Rom J Leg Med [23] 137-142 [2015]
DOI: 10.4323/rjlm.2015.137
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Homicide and alcohol consumption. A medico-legal and psychiatric interdisciplinary approach. Multivariate analysis

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Abstract: Alcohol-related disorder is defined as a cluster including behavioural changes and physical symptoms. The ICD-10-CM code includes alcohol intoxication, alcohol withdrawal and another alcohol-induced mental disorders. The most severe behavioural changes of alcohol-related disorders is represented by aggressive behaviour. The hereby study analyses how aggressiveness is manifested in murderers. This is a document-based retrospective study, regarding a batch of 185 murderers who have been subject to forensic psychiatric expertise for homicide. Many variables were analysed, with the study targeting a possible correlation between alcohol-related disorders and the features of a homicide (impulsive or elaborated homicide, homicide with/without cruelty). Alcohol-related disorders were grouped into two categories: alcohol intoxication (classified as a "circumstance") and the remaining psychiatric alcohol-related disorders (classified as "conditions"). The following have been considered: distress factors, social support (primary support included), co-morbidity with organic mental disorders, personality disorders, psychotic disorders and bipolar disorders. The analysis models were the following: Kendall bivariate correlation, cross-tabulation, cluster analysis and factorial analysis. The SPSS 16 software was used. The obtained results showed that, irrespective of whether the homicide was perpetrated strictly under the influence of alcohol (non-pathological use of alcohol or alcohol intoxication - "alcohol - circumstance") or within a severe alcohol-related pathology ("alcohol - condition"), the mechanisms triggering homicide are similar, with co-factoriality being more important than psychiatric co-morbidity in orientation towards aggressiveness.
Key Words: alcohol – related disorders, homicide, circumstances, conditions.

Classically, the severity of substance-induced disorders is assessed depending on the severity of symptoms (mild, moderate and severe), but homicide is not a psychiatric symptom. Homicide generally represents an extreme behaviour, with multiple causality, negatively felt at a social level and closely related to aggressiveness. Irrespective of whether it is defined from a biological or social perspective, within a widely accepted or a restricted meaning, aggressiveness involves discussions on orientation towards aggressiveness and the relations between homicide and psychiatric pathology. From the point of view of forensic psychiatry, legal medicine, forensics and criminology, the following issues are discussed: how the homicide was performed and its possible relation to psychological disorders, with concepts ranging from the ignoring of psychiatric pathology to excessive psychiatric treatment. When dealing with homicide done under the influence of alcohol, it is not only theoretical concepts that differ, but also the prevention policies adopted by each country [1]. Only the theoretical approaches on how the homicide may have been performed and those regarding the

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assessment of the murderer's psychological capacity when the homicide was performed can be deemed to be common. [1, 2]. This study analyses the possible correlations between how the homicide was performed and alcohol-related disorders, identified in the murderer.

METHODOLOGY

1. The study is technical and retrospective, based on documents, i.e. the forensic psychiatric reports draw up for a batch of murderers who have been subject to psychiatric examination by one of the authors. The psychiatric examination and the elaboration of expertise reports were performed according to Romanian criminal law; however, at the level of such assessments, only the patients where differences of opinion have been found regarding the assessment of the psychological capacity compared to the perpetrated crime shall be subject to examination. As a result of such legal provisions, the batch was formed in a passive manner, through legal provisions and not for legal reasons, with the patients fully describing psychiatric symptoms. According to the organisation of the legal medicine network, the experts were provided with medical, medico-legal (the autopsies of victims) and non-medical documents [3].

2. The study was performed in accordance with the ICD -10 - CM code and DSM – 5 – TM.

3. The conceptual approach is characterised as follows: psychological normality - "an individual's capacity to adjust to environmental conditions in a modulated and efficient manner" (Dan Prelipceanu) [5]; aggressiveness - a full dis-adaptive failure, lying at an extreme; homicide in relation to psychiatry, as being "a posteriori", not "a priori" [4, 5]; the aetiological substrate of aggressiveness reflects the aetio-pathogenic complexity of a psychological disease (classified within the 5 diagnosis axes), with personality disorders being the most involved [1, 4-6]; the severity of psychiatric symptoms models the manifestation of aggressiveness [1]; co-morbidity between the first two axes of psychiatric diagnosis and psychiatric co-morbidity with the 3rd axis of diagnosis (somatic pathology) do not alter the above mentioned statements [1, 6]; global statistical data cannot be efficiently used for assessing the correlation between life quality and aggressiveness, since human conduct results from a combination of factors [1, 2] and does not reflect the impact of a social aspect upon behavioural extremes [1, 3, 4].

