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Research Article

The Analysis of Criminogenic Factors in a Sample of Drug Addicts: The Relevance of the Social -Environmental Element in Antisocial Behavior. Pilot Study

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Abstract

Introduction: Behavior is the consequence of cognitive processes that originate from multifactorial products, such as genetic predisposition, education received, and experience gained from the family and social context of reference. The deficiency or defect of one or more of these factors could cause psychopathological shaping in the individual that can foster or nurture deviant or antisocial behavior. It is necessary to investigate what are the main factors underlying the criminal phenomenon.

Materials and methods: The literature up to August 2024 was reviewed and 40 articles were included in the research. The survey was conducted through the administration of an experimental Questionnaire-type sociological survey (QA2CPICB).

Results: In this pilot study, a population of 49 individuals (42 males and 7 females) most with criminal records and currently addicted to narcotic substances / drugs / alcohol, aged between 24 and 57 years (M: 39.7; SD: 9.1), residents or permanent residents of the "Emmanuel" Communities of the Apulia Region (Italy), were selected. The variable of age is negatively correlated with the areas investigated by the QA2CPICB (as age increases, the impact of the factors investigated decreases).

Conclusion: Variables that can describe lived life influences (such as traumatic childhood events, critical family and work issues, economic poverty in adulthood, and lack of stable and lasting affective-emotional support), psychiatric disorders, and social-environmental influences (such as degraded, poor, and/or criminal family and social environment) are negatively correlated with the age variable and serve as positive reinforcers for maintaining the pathological state of drug addiction and engaging in deviant or criminal conduct to procure the necessary economic liquidity. Early intervention, reeducation and economic-work support can act as a deterrent and negative reinforcer on drug addiction, promoting patient recovery and limiting further legally relevant behavior in the justice system.

Key points

1. The social-environmental factor plays a central role in maintaining criminal conduct. 2. Criminal conduct is the prerequisite for nurturing the substance-dependence state of drug addicts. 3. Early intervention, reeducation and economic-work support can act as a deterrent and negative reinforcer on drug addiction, promoting patient recovery and limiting further legally relevant behavior in the justice system.

Abbreviations

SPIC: Spinelli-piccininno Experimental Protocol for the Development of Emotional Awareness and Management; QA2CPICB: Social-criminological Survey Questionnaire, Second Version; M&RJ: Mindfulness and Restorative Justice; ACT: Acceptance and Commitment Therapy

Background

In the past, social-anthropological literature argued that human behavior was the product of innate characteristics [1] but recent neuroscientific studies have shown that behavior is the consequence of cognitive processes that originate from multifactorial products [2], such as genetic predisposition [3],

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education received [4] and experience acquired from the family and social context of reference [5]. In this way, personality appears to be the product of these forces, which are constantly conditioned by external stimuli from the environment in which we move [6]. Healthy personality development is closely related to internal factors, such as genetics and biological characteristics, but also to external factors, such as the cultural heritage coming from various social subjects, such as family, school, friends and the work environment [7]. Each of these sources shapes who we are and experience is the basis on which we build our evolution [8]. The lack or defect of one or more of these factors could cause in the individual a fracture, a void, an emotional instability, and personal and social dissatisfaction that can be reflected catastrophically in relationships, especially if they are reinforced [9]. The personality can thus assume psychopathological models [10], which are at the basis of deviant or antisocial behaviors, described extensively in the model of the criminal spectrum [11]. It is, therefore, necessary to investigate in greater detail what are the main factors at the basis of criminal behavior that can reinforce them [12,13], also with the help of new neuroscientific discoveries or with models able to explain the phenomenon.

The main objective of this pilot study, based on the findings of the literature and this research, is to demonstrate that the impact of the social-environmental factor on drug-addicted individuals can be as reinforcing as it is decisive in the recovery intervention of the same individuals. This study aims to lay the foundation for more in-depth and detailed research on a national scale.

Materials and methods

On Pubmed, using the indicators "social environment" AND "crime", 40 useful results were selected, in English, over the last two decades and up to August 2024 (Figure 1).

