visual or aural (Klinger, 2001; Artwohl, 2002). The other most frequently noticed distortion was the diminished sound, which was present in the majority of studies, ranging from 42% (Campbell, 1992) to 82% (Artwohl, 2002). Concerning tunnel vision as the most frequently reported distortion category there occurrence varies from 37% (Solomon & Horn, 1986) to 79% (Artwohl, 2002). (It needed to note that most of the findings made by Artwohl, 2002, were surprisingly highest from all the studies, which may be due to an unknown, most likely the methodological cause in her study).

Altered subjective perception of time, namely the feeling of time moving slowly, was found in all studies focused on these symptoms<sup>8</sup>. The results varied in the range from 34% (Campbell, 1992) to 67% (Solomon & Horn, 1986). The feeling of slow moving time was reported almost twice as frequently as the feeling of time moving faster. The feeling of time moving faster ranged from 15% (Solomon & Horn, 1986) to 23% Klinger (2001).

Altered memory was reported in various forms such as memory loss for part of the event was detected (Manolias & Hyatt-Williams, 1986; Honig & Roland, 1998; Artwohl, 2002; Honig & Sultan, 2004), ranging from 20% (Honig & Sultan, 2004) to 52% (Artwohl, 2002). For example, Manolias & Hyatt-Williams (1986) reported altered memory sequence of events and amnesia for part of the incident and Artwohl (2002) reported remembering an event that did not happen or an event that happened very differently.

Dissociation has also been reported in some studies. Dissociation in this context was noticed for the first time by Reiser & Geiger (1984). Later Klinger (2001) found relation between peritraumatic dissociation and post-shooting symptoms. Fagan et al. (2006) studied peritraumatic dissociation and concluded that an incident with a greater personal threat places an officer at a greater risk of post-traumatic distress. Artwohl (2002) reported that 39% of subjects from her sample experienced dissociation and similarly Martell, Rivard, Widawski & Dietz (2002) found that 90% of the responding officers reported experiencing a dissociative response during the law enforcement shooting scenarios.

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<sup>7</sup> Results published already in the popular book by Artwohl & Christensen (1997).

<sup>8</sup> It is not clear from Hillas & Cox (1986) why perception of time was not investigated.

#### 4. CONCLUSIONS

Studying cognitive distortions during the shootings is an attractive and a very much discussed, yet not very researched topic which is located somewhere on the crossroads between the law enforcement, forensic and clinical psychologies. Perceptible fact is that the studies and articles cited in this review were published in various sources. Published to some extent in the medical and psychological literature and partly also in the police journals as the reports of the governmental forensic institutions makes them difficult to interconnect and to compare. Therefore the studies are not much known to psychologists and in particular to clinical psychologists and psychiatrists. Sometimes it is even hard to read these studies because of the specific language which mixes the words of the law enforcement and clinical origins together. More so same words can have different meanings in different studies. The lack of common terminological consensus is obvious<sup>9</sup>. It is this review author's opinion that clinical psychology area is after all an environment which finally enables us to cover and integrate findings from different research areas.

From the nine researches mentioned, it is also evident that researching perceptual distortions during shooting incidents is methodologically difficult. Phenomenological interpretative proceeding is probably the only available way of studying the cognitive distortions during the law enforcement shootings in the quantitative proportion; the other ways of its exploring - like the single case studies - (combining the documentation of the incidents or security cameras record analysis) are extremely complicated.

Limitation of the study is not only in the available sample size, but in particular in its identification. The recorded precise information on the policeman who fired the shot is usually available, because the policeman who used his weapon against other person is always investigated. His case is firmly registered. On the other hand the soldier in the field who used his weapon is investigated only sometimes. (All the administrative consequences in the field are usually brief, if any). In addition, the soldier does not always know the result of his own weapon discharge.

The other problem is the location of sample subjects which are not concentrated in one place like in hospital, but which are dispersed in a large area. Therefore the most frequently used methodology for the studies of perceptual distortion is the mailed survey or a questionnaire. In some situations it becomes obvious that as the sample size is larger, the quality of the exploited information decreases due to the survey methodology which was used instead of an interview.

These are probably two main reasons, why all the literature found on perceptual distortions during the shootings was written only by the law enforcement psychologists. The law enforcement environment enables some form of systematical research where the comprehensive sample can be identified and located<sup>10</sup>.

Almost all the systematic studies on law enforcement officer's reactions during the shootings are on descriptive level without the intention to explain or predict the cognitive distortions phenomena under extreme stress. Findings in the studies are not connected with the available theories; the only exception is the Artwohl's (2002) work attempting to explain particular perceptual distortion phenomena with Epstein's (2003) cognitive rational theory of personality. There have also been similar research overviews studying the decision making process under extreme stress published in the germane resembling areas (Bourne & Yaroush, 2003; Driskell, Mullen, Johnson, Hughes & Batchelor, 1992; Driskell & Salas, 1996; Stokes &

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<sup>9</sup> For example the word dissociation used by Campbell (1992), Artwohl (2002) and Martell et al. (2002) has in single studies different meanings.

<sup>10</sup> Even the military psychology textbook written most recently (Kennedy & Zillmer, 2006) does not have a chapter devoted to reactions during the shooting. Army and clinical researches are concerned on combat experience. A few military works interested in shooting were focused on the so-called ratio of fire where well known are the works of Marshall (1947) and Holmes (1985).

Kite, 1994; Stall, 2004), where theoretical frameworks for explaining cognition under stress has been used<sup>11</sup>.

The author's opinion is that interpreting the future cognitive distortions during the law enforcement shooting research findings in the specific theoretical background frame is necessary, because that is what enables us to scientifically explore them.

To enable further research in the field of cognitive distortion during law enforcement shootings is therefore crucial to connecting the findings of the (thus far) isolated law enforcement studies with findings from other areas, especially those of academic background and the clinically oriented findings.

It seems to the author that cognitive distortions during the law enforcement shooting problem is up to some degree identical to peritraumatic dissociation problem described by the clinicians from their point of view. The transcendence of different points of view is noticeable on both sides. Clinical psychology can describe and explain the problems easier using a firm nomenclature, classification and methodology; the law enforcement psychology can enrich and stimulate the clinical psychologists with the detailed views of specific event and its consequences.

Finally, it is noticeable that none of the cited nine systematic studies attempted to explore cognitive distortions under stress in relation to other important variables. Not a single study raised the question: What is the relation between cognitive distortions in extremely stressful situations and the personality?

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<sup>11</sup> Among others there is for example Easterbrook's hypothesis (1959), Kahneman's (1973) cognitive- energetic model or Hammond's cognitive continuum theory, 2000.

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