4. Operational concepts:

4.1. circumstances are biological, psychological, social, spiritual. The circumstances influence the motivation, the reason (the cause for the perpetration of the deed), the motive or absence of motive (the purpose or absence of purpose for the homicide) [1, 3, 8, 9].

4.2. alcohol consumption upon the perpetration of the homicide was considered a "circumstance" [1], irrespective of whether it was "non-pathological use of alcohol" or "alcohol intoxication", without the following symptoms: impairment in attention or memory, stupor or coma.

4.3. a "condition" is a phenomenon by which the same cause has various effects or the same effect is the consequence of different causes. It has a modelling function and particularises an effect. Particularisation determines variation on a case-by-case basis [1, 9].

4.4. the pre-existing pathology related to the murderer's alcohol consumption (irrespective of the nosological classification and intensity) was classified as a "condition" [1].

5. The constitution of the batch to be investigated: A batch of 185 murderers was established. The following variables were analysed: sex, age, alcohol consumption when the deed was perpetrated ("alcohol - circumstance"), pre-existing pathology related to alcohol consumption ("alcohol - condition"), response (impulsive - explosive, premeditated), way of perpetration (with/without cruelty), methods of perpetration (cutting - stabbing, strangulation, beating), distress factors, primary support, social support.

6. The batch was analysed by Kendal bivariate correlation methods, cross-tabulation, cluster analysis and factorial analysis. The SPSS 16 software was used.

RESULTS AND DISCUSSIONS

1. Characterisation of the batch – cross-tabulation.

1.1. In N = 185 murderers, the involvement of alcohol-related pathology was certified for 65 (84.6%) cases; of these, 55 met the theoretical conditions for classification in the "alcohol - circumstance" group and 10 for the "alcohol - condition" group.

1.2. In N=185, the male group dominated (80.5%), the age group "16-25 years" (28%), followed by the age groups "26-35 years" (22.2%), "35-46 years" and "46-55 years" (15.1% each group).

1.3. In N=185, impulsive response dominated (41.6%), followed by premeditated response (31.9%), homicide "without cruelty" (64.9%), perpetration with "various hits" (55.7%), followed by "cutting - stabbing" (31.9%), mixed distress factors (25%), followed by coping deficit (22.2%), improper primary support (17.8%), improper social support (25.9%), average economic status (40.5%), the absence of an occupation (34.6%), personality disorders (47%).

1.4. Cross-tabulation analysis also outlined:

1.4.1. A relation "loneliness - psychotic episodes", due to alcohol consumption.

1.4.2. Harmful alcohol consumption is related to all forms of improper social support.

1.4.3. The inclusion in a criminal group is not significant for alcoholic murderers.

1.4.4. In patients with established chronic consumption of alcohol there are no significant differences between aggressive and non-aggressive criminal record.

1.4.5. It would, hence, result that alcoholic pathological psychiatry would represent a vulnerability factor for murderers that is already displaced into the biological area, while alcohol consumption ("circumstance") would represent (outside alcohol-related psychiatric pathology) a triggering factor on a vulnerable basis (probably dominant at a psychological and social level).

1.4.6. All the relations in this correlative line comply with scientific literature on the behavioural complications of alcohol consumption.

1.5. For domestic homicide (N=185 and N1 - domestic homicide = 77 and N2 - domestic homicide with alcohol consumption involved = 54), cross-tabulated analysis shows:

1.5.1. Alcohol involvement (as a condition and circumstance - chronic alcoholism with/without psychotic episodes + consumption upon perpetration) - dominant in the aggressor, followed by the existence of this situation in both partners.

1.5.1.1. It is assessed that, since the frequently invoked state of "drunkenness" results in behavioural disinhibition, the analysed correlation (obvious in this very same batch) raises the issue of the possible existence of a psychiatric pathology, which has not been diagnosed, due to alcohol consumption, which should perhaps be taken into account at a decision level when psychological prophylactic and preventive programmes are drawn up.