The method used for this pilot study limited to the Apulian regional boundary in southeastern Italy was the administration of a sociological survey through a specially designed experimental questionnaire (QA2CPICB), consisting of 40 items, investigating the subject's personal, social and affective life, clarifying any criminogenic factors related to the social environment of reference. Table 1 shows the technical characteristics.

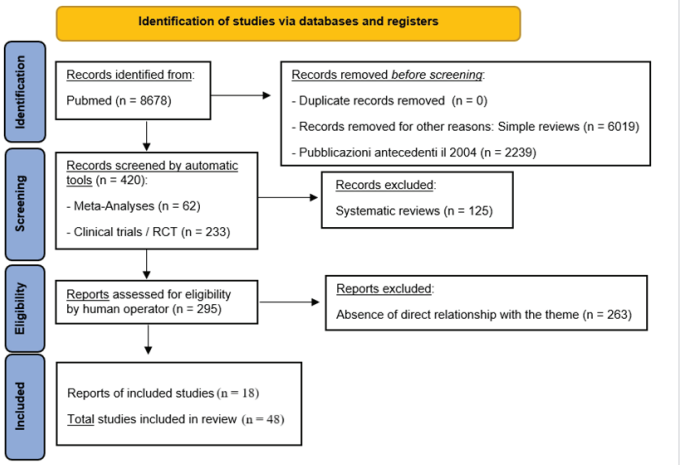

Figure 1: PRISMA flow diagram template. Adapted from Page M.J. et al. [14].

In conducting the social-criminological interview, the techniques of social-criminological interviewing [10] were used and applied to one functional model, such as the "*Perrotta Human Emotions Model - 2*" (PHEM-2) for the assessment of subjective emotional particles [15]. The present pilot study fits into a systematic framework of social-criminological intervention, based on the "*Spinelli-Piccininno Experimental Protocol for the Development of emotional awareness and Management*" (SPIC) of the "Mindfulness and Restorative Justice Project" (M&RJ) [16], detailed in Table 2.

The stages of the research were divided as follows: 1) selection of the population sample, according to the parameters given in the next section; 2) social-psycho-criminological interview, based on the QA2CPICB and PHEM-2; 3) data processing and comparison of the results obtained.

Setting and participants

Inclusion criteria are

1) Age between 18 and 78 years; 2) Defined sexual gender (male/female); 3) Only Italian nationality; 4) Drug-taking subject (narcotic substances / drugs / alcohol), currently undergoing detoxification (regardless of the severity of the addiction); 5) Deviant or antisocial conduct, not necessarily sanctioned with legal punishment; 6) Residence or permanent address in the Region of Apulia (Italy), In an accommodation of the "Emmanuel" Community for the recovery of drug addiction, voluntarily.

Exclusion criteria are

1) Age under 18 or over 78 years old; 2) No defined sexual gender; 3) No Italian nationality; 4) Resolved drug addiction; 5) Absence of deviant or antisocial conduct, regardless of the penalty regime; 6) Residence or permanent address outside the Region of Puglia (Italy); 7) Subjects not housed in the "Emmanuel" Community outside the Region of Apulia; 8) Absence, withdrawal or incorrect signing of data processing and informed consent.

The chosen setting was the accommodation of the "Emmanuel" Community, in presence, taking into account their stay for laa drug detoxification, for the social-criminological interview, using the private patient database of the host institution. The present research work was carried out from November 2021 to July 2024.

The selected population sample that meets the inclusion and exclusion requirements consists of 49 participants, between 24 and 57 years (M: 39.7; SD: 9.1).

Results

Using IBS's software application for statistical analysis (Statistical Package for Social Science, SPSS, version 28.0) [25] the descriptive, frequency and mean comparison analyses (*T*

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Table 1: Technical characteristics of the QA2CPICB.

