
PL-3. PLENARY LECTURE

BIOCHEMICAL AND MOLECULAR GENETIC FACTORS IN HABITUAL VIOLENCE AND ANTISOCIAL ALCOHOLISM: CONTROL AND PREVENTIVE INTERVENTIONS

Virkkunen, Matti

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Serotonin has been found to be in central place in impulsive and habitual violent tendencies and personality disorders. Low brain serotonin turnover (CSF 5HIAA) together with glucose metabolism aspects in the shorter and together with low noradrenaline turnover (CSF MHPG) in the longer follow up have in biological factors been able to predict further violences among prisoners with antisocial personality disorder (ASP). ASP offenders make even 80 per cent of all habitual violence. There are preliminary molecular genetic findings in sibpair linkage analysis of serotonin 1 B receptor gene in chromosome 6 or area near it being the genetic base in antisocial alcoholism (ASP and type 2 alcoholism connected with it). This suits to this serotonin receptor, alcohol and aggression studies among laboratory animals. Treatments with medicines and dietary means in violent tendencies are in a very preliminary phase. There are, however, findings that at least serotonin uptake inhibitor, fluoxetine, lithium carbonate, beta adrenergic blockers and atypical neuroleptic, clozapine can be effective in violence. The most interesting class of medicines possibly coming to the picture is serotonin 1B agonists also because of the new molecular genetic findings. It is possible that also by changing nonesterified fatty acids in the diet and especially omega-3 fatty acid, docosahexaenoic acid (22:6n3) we can get results in impulsive habitually violent tendencies and even in the ASP. This fatty acid has been found to correlate with CSF 5HIAA among adult violent offenders and early onset alcoholics. Maternal smoking during pregnancy is connected with conduct disorder problems of the child which is often known to continue to ASP in the adulthood. So this also makes an important means of prevention but the exact biological mechanism is unclear. In the future treatment and preventive studies it is important to understand the normal progress in ASP and why the disorder diminishes often in the middle age and what are the brain transmitter and metabolic changes connected with it.

IS-2.-INVITED SYMPOSIUM

GENES AND AGGRESSION: FROM MICE TO HUMANS

Organizer:

Maxson, Stephen

Department of Psychology, The University of Connecticut, Storrs, CT, USA

Discussant:

Blanchard, D. Caroline

Pacific Biomedical Research Center and Department of Genetics and Molecular Biology, John A. Burns School of Medicine, University of Hawaii at Manoa, Honolulu, Hawaii, USA

Symposium Abstract

For more than 60 years, research on the genetics of mammalian aggression has focused on the mouse. It has been hoped that the findings with mice would be relevant to our understanding of the causes of aggression in humans. Since the mid 1990s, more than 15 genes have been identified with effects on offense type aggression in male mice. These genes have homologues in humans with similar effects on molecular and cellular biology. Pierre L. Roubertoux (Attack behavior in mice: implications of the Sts gene mapped on the pairing region of the X-Y chromosomes) will discuss his research program on the genetics of mouse aggression, and he will relate these studies to the genetics of human aggression. Pascale V. Guillot (Genetic determinants of aggressive behavior) will relate research on the role of the Y chromosome in mouse aggression to a program of research on primate and human aggression. The formal discussant for this symposium will be Caroline Blanchard who is concerned with the relevance of findings on animal aggression to those on human aggression.

IS-2.1. **ATTACK BEHAVIOR IN MICE: IMPLICATION OF THE STEROID SULFATASE GENE MAPPED ON THE PAIRING REGION OF THE X-Y-CHROMOSOMES**

Roubertoux, P.L., Mortaud, S., Nicolas, L., Le Roy, I. and Tordjma, S.

UPR CNRS 9074, Génétique, Neurogénétique, Comportement, Institut de Transgénése, Orléans, France.