1.5.1.2. It is our belief that, since the mechanisms triggering addictiveness are common to all psychoactive substances (the difference consists especially of the symptomatic pattern and the psycho-pathological severity), an increased risk for aggressive behaviour should be taken into account in couples with such "habits".

1.5.2. Both in the deeds perpetrated along the relation "alcohol - circumstance", and in those perpetrated along the relation "alcohol - condition", the male sex prevails both as an aggressor and as a victim; for N2=54, 15 men were victims; of these, 9 were victims within the aggressor-victim male couple (father-son), and the 6 women included in the batch were aggressors; the following would result:

1.5.2.1. victim-related aspects in domestic homicide are obvious, showing the necessity of psychological prophylactic and preventive measures.

1.5.2.2. male sex is related to aggressiveness and alcohol consumption; alcoholic pathology enhances the correlation of aggressiveness to male sex (according to the data in literature) [10].

1.5.3. Along the relation domestic homicide - "alcohol - circumstance", the age group 26-55 years prevails, followed by the 16-25 years and 56-65 groups; if a biological explanation (related to the physical possibilities of defence) is available for the progressive decrease as of 56 years onwards, the correlation with the 16-25 years group reflects both a decrease in the age when alcohol abuse begins and educational deficits, the failure to acquire coping mechanisms, the absence of a clear purpose for future, improper models; it has to be remembered, however, that its absence in the analysed batch prevails until 35 years, which should not leave us passive to the general aggressiveness related to an alcoholic pathology that already appears from young ages.

1.5.4. Along the relation domestic homicide - "alcohol - condition", the age group 26-55 years (with equal decades) prevails in aggressors; this group is followed by 16-25 years and 56-65 years; in victims, the age group 46-55 years prevails, followed by the group 66-75 years (the dominance of these groups with interruption for the 56-65 years decade is relative, given the criteria for inclusion in the murderers' batch - a batch out of which the sub-batch for domestic homicide was extracted, as well as the scarce information on victims).

1.5.5. For the entire sub-batch (N2=77), the age group involved in homicide is 36-45 years, followed by the 46-55 years group at a short distance; the results comply with the information in scientific literature [10]; the place occupied by the 16-25 years age group (in the aggressor) is highly relevant, since alcohol-related psychiatric pathology is involved.

1.6. As for the consumption of alcohol when the domestic murder was perpetrated, in relation to personality disorders, it is found that it is dominant in both (aggressor and victim), followed by the victim (the intervention of the random factor is also possible in this case, as regards the context of the aggression resulting in murder - a drunken victim cannot efficiently defend himself/herself); Psychological and organic disorders (immediately following personality disorders) follow the aggressor-victim-both triad (as with alcohol-related pathology). Psychotic disorders only appear in the victim, while adjustment disorders appear similarly to those observed in alcohol-related pathology.

2. Kendall Bivariate Correlation

2.1. For a correlation level ≤ 0.01 (Table 1), in N=185, for a correlation level ≤ 0.01, alcohol consumption when the deed was perpetrated ("alcohol-circumstance") is correlated to sex (with male sex prevailing in the analysed cases), while alcohol-related pathology (ALCOHOL-CONDITION) is correlated to social support.

2.2. For N=185 and a correlation level ≤ 0.05, alcohol correlates to no variable.

2.3. For N=185 and a correlation level ≤ 0.05 (Table 2), sex (with male sex prevailing in the analysed batch) is correlated to the primary support (with improper primary support prevailing in the analysed batch).

Table 1. Correlation level ≤ 0.01

No.	Correlated variables	N1	Tau_b - coefficient
1	alcohol circumstance - sex	68	0.489
2.	sex - personality disorders	89	0.275
3.	sex - age		-0.206
4.	sex - response	185	0.196
5	age - response	185	-0.207
7.	age - economic status	165	0.182
8.	age - methods	185	-0.164
9.	personality disorders - distress factors	47	0.362
10.	alcohol condition - social support	52	-0.354
11.	psychiatric diagnosis axis i - personality disorders (co-morbidity)	89	-0.425
12	response - neurological pathology	53	-0.320
13	primary support - social support	85	0.239
14.	psychiatric diagnostic - occupation	162	-0.168
16.	economic status - social support	131	-0.225

Table 2. Correlation level ≤ 0.05

No.	Correlated variables	N	Tau_b coefficient
1.	sex - primary support	100	-0.198
2.	age - social support	138	-0.174