"Experimental questionnaire" (QA2CPICB)	
Purpose	It is an experimental questionnaire specially designed to investigate the subject's personal, social and emotional life, clarifying any criminogenic factors related to the social environment of reference.
Structure and scoring	40 items with open and closed structures, with multiple and mixed answers for the closed ones. The questionnaire is divided into 2 profiles: social-environmental (16 items), and psychocriminological (24 items). The score is calculated according to 2 different scales: in single form, per item, with survey purposes (social-anthropological); in aggregate form, with an overall score between 12 and 104, obtained by adding the results per answer, to investigate the criminogenic factors investigated to the reference social environment. In this last case, the questionnaire is divided into 4 distinct areas, as follows: a) in Area 1, if the value of the sample is close to 15, it shows that the urban environment has negatively influenced the choices of criminal conduct of the sample analyzed; b) in Area 2, if the value of the sample is close to the maximum value of 40, it shows that psycho-criminological factors have negatively influenced the choices of criminal conduct; c) in Area 3, the closer the average value is to 21, the more the personal area (non-participation in education and re-education projects related to the knowledge of the levels of awareness, acceptance and regulation of emotions, not having hobbies, absence of friends) has negatively influenced the user's life choices; d) in Area 4, the closer the value is to 28, the more active penal enforcement measures and/or alternative measures to detention are and the higher the level of recidivism of the sample. It is administered in a single solution of continuity, without interruptions and the experimenter does not necessarily have to be a clinician. It is a tool suitable for operators in the judicial sector, criminologists, lawyers and sociologists.
Goals	Item responses favor the analysis of criminogenic factors related to the social-environmental context, which may foster criminal conduct (deviant and/or antisocial).

Table 2: Technical characteristics of the SPIC.

"Spinelli-Piccininno Experimental protocol for the development of emotional awareness and management" (SPIC)	
Purpose	Arises from the need to regain a state of psychophysical well-being for users primarily in a state of behavioral and/or substance addiction, with a history of delinquency and/or deviance, to foster subjective recovery and limit the risk of relapse into drug and/or criminal conduct.
Structure	It consists of 2 macro-areas, related to communication (external element) and emotional awareness (internal), fostering work on one's perceptive and reworking abilities of reality, including inner ones (such as emotions and feelings).
Intervention techniques	The tools are Mindfulness MBSR combined with Acceptance and Commitment Therapy (ACT) therapeutic technique and Yoga, mindfulness (pranayama) and meditation (dhyana) practices, all of which are functional in the substance addiction rehabilitation process [17-20].
Goals	Reduction of stress, aggression, violent behavior, mood symptoms, and impulsivity, as well as craving concerning taking a psychoactive substance and sleep-wake rhythm disturbances, but also concentration, attention, and memory, promoting positive thinking, emotional acceptance, and the ability to empathize and forgive [21-24].

Table 3: Descriptive population data.

Descriptive population data				
Group_x	Age_range	N/total	%/total	M± SD
Group 1	24-34 y	15/49	31%	29.1±3.6
Group 2	35-45 y	18/49	37%	39.3±2.8
Group 3	46-57 y	16/49	33%	50.2±3.4

Group_x: Group unit dividing the total population: Age_range: Represents the age ranges (expressed with the unit of years) with which the selected population was unpacked. N/Tot: Represents the number of units per range, relative to the total. %/total: Represents the % of units per bracket, to the total. M: Mean; SD: Standard Deviation.

Table 4: Descriptive data of the variable "pathological drug dependence".

Pathological Drug Dependence				
Group_x	Age_range	N/total	%/total	M ± SD
Group 1	24-34 y	15/49	31%	29.1 ± 3.6
Group 2	35-45 y	18/49	37%	39.3 ± 2.8
Group 3	46-57 y	11/49	22%	51.0 ± 3.6
Total_group	24-57 y	44/49	90%	38.7 ± 9.0

Pathological drug addiction (narcotic substances / drugs / alcohol): expresses the subject's pathological addiction relationship to a drug, in its severe form (i.e., resistant to detoxification or with failed attempts at detoxification), compared with the subgroup of addicts with no failed attempts behind them or with mild-to-moderate state of addiction. Age_range: represents the age ranges (expressed with the unit of years) with which the selected population was unpacked. N/Tot: Represents the number of units per range, relative to the total. %/total: represents the % of units per bracket, to the total. M: Mean. SD: Standard Deviation.

- Test for independent data) were performed. The statistical analysis showed that there were no statistically significant differences ($p > 0.05$).