The sexual dimorphism of aggression has led to a search for its Y- chromosomal correlates. We have previously confirmed that initiation of attack behavior against a conspecific male is Y- dependent in two strains of laboratory mice (NZB and C57BL/6J). We have provided evidence that the pairing region of the Y co-segregates with attack behavior, in these strains. In addition, the genetic correlates of attack behavior are not expressed when borne on the homologous pairing region on the X chromosome but only when carried on the Y chromosome. Only one functional gene (coding for steroid sulfatase or STS) is mapped on this region as of yet, suggesting that it could be a candidate for attack behavior. We estimated the genetic correlation between the concentration of STS protein in the liver and initiation of attack behavior. We have employed also mice in which gene invalidation induced attack behavior. Pharmacological modulations of STS or of its metabolites modifies the frequencies of attack in these male mice, confirming the implication of STS in aggression. Recent investigations have demonstrated the involvement of STS in neurosteroid biochemical pathways, and several lines of evidence indicate that neurosteroids interact with neurotransmitters. These conclusions and our present results support the hypothesis that sulfatation of steroids may be the prime mover of a complex network, including genes shown to be implicated in aggression by mutagenesis. Supported by CNRS (UPR 9074), Ministry for Research and Technology, Région Centre, Préfecture de la Région Centre and Fondation pour la Recherche Médicale (to I.L.R.) UPR 9074 is affiliated with INSERM and University of Orléans.

IS-2.2. GENETIC DETERMINISM OF AGGRESSIVE BEHAVIOR**Guillot, P.V., Kittles, R.A., Long, J.C., Bergen, A.W., Virkkunen*, M., Naukarinnen, H., Linnoila, M. and Goldman, D.**

Laboratory of Clinical Studies, National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health, Rockville, USA.

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In mice, aggression has a genetic component which acts in concert with environmental factors. Furthermore, inter-individual differences for the propensity to attack are partly attributable to allelic variants located on both the non-pseudoautosomal and recombinant regions of the mouse Y chromosome. However, no nucleotide change in a Y chromosome gene has yet been found to account for a behavior difference. Interspecies comparisons of aggressive behavior reveals some similarities between primates and mice, including both the existence of sexual dimorphism (males being more aggressive than females) and inter-male differences. Measures of aggression in primates and rodents are compared. The data supporting Y chromosome-specific factors in murine aggression are principally from reciprocal crosses, in which the strain of origin of the male parent predicts behavior. The human data derive from a Y-haplotype association study conducted in a Finnish population [Kittles et al., 1998, 1999]. Type II alcoholism and antisocial personality disorder (ASDP) are commonly associated in men in Swedish and American populations. Whereas Y-chromosome variations account for individual differences in alcohol dependence in Finnish population, results failed to show an association between a Y-chromosome haplotype and ASDP. Relevance of murine attack behavior to human aggression is discussed. The hypothesis that Y chromosome gene variation is responsible for behavioral variation now requires direct testing at the gene sequence level. The genes located on the Y chromosome are TSPY, RPS4Y, TDF, ZFY, PRKY, AZF1, BPY, DBY, HY, RNM, and it is these genes whose allelic variants could influence inter-individual behavioral variations. Of particular interest for primate behavioral variation may be RPS4Y because this ribosomal protein subunit gene does not have a Y chromosome counterpart in rodents. Both humans and rodents have an RPS4X gene [Bergen et al. 1998]; the RPS4Y gene could be a primate-distinct origin of sexual dimorphism and intermale behavioral variation. Kittles, R.A. et al., *Am. J. Hum. Genet.* 62:1171-1179, 1998. Kittles, R.A. et al., *PNAS*, 96:4204-4209, 1999. Bergen, A.W. et al., *Mol. Biol. Evol.* 15(11):1412-1419, 1998.

IS-3. INVITED SYMPOSIUM

VICTIMS OF WAR: IMPACT ON MENTAL HEALTH

Organizer:

Stojakovic B. Milan

Clinic of Psychiatry - Banjaluka Republic of Srpska, Bosnia & Herzegovina

Symposium abstract

The symposium includes general information obtained in psychiatric emergency services about the impact of war on mental health. The participants will inform about their own experience in the disasters caused by war in the area of ex Yugoslavia, in the regions of Georgia - Ossetia and Abkhazia, and the area of Chechenia. Special data will be given about the Posttraumatic stress disorder caused by war in the area of ex Yugoslavia, about the main psychological problems observed in Internally Displaced Persons in Georgia and about the psychotherapeutic assistance and psychosocial rehabilitation service being provided for Chechenian refugees.