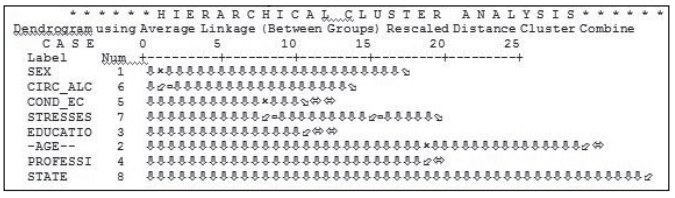

Figure 1. Cluster analysis: "alcohol - circumstance".
Legend: CIRC_ALC = "alcohol – circumstance"; COND_EC = "economic condition"; EDUCATIO = education level; PROFESSI= "profession";

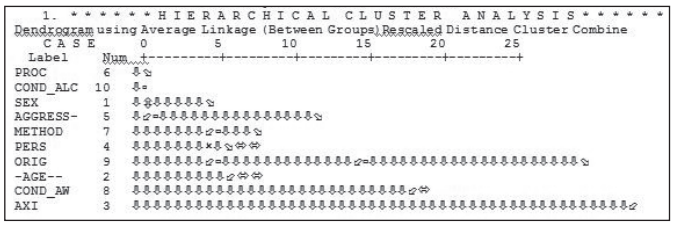

Figure 2. Cluster analysis: "Alcohol - condition".
Legend: PROC = "manner homicide"(cruelty); COND_ALC = "alcohol – "condition"; AGRESS = "aggression type (impulsive or deliberate); METHOD = "homicide method"; PERS = "personality disorder"; ORIG = "native family"; COND_AW = "alcohol withdrawal"; AXI = "diagnostic of mental disorders"

2.4. Discussion

2.4.1. The involvement of alcohol in the analysed batch is correlated to sex and social support;

2.4.2. Considering the other mentioned correlations, the following relations may be considered:

2.4.2.1. For a correlation level tau_b = „≤ 0.01", ALCOHOL - CIRCUMSTANCE is correlated to sex (male sex in our study), but sex is correlated, at the same level of correlation, to personality/conduct disorders, age and response (with impulsive reactions prevailing in our study); age is correlated (at the same correlation level) to psychiatric diagnostic, education level, social support, neurological pathology, occupation, economic status and methods of murder; personality disorders are correlated to distress factors.

2.4.2.2. For a correlation level tau_b = ≤ 0.01, ALCOHOL-CONDITION (alcohol related pathology) is correlated to social support, but social support is correlated to primary support (family) on the same level;

2.4.2.3. It is, thus, found that a causal relation for murder shows multiple vulnerability in murderers who have consumed alcohol and covers risk factors for both homicide and improper alcohol consumption.

3. Multivariate Cluster Analysis for Interdependence Cluster analyses were performed from the perspective of primarily endogenous and exogenous conditioning, with a view to establishing a hierarchy of the vulnerabilities involved in the homicide.

3.1. Alcohol - circumstance (Fig. 1):

3.1.1. 4 clusters are obtained: Cluster I: the sex of the individual or alcohol-circumstance; Cluster II: distress factors or economic status, level of education and one of the two factors representing cluster I; Cluster III: age or occupation, level of education and one of the two similar factors of cluster II; Cluster IV: economic status, one of the factors of cluster III, one of the factors of cluster III, and one of the factors of cluster II;

3.1.2. The following issues are found: the clusters are similarly grouped around the two reference components; homicide perpetrated under influence of alcohol (in the absence of an alcohol-related psychiatric pathology), considered as a "circumstance", can define the first cluster by itself (equally to the male sex).

3.2. Cluster analysis - "alcohol - condition" (Fig. 2).

3.2.1. The following are obtained: 4 clusters: cluster I: one of the following factors: the sex of the individual or alcohol - condition or response or type of aggression (with/without cruelty, equally participating in the formation of this cluster); cluster II: one of the factors sex or type of aggression and methods of perpetration; cluster III: personality disorder or detrimental primary support, age and one of the factors included in cluster II; cluster IV: psychological organic substrate and psychiatric diagnostic in association with one of the factors included in cluster III;

3.2.2. The following issues are found: 4 clusters have been formed, being similarly grouped around the two reference components (sex and age), with better expressed polarisation; chronic alcoholism (with or without previous psychotic episodes), considered a "condition", may define a cluster (the first cluster) by itself, being equal, in the intervention of homicide triggering mechanisms (in male sex), to the response (prevalently impulsive), absence of cruelty (cruelty in the perpetration of homicide not representing a pattern for homicide perpetrated by alcohol addicts).