Table 3 shows the descriptive data for the population sample of this pilot study, divided into 3 age groups.

Table 4 shows the descriptive data of the variable "pathological drug addiction" for the population sample of this pilot study, divided into 3 age groups.

In 17/49 of the cases (35%) of the selected population sample has a criminal record of legal relevance, while the remainder of the population does not have a criminal record or unlawful conduct punishable by a legal measure. The entirety of the selected sample, by inclusion rule, presents deviant conducts, relevant to the socio-anthropological profile. Nearly half of the sample (24/49, 49%) had deviant conduct, regardless of the sanction received, related to the procuring of the drug substance, the object of their pathological addiction, and 15/24 (62%) committed a crime as a result of such conduct, as a result of the "drug supermarket" phenomenon (i.e., as a result of assiduous and habitual frequentation of urban areas specifically dedicated to the deviant and criminal activities of drug dealing) or through the use of friendly companies that use the same substances. The sample population recidivist to the commission of crimes related to the use, purchase and sale of drugs is 26/49 (53%). However, comparing data from area

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Table 5: Data related to the study of the 4 areas of investigation of the QA2CPICB.

Data related to the study of the 4 areas of investigation of the QA2CPICB				
Area_x	Description	Range_point	Range_Scores_area	Results_above mead points
Area 1	Social-environmental influences	5-15 points (M = 10 points)	5-12 points (9.1 ± 1.8)	Total: 20/49 (41%)
Area 2	Psychopathological influences	0-40 points (M = 20 points)	4-32 points (16.1 ± 7.2)	Personality disorders: 14/49 (29%) Other psychiatric disorders: 13/49 (26%) Total: 27/49 (55%)
Area 3	Negative life influences	7-21 points (M = 14 points)	8-18 points (13.2 ± 2.7)	Total: 24/49 (49%)
Area 4	Risk of recidivism	0-28 points (M = 14 points)	0-15 points (5.5 ± 4.2)	Total: 17/49 (35%)

Area x: single area of investigation of the QA2CPICB. Description: description of the investigated area. In particular: "Area 1": Influences by the urban environment, i.e., how much the social-environmental context has negatively influenced the subject, with negative indication for above-average scores; "Area 2": Influences by the dysfunctional personality profile, i.e., how much one's psychopathological condition favors or facilitates drug addiction and/or the commission of crimes to maintain the drug addiction status, with negative indication for above-average scores and indication of the ratio to the total and percentage (data are distinguished by "severe" in cases of personality disorders and "nonsevere" in cases where there is no diagnosis but where clinically relevant symptoms are present); "Area 3": Life influences, i.e., the extent to which one's negative life experience facilitates or facilitates drug addiction and/or the commission of crimes to maintain one's drug status, with negative indication for scores above average and indication of ratio to total and percentage; "Area 4": Recidivism risk, i.e., the extent to which the individual is at risk of recidivism, understood as repeating the commission of a crime to facilitate or aggravate one's drug status, with negative indication for scores above average. Range_points: range of scores related to the single area investigated. Range_Scores_area: Range score obtained from the administration of the single area and indication of the mean and standard deviation of the scores (M±SD). Results_above mead points: results expressed in numerical figures relative to the total and with %, relating to the above-average scores in each area.

Table 6: Correlation analysis.

Correlation analysis										
	Drug Dependence		Area 1		Area 2		Area 3		Area 4	
Variables	**R**	**p**	**R**	**p**	**R**	**p**	**R**	**p**	**R**	**p**
Age_years (total)	-0.326	**0.021**	-0.314	**0**	-0.549	**0.022**	-0.259	**0.04**	-0.151	0.299
Group 1	-0.224	**0.002**	-0.297	**0**	-0.457	**0.015**	-0.25	**0.033**	0.118	0.419
Group 2	-0.257	**0.035**	-0.145	**0**	-0.345	**0.024**	-0.209	**0.04**	0.107	0.465
Group 3	-0.484	**0.045**	-0.143	**0**	-0.495	**0.033**	-0.231	**0.049**	-0.226	0.119