IS-3.1.- CONSEQUENCES OF WAR: POSTTRAUMATIC STRESS DISORDER

Stojakovic, B. M. and Nikolovski, D. N.*

Clinic of Psychiatry - Banjaluka, Bosnia-Herzegovina. *Institute of Public Health - Pancevo, Yugoslavia

Investigation follows the appearance and evolution of Posttraumatic stress disorder (PTSD) due to stress caused by war in 200 hospitalized patients during the period October 1992- September 1994. Furthermore, a longitudinal study of these patients during the following four years has also been carried out. The study has shown that the most frequently diagnosed category of reactive states to war was PTSD, that was observed in 38.8% cases of hospitalized patients. The depressive reaction was present in conjunction with PTSD in 56% of patients. The most frequent traumatic experiences which have caused PTSD were: 1) the experience of closeness of death; 2) dealing with wounded and massacred people; 3) exposition to physical torture, and 4) the sight of massacre. We have not found significant differences between military and civil patients in the appearance of typical symptoms of PTSD such as flash-backs, and avoidance of the situation which is associated with the trauma. However, it has been demonstrated that the differences in the occurrence and irreversibility of these mental disorders in military and civil patients are significantly different. Depression was more frequent in military patients, and anxiety was mainly diagnosed in civil patients. The analysis of the mental health during the period after PTSD has found changes in different parameters of general and specific social behavior. The symptoms of acute PTSD (with duration less than six months) were found in 11%, while chronic PTSD (with duration between six months and two years) were diagnosed in 64% of patients. Irreversible changes in personality have been found in 8.5% patients (with duration more than two years). Based on the present study, we propose a program of interventions in order to prevent the appearance of PTSD and other consequences of war stress. In conclusion, it is necessary to plan the protection of mental health during the postwar period.

IS-3.2.- **TRAUMATISED POPULATION OF INTERNALLY DISPLACED PERSONS AND REFUGEES: PROBLEM OF RELATIONSHIP WITH THE LOCAL SOCIETY**

Javakhishvili, D.

Foundation for the Development of Human Resources, Tbilisi, Georgia

As a result of inter-ethnic conflicts (1992-93), two important regions of Georgia - Ossetia and Abkhazia - have cut off and wave of 300000 Internally Displaced Persons (IDPs) emerged. Non Governmental Organisation Foundation for the Development of Human Resources(FDHR)+++ since 1995 implements project "Psychosocial Rehabilitation of Refugees and IDPs in Georgia" with financial support of Norwegian Refugee Counsel. According to our experience, the main psychological problems of IDPs are: 1.Victimisation - sense of being a victim, helplessness, decreased self esteem, loss of responsibility of one's own life and current events; 2.Enemy Image - generalized and dehumanized image of aggressor. As far as this aggressor (opposite part) is at unreachable distance for IDPs, enemy image may be compared with an empty frame of aggression, that "floats" around and can fix itself on the first available object. The best target among surrounding persons is the "Other", the one different. That's why the latent tension between IDPs and locals exists. One of the problems needed special attention in process of psychological work, is relationships between IDP\refugees and local population. According to our experience, interaction of locals and IDP\refugees is characterized by some universal (common) stages: 1.Euphoria: refugees\IDPs are ineffably thankful for help and reception, while local population is full of compassion and readiness of helping them; 2. Crossing of interests: due to economical and social problems, the interests of IDPs\refugees and locals are crossing each other, tension and latent confrontation of parties start to appear. Important role in confrontation process plays mentioned above Enemy Image, peculiar for IDPs\refugees; 3. Confrontation: IDPs\refugees and locals start to blame each other for social, economical and other existing difficulties. Realization of existing confrontation - different overt conflicts takes place; 4. Alienation.: the parties keep at a distance from each other, confrontation is "frozen", but danger of conflict exists. IDPs\refugees became isolated from social life of local society. FDHR elaborated strategy and tactics of work on normalizing relationships between IDPs\refugees and local population, on overcoming IDPs\refugees isolation from social life.

IS-3.3.- **CHECHENIAN REFUGEES: AGRESSION - VICTIMIZATION CYCLE**

Makhashvili, N.

Foundation for Development of Human Resources, Georgia.