3.2.3 Discussion:

The analysis of the two dendrograms shows that: - ALCOHOL - CIRCUMSTANCE has the same status as ALCOHOL - CONDITION, both in terms of hierarchy and relation with sex; it would hence result that, irrespective of the situation, it may trigger the same mechanisms so that, perhaps, we should modify a little our view on tolerance of simple drunkenness; Distress factors occupy the same hierarchical position as economic status and they are also related to the education level (the failure to acquire coping mechanisms, with disproportional responses to frustrating factors), a combination facilitating primitive responses.

4. Multivariate Factorial Analysis for Interdependence.

4.1. An extraction has resulted in the establishment of a joint factor including sex, age and absence of cruelty, referred to as the endogenous "e" factor; after 3 rotations, 2 components were obtained for this factor:

4.1.1. a component related to the endogenous "e" factor is represented by the murderer's sex, related to personality disorders and response; this relation converges with the commented remarks of cross-tabular analysis.

4.1.2. a second component includes the individual's sex and social support.

4.2. The individual's sex (according to cross-tabulation and dendrograms) is involved (in the perpetration of homicide) to the same extent as alcohol consumption (circumstance and/or condition).

4.3. By logical deduction, a conditioning results between alcohol - male sex - absence of cruelty - improper social support, alcohol acquiring the value of condition and/or circumstance (on a case by case basis).

CONCLUSIONS

1. The analysis of the batch that has been analysed with the described variables shows that:

- A rigorous "profile" of the "alcoholic murderer" cannot be determined;

- Causality is indirect and cumulative, "alcohol - condition" forming a dynamic pattern of interaction along the line of co-morbidity associated to co-factoriality, in close connection with "alcohol - circumstance";

- Aetio-pathogenic mechanisms are multiple and cover the entire ontogeny of personality, with interchangeable risk factors;

1. Alcohol consumption acts as a vulnerability factor (at a biological, psychological.

2. and social level) with a feedback model;

3. The vulnerability risk of alcohol consumption, possibly triggering the expression of aggressive potential with orientation towards homicide can be systematised as follows:

4. Alcohol consumption (circumstance or condition) is associated to one or several factors such as: male sex, personality disorders, age groups of maturity with slow displacement towards younger groups (16-25 years), impulsive-explosive response, improper primary support (family), improper social support (education included, unfavourable economic status), failure to acquire coping mechanisms;

5. From the perspective of stress management, the most vulnerable are aggressive individuals who have failed to acquire proper coping mechanisms and those exposed to multiple stress without strong quotation, dealing with a so-called "state of chronic stress"; in this context, the identification of the real possibilities of orienting education towards the acquisition of coping mechanisms adequate to an optimal stress management and attachment to the values of a harmonious psychological and somatic development (the part of psychological prophylaxis).

6. In homicide, psychological stress is correlated to biological stress;

7. In domestic aggressiveness, the relevant variable is not the type of family, but the quality of aggressor-victim relations within the domestic group, with or without a history of alcohol consumption;

8. Psychiatric and neurological co-morbidity, with the involvement of alcohol (or other psychoactive substance) consumption represents a severe degree of vulnerability for aggressive behaviour.

9. Homicide in relation to alcohol consumption is primarily characterised by co-factoriality and then by co-morbidity;

10. Alcohol-circumstance has the same status as alcohol-condition, both in terms of hierarchy and relations to other factors; it would result that, irrespective of the situation, the same mechanisms orienting towards aggressiveness may be triggered; it would result that a change in views is required, both at a macrosocial and a microsocial level (also in customs) regarding tolerance of simple drunkenness (guides - also on the assessment of psychological capacities, guidelines, prevention programmes, etc.);

Limits of the study. The establishment of the batch (passive, according to the Romanian Criminal Code).

Conflict of interest. None.

Acknowledgment. The project "Study of the Moral and Professional Profile of Experts in Psychiatric Medico-Legal Assessment Commissions in Romania" financed by the "Grigore T. Popa" University of Medicine and Pharmacy of Iași, Romania.

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