Variables: Represents the list of variables related to age groups, to the variables investigated by the QA2CPICB. Drug dependence: represents the variable of pathological drug dependence, concerning the variables investigated by the QA2CPICB. Area 1: Influences by the urban environment, i.e., how much the social-environmental context has negatively influenced the subject. Area 2: Influences by the dysfunctional personality profile, i.e., how much one's psychopathological condition favors or facilitates drug addiction and/or the commission of crimes to maintain the drug addiction status. Area 3: Life influences, i.e., the extent to which one's negative life experience facilitates or facilitates drug addiction and/or the commission of crimes to maintain one's drug status. Area 4: Recidivism risk, i.e., the extent to which the individual is at risk of recidivism, is understood as repeating the commission of a crime to facilitate or aggravate one's drug status. R: Pearson's correlation. p: Significance.

4 of the questionnaire shows that only 17/49 (35%) are at risk of recidivism.

Table 5 shows the descriptive data for the 4 survey areas carried out using the QA2CPICB on the population sample of this pilot study.

Table 6 shows data from the correlation analysis between the variable "Age" (and subgroups of age groups) and the 5 variables investigated in this pilot study (Drug dependence, Area 1, Area 2, Area 3 and Area 4).

Discussion

This pilot study focused on pathological drug addiction in a population of voluntary inpatient drug addicts for detoxification, and which personal or social factors investigated through the QA2CPICB should be focused on to answer the research question (i.e., whether the social-environmental factor reinforces the drug addiction state).

To facilitate data analysis, the population was divided into 3 subgroups, by basically homogeneous age groups and with more or less equidistributed populousness (with a slight majority in the second group). The variable describing pathological drug dependence status (i.e., cases of drug dependence resistant to detoxification or with attempted failure of clinical recovery) was then investigated for each of the subgroups related to age, noting a marked decrease in cases in the population of the third group, with ages between 46 and 57 (-31%). The remaining 10% of the population (5/49), on the other hand, present drug dependence without attempted failure from recovery of clinical status or with mild-to-moderate dependence status.

On the whole population, comparisons of averages and correlations were made with the 4 variables related to the areas investigated by the QA2CPICB (social-environmental influences, influences of one's psychopathological sphere, personal life influences, and risk of recidivism), finding that for 49% (24/49) and 41% (20/49) the lived life influence (traumatic childhood events, critical family and work economic poverty in adulthood and lack of stable and lasting affective-emotional support) and the social-environmental influence (degraded, poor and/or criminal family and social environment) played a determining role in the current state of drug addiction

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and maintenance of the clinical state through deviant and criminal activities to procure the necessary economic liquidity. 55% (27/49) have a psychopathological personality diagnosis or other psychiatric disorder, while the remaining sample of the population still presents symptoms of a dysfunctional condition deserving of in-depth clinical evaluation.

In terms of correlation, data analysis showed that the variable of age, both in general terms and in individual bands, is negatively correlated (as age increases, the impact of the factors investigated decreases) with the state of pathological drug addiction and the variables describing social-environmental influence, psychopathological influence, and lived life influence, with higher significance (p = 0.000) precisely with the social-environmental variable, confirming that this influence is the one that most reinforces the state of pathological drug addiction and deviant and criminal conduct to procure the necessary economic liquidity. The sample population recidivist to the commission of offenses related to the use, purchase, and sale of drugs is 26/49 (53%), while the data in area 4 of the questionnaire show that only 17/49 (35%) are at risk of recidivism: this apparent inconsistency arises from the fact that the missing individuals are in psychotherapeutic treatment (with specific pharmacologic support), and therefore have more resources they can use to promote detoxification.

Psychological intervention (such as emotional psychotherapy [25,26] and psychopharmacology [27,28]) and educational approaches (such as mindfulness and applied yoga [29-33], meditation [34], the use of music and school-based pathways [35,36], restorative justice programs [37,38], emotional psychoeducation [39-41], active labor policies [42], the rehabilitation of urban areas at high risk of crime through sports, recreational and cultural activities [43]), especially in preventive and re-educational terms [44], can foster a decrease in the phenomenon by acting on the unconscious components that reinforce toxic dynamics, especially in individuals at high psychopathological risk [45], within a framework of systematic intervention among all social and mental health workers. Early intervention, reeducation and economic-work support can act as a deterrent and negative reinforcer on drug addiction [46-48], promoting the recovery of the incarcerated person and limiting further legally relevant behavior in the justice system.