The Foundation for Development of Human Resources (FDHR) has been providing psychotherapeutic assistance and psychosocial rehabilitation service to Chechenian refugees, who have been residing in Georgia since the recent war actions in Chechnia (autumn, 1999). The project is financed by Norwegian Refugee Council (NRC) and Red Cross and Red Crescent Federation. The observation method and deep examination of massive trauma on refugee population reveals the wide range of problems, which includes: feelings of estrangement and abandonment, anger, anxiety, suspicious and hostile attitude to "outer" world, victim-aggressor style of behavior, disorders of social functioning (inclination to conflicts, tendency to impulsive relief of aggression). We meet the different severe symptoms of Post Traumatic Stress Disorders (PTSD) both in adults and children. Members of Chechenian population share the "collective" memory of historical events of group victimization, which is transmitted to the new generations by the story-telling, "legends" and "myths", folklore samples. To avoid victimization feelings aggression reactions became the most "effective" self-defensive strategy. This may result the development of revengeful attitude and increased aggression in children, who are brought up by the "ideal models"-heroic warriors and fighters. Stemming from above mentioned, the especial importance is attached to the overcoming of victim-aggressor style of interaction, reinforcement of constructive coping strategies for dealing with trauma, reducing PTSD symptoms, cognitive reframing and helping the population to obtain the sense and new meaning to life. Combined, integrated methodology is elaborated by FDHR team, which is used both individually and in groups and is aimed to intervention at different "levels" of personality (identity, cognitive, emotional, behavioral) and interpersonal relations. Work is carried out with adult groups (teachers, medical personal, parents), children and their families.

S-2.-SYMPOSIUM

SOCIAL REPRESENTATIONS AND BELIEFS ABOUT AGGRESSION

Organizer:

Archer, John

Department of Psychology, University of Central Lancashire, Preston, Lancashire, UK.

Symposium Abstract

Since Campbell & Muncer (1987) introduced the concept of social representations of aggression, there have been a number of studies documenting instrumental and expressive beliefs or social representations that people hold, principally about their own aggression. Women tend to hold more expressive and men more instrumental beliefs, although in the case of instrumental beliefs this finding only holds for same-sex physical aggression. The four papers in this symposium illustrate the different ways in which social representations and beliefs have been applied to more general issues concerning aggression in recent studies. They involve the following topics: their relation to classic measures of attitudes and to normative beliefs; whether instrumental beliefs apply to the supposed upsurge in masculine behaviour by young women; investigations of the dynamic nature of "social representations" of aggression; the relation between beliefs about aggression and the extent of physical aggression to partners.

Reference: Campbell, A. & Muncer, S. (1987). Models of anger and aggression in the social talk of women and men. *Journal of the Theory for Social Behavior*, 17, 489-511.

S-2.1.- WHICH ATTITUDINAL MEASURES PREDICT SELF-REPORTED AGGRESSION?

Archer, J.

Department of Psychology, University of Central Lancashire, Preston, Lancashire, UK.

The association between instrumental (I) and expressive (E) beliefs about aggression and (1) attitudes to aggression (measured by semantic differentials), and (2) normative beliefs about aggression, was investigated among a sample of 165 British students, aged between 18 and 52 years. I and E beliefs were only weakly associated with these attitudinal measures. The extent to which they predicted self-reported aggression was also assessed, showing that physical aggression was predicted mainly by instrumental beliefs about aggression. The strongest predictors of verbal aggression were higher instrumental and lower expressive beliefs. Anger was associated with instrumental beliefs. Hostility was predicted by holding both instrumental and expressive beliefs. Men and women showed some differences in the attitudinal predictors of self-reported aggression. Men also showed more instrumental and less expressive beliefs than women, they viewed aggression and fighting more positively, and reported more physical aggression. All aggression measures showed a slight decline with age, and men viewed aggression as more negative, less potent, less instrumental, and more expressive with age.

S-2.2.- "LADETTES" AND SOCIAL REPRESENTATIONS OF AGGRESSION

Muncer, S. and Campbell, A.

Department of Psychology, University of Durham, Durham, UK.

In 1997, women committed only 17% of all violent crime in the United Kingdom. However, in the ten year period between 1984 and 1994, arrests for violent crime (as a percentage of all female arrests of young women under 21) rose from 11.2% to 20.1%. The rise in youthful female violence gave rise to a flurry of media speculation that "laddism" (the adoption of anti-social male attitudes) was to blame. This kind of attribution is not new--twenty years earlier in the United States a similar outcry about the "masculinising" effects of women's economic and social "liberation" was also prominent. Despite this, little research has empirically addressed this relationship. We developed a scale designed to measure endorsement of "laddish" behaviour by women. We predicted that laddism among females would be positively associated with higher self-reported aggression and with the holding of a more instrumental representation of aggression. In males, we predicted that laddism (support for women's masculine behaviour) would be negatively correlated with self-reported aggression (since previous literature suggests that "macho" attitudes supporting violence are associated with a traditional stance toward the female role) and negatively correlated with instrumental orientations to aggression. The resulting data will be presented and discussed.

S-2.3.- **DYNAMIC SOCIAL IMPACT THEORY (DSIT) PREDICTS THE DEVELOPMENT OF SOCIAL REPRESENTATIONS OF AGGRESSION**

Richardson, D. S. and Latané, B.

Department of Psychology, Florida Atlantic University, Boca Raton, Florida, USA.

This paper will review evidence of the existence of social representations of aggression and then focus on the group-level processes by which such representations are likely to develop. The existence of social representations (SRs) of aggression suggests that individuals' concepts of aggression develop through social influence processes and that ideas about aggression vary as a function of group membership. Supporting the notion that representations differ by group membership, Richardson and Huguet (1999) found that instrumental social representations of aggression were more strong and more organised among males and disadvantaged young people who had more experience with aggression, either as aggressors or as victims, than among college students. Dynamic Social Impact Theory (DSIT) predicts group-level consequences of ongoing communication among individuals whose propinquity affords reciprocal interactions (Latané, 1996; Latané, et al., 1994). As the minority is exposed to contrary pressures, the distribution of opinions among neighbours in social space becomes less varied and more organised through consolidation and clustering. As a social system develops such organisation, people are more likely to perceive regularities and generate SRs that in turn promote higher levels of organisation. Walker (1999) examined the development of social representations of direct and indirect aggression, arguing that indirect aggression, because the concept is relatively "unorganised" among laypeople, should be a fertile topic for examination of the development of social representations related to aggression. Consistent with the predictions of DSIT, exchanging messages in electronic space about indirect aggression resulted in clustering and consolidation of opinions about the aggressiveness of such behaviour, suggesting the development of social representations. Through interpersonal communication and the principles of dynamic social influence, indirect aggression is given meaning and is transmitted over time to people who share physical-space. Extending the study of such processes to face-to-face communication, Richardson and colleagues (1999) also found evidence of regional clusters of attitudes about aggression among individuals who engaged discussion about justifications for aggressive behaviour.

S-2.4.- **THE ASSOCIATION BETWEEN BELIEFS ABOUT AGGRESSION AND PARTNER PHYSICAL AGGRESSION**

Graham-Kevan, N. and Archer, J.

Department of Psychology, University of Central Lancashire, Preston, Lancashire, UK.

This study concerns the association between beliefs about aggression and measures of physical aggression and injuries sustained by partners. From a sample comprising students (N=113), women from a domestic violence refuge (N=44), and male prisoners (N=108), those reporting that they had used physical force at some time completed the following: an adapted version of the EXPAGG (Archer and Haigh, 1997), the Conflict Tactics Scale, CTS, (Straus, 1979) for themselves and their partner, and items regarding fear experienced by themselves during conflicts and injuries sustained to both themselves and their partner. Over all these respondents (N=113), the instrumental scale was significantly positively correlated with self-reported use of physical aggression, and six of the eight individual acts which comprise the physical aggression scale of the CTS. Injuries to partners were positively correlated with instrumental beliefs. Correlations for the students (N=38) and prisoner (N=46) samples were similar to the whole sample, but there were differences for the refuge sample. Regression analysis showed that, overall, instrumental beliefs predicted participants hitting their partners, and injuries sustained by partners. The expressive scale showed lower but significant positive correlations with only one item of physical aggression, that of beating one's partner. The male prisoner sample showed positive correlations between the expressive scale and self-reported physical aggression, both minor and severe, and the use of four of the eight individual acts. Regression analysis revealed the holding of expressive beliefs about aggression predicted only beating one's partner for the aggregated sample.

S-3.-SYMPOSIUM

SOCIAL AGGRESSION IN ANIMALS: ACUTE AND LONG-TERM EFFECTS ON BEHAVIOR AND PHYSIOLOGY

Organizers:

Koolhaas, Jaap M.

Department of Animal Physiology, University of Groningen, Haren, The Netherlands

Sgoifo, Andrea

Dipartimento di Biologia Evolutiva e Funzionale, Università di Parma, Parma, Italy.

Symposium Abstract

In social species, most individuals face a certain level of stress deriving from aggressive interactions with conspecifics. Some of them, by achieving a sufficient degree of control over their social environment, may cope well whereas others, incapable of adopting adequate coping strategies, may suffer and develop various symptoms of stress-related pathology. Today, there is a considerable amount of experimental work describing in detail the effects of social stressors on physiology and behavior. The aim of this symposium is to call together a number of scientists which, despite belonging to different scientific disciplines (neurobiology, psychoneuroendocrinology, psychiatry, cardiovascular physiology, ethology) share an interest for the behavioral and physiological consequences of social aggression in animal models. The symposium will illustrate which consequences negative social stimuli may have on neuroendocrine systems, on cardiovascular function, on circadian rhythms, on social and sexual behavior. It will also provide some examples which could help in answering the question: "What can experimental studies on social stress in animals tell us about stress-related disorders in humans and which implications do such studies have for clinical practice?"

S-3.1.- INTERMITTENT SOCIAL CONFLICT: ACUTE AND LONG-TERM AUTONOMIC CONSEQUENCES IN RATS

Sgoifo, A., Meerlo*, P., Pozzato, C., Manghi, M., Stilli, D., Musso, E. and Koolhaas, J. M.**

Dipartimento di Biologia Evolutiva e Funzionale, Università di Parma, Parma, Italy

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** Dept. Animal Physiology, University of Groningen, Haren, The Netherlands

In rats, social conflicts produce acute autonomic and neuroendocrine effects as well as long-lasting changes of circadian rhythms of heart rate, body temperature and physical activity. This paper describes the impact of dominant-subordinate as compared to dominant-dominant aggressive confrontations on: 1) autonomic balance and susceptibility to cardiac arrhythmias during stress exposures, and 2) daily rhythms of heart rate (HR), temperature (T), and physical activity (Act) following social conflicts. Wild-type males (6-month-old, n=12) were instrumented with telemetry ECG/Temperature/Activity transmitters and confronted in their own territory for 10 consecutive times with a young male which they systematically attacked and submitted (dominant-subordinate interactions, DSI). Six days after the last victory, each animal was introduced in the territory of another dominant male, resulting in fierce fighting (dominant-dominant interaction, DDI). ECGs were recorded in baseline, test and recovery periods (15-min each) during 1st and 10th DSI and in DDI. Rhythms of HR, T, and Act were monitored before and after each social challenge. Although all the three stressors produced significant reductions of average RR interval, such decrements were significantly larger in DDI than in the two DSIs. In addition, RR variability (expressed as SDRR, SD/RR and r-MSSD) was significantly reduced in DDI, whereas it was unchanged in both DSIs. These data suggest that in dominant rats confronted with same rank males the sympathovagal balance is shifted toward a sympathetic dominance, whereas it is substantially maintained when they are confronted with a subordinate male. Consistent with this finding is the incidence of ventricular premature beats, which was significantly larger in DDI as compared to both DSIs. DSIs did not produce any effect on the daily rhythms of HR, T, and Act. In contrast, DDI resulted in a significant decrease in the daily amplitude of the rhythms, which lasted for two weeks. The individual changes in rhythm amplitude did not correlate with the number of attacks received from the territory owner; on the contrary, they negatively correlated with the aggression exhibited by the experimental rats themselves (number of counter-attacks). Therefore, the long-term consequences of a social conflict in rat do not seem to depend on the physical intensity of the fight in terms of aggression received, rather on the subjects coping strategy.

S-3.2.- **BEHAVIORAL AND PHYSIOLOGICAL CONSEQUENCES OF CHRONIC SUBORDINATION STRESS**

Blanchard, D.C.

Pacific Biomedical Research Center and Department of Genetics and Molecular Biology, John A. Burns School of Medicine, University of Hawaii at Manoa, Honolulu, Hawaii, USA

Behavioral and endocrine consequences of chronic subordination stress have been demonstrated in a wide range of mammalian species and in nonmammalian vertebrates as well. Behavioral components include enhanced defensiveness, reduced activity, exploration, and appetitively motivated behavior; variations in sleep-waking cycles; and increased voluntary consumption of psychoactive drugs. Regional brain neurotransmitter system differences of subordinates compared to controls or dominants have been shown for a variety of monoamines; for amino acids; and for neuropeptides. Endocrine consequences of chronic social stress include high magnitude changes in both central and peripheral regulation of adrenal and gonadal steroids. These differences for chronically socially stressed subordinates provide parallels to the behavioral and physiological changes associated with some stress-linked psychopathologies.