Limitations and future prospects

The present study has both structural and functional limitations that, in the authors' opinion, do not affect the quality of the results obtained, but should be taken into consideration for future research to avoid analytical bias. Structurally, the design of the study refers to a pilot study and therefore it is necessary to include a representative population sample in subsequent studies to better discuss the results; moreover, it is suggested that the research be extended to the whole country to assess other territorial, conventional and deviant-criminal realities as well. From a functional point of view, the pilot study did not delve into the individual and personal histories of the recruited subjects, and thus the different geolocation and personal history can be considered limitations compared to the results obtained from the administration of a specially designed and non-validated questionnaire-survey, as it did not require this step. Finally, health data regarding psychophysical health status were obtained from the database provided, as permission was not granted to subject participants to further psychodiagnostic testing, which could have confirmed or disconfirmed the possible diagnosis or lack of diagnosis.

Conclusion

Variables that can describe lived life influences (such as traumatic childhood events, critical family and work issues, economic poverty in adulthood, and lack of stable and lasting affective-emotional support), psychiatric disorders, and socio-environmental influences (such as degraded, poor, and/or criminal family and social environment) are negatively correlated with the age variable and serve as positive reinforcers for maintaining the pathological state of drug addiction and engaging in deviant or criminal conduct to procure the necessary economic liquidity. Early intervention, reeducation and economic-work support can act as a deterrent and negative reinforcer on drug addiction, promoting patient recovery and limiting further legally relevant behavior in the justice system.

Ethics approval and consent to participate

This study was waived for ethical review and approval because all participants were assured compliance with the ethical requirements of the Charter of Human Rights, the Declaration of Helsinki in its most recent version, the Oviedo Convention, the guidelines of the National Bioethics Committee, the standards of "Good Clinical Practice" (GCP) in the most recent version, the relevant national and international ethical codes, as well as the fundamental principles of state law and international laws according to the updated guidelines on observational studies and clinical trial studies. Pursuant to Legislative Decree No. 52/2019 and Law No. 3/2018, this research does not require the prior opinion of an ethics committee, in implementation of Regulation (EU) No. 536/2014 and in accordance with Regulation (EU) 2017/745, the Declaration of Helsinki and the Oviedo Convention, since the scientific research contained in the manuscript: (a) does not concern new or already marketed drugs or medical devices; (b) does not involve the administration of a new or already marketed drug or medical device; (c) does not have commercial purposes; (d) is not sponsored or funded; (e) participants have signed the informed consent and data processing, in compliance with applicable national and EU regulations; (f) refers to non-interventional and observational-comparative diagnostic topics; (g) the population sample was collected at a date prior to the start of this study and is part of a private and non-public database.

Consent for publication

Study participants, by signing the informed consent and data processing, consented to the publication of the data in anonymous and aggregate form. Domenico Piccininno was responsible for data collection and maintenance, but administration was carried out by facility managers. Subjects were recruited who gave regular informed consent; in addition,

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these subjects asked and obtained from Domenico Piccininno, as project manager, not to meet with other study collaborators outside of facility managers, thus remaining completely anonymous. The authors, following current regulations, consent to the publication of the contents of this clinical study.

Availability of data and material

The subjects who participated in the study requested and obtained that the facility managers be the sole examiners and that the authors of this pilot study learn about the participants' data in an exclusively anonymous form. The authors make themselves available, with a formal request to be evaluated on a case-by-case basis, to disclose the data and materials of the research, in aggregate and anonymous form only, following current regulations and the informed consent and data processing signed by the participants, subject to the authorization of the facility managers involved.

Authors' contribution

Domenico Piccininno designed the study, handled recruitment, and investigation using a questionnaire survey, and performed the primary analysis of research data. Giulio Perrotta is the author of the manuscript, reviewer of data analysis and corresponding for the revision and publication phase.

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