S-3.3.- **EFFECT OF REPEATED SOCIAL STRESS ON C-FOS EXPRESSION IN THE RAT BRAIN.**

Martinez, M., Calvo-Torrent, A., Valverde-Navarro*, A.A., Picó-Alfonso, M.A., Payá-Cano, J.L., Martínez-Soriano, F. and Herbert, J.**

Area of Psychobiology, Faculty of Psychology, University of Valencia, Spain;

*Department of Morphological Sciences, Faculty of Medicine, University of Valencia;

**Department of Anatomy, MRC Cambridge Centre for Brain Repair, University of Cambridge, UK.

Defeat resulting from intraspecific encounters between male rats represents a biologically relevant form of social stress. In order to assess the changes induced in the neural activity in animals exposed to defeat, immediate early gene (e.g. c-fos) expression is used. The objective of this study was to determine the pattern of adaptation of the neural activity when animals are exposed repeatedly to defeat. To this purpose, Lister hooded male rats were exposed to the attack of a larger male along 1, 2, 5, 10, or 20 consecutive days in the latter's home cage. Control animals were exposed to an empty cage. C-fos expression (quantified using image analysis) in the forebrain and brainstem sixty minutes after the last defeat was analyzed. The results obtained indicate that acute defeat induced an increase of neural activity in most of the brain areas studied in comparison with control animals. However, when animals were exposed to repeated defeat during different periods of time, the pattern of adaptation was highly regionally specific. In some areas, such as the lateral septum, the central and cortical amygdala, the lateral hypothalamic area, and the lateral and medial divisions of the paraventricular nucleus the hypothalamus, c-fos expression decreased with increasing exposure to defeat. However, in other areas, such as the prefrontal cortex, the raphe nuclei and central grey, this decrease was not observed. Differently, other areas such as the bed nucleus of the stria terminalis, the medial amygdala, the dorsal division of the paraventricular nucleus and the locus ceruleus firstly showed a decrease in the activity but later increased again. In conclusion, the present study shows that the brain adapts to repeated social defeat in a specific manner. Furthermore, studying animals over comparatively prolonged periods may yield a more complete picture of the dynamics of the neural response to chronic social stress. Implications of the changes in neural response to the adaptation in other stress responses needs further research. This study was supported by the University of Valencia (n° 2212) and the BBV Foundation.

S-3.4.- EFFECTS OF AGGRESSIVE HARASSMENT ON MALE COPULATORY BEHAVIOR IN JAPANESE MACAQUES

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Disruption of rivals' mating activity is a prominent strategy for intrasexual competition in many mammal species. The aim of the present study was to analyze the effects of aggressive harassment on different behavioral measures of male copulatory behavior in Japanese macaques (*Macaca fuscata*). The subjects of the study were adult monkeys living in a stable social group of 82 individuals. During 238 hours of observation, 240 copulations were recorded involving 68 different heterosexual pairs formed by 16 males and 26 females. Data collection method was a combination of "focal group" and "complete record" techniques. A total of 62 episodes of aggressive harassment of consort pairs were recorded. The intensity of harassment displayed by the aggressors ranged from stare threat to physical attack. The frequency of aggressive harassment did not vary with the dominance rank of the consort partners ($F=0.41$, $df=3,65$, NS). To assess the impact of aggressive harassment on male copulatory behavior, we correlated the frequency of aggressive harassment with a number of different measures reflecting the efficiency of male sexual performance. The number of episodes of aggressive harassment suffered by each male correlated not only with the number of copulations interrupted before ejaculation because of overt interference ($r=0.61$, $N=16$, $P<0.005$) but also with the number of copulations interrupted before ejaculation without any apparent reason ($r=0.81$, $P<0.0001$). In contrast, the frequency of aggressive harassment did not correlate with the total number of ejaculations ($r=0.30$, NS), the number of different females with whom each male was observed to ejaculate ($r=0.31$, NS), and the mean ejaculation latency ($r=0.22$, NS). To explain these conflicting results, we hypothesize that, in a multi-male group living in a large enclosure with several visual barriers, high-ranking males have much difficulty trying to reduce rivals' global mating success through aggression, even though aggressive harassment disrupts a consistent percentage of rivals' mount series.

S-3.5.- SINGLE SOCIAL DEFEAT IN RATS: TEMPORAL DYNAMICS OF THE STRESS RESPONSE

Koolhaas, J.M., Buwalda, B., Ruis, M.A.W. and de Boer, S.F.

Department of Animal Physiology, University of Groningen, Haren, The Netherlands.

A single social defeat in male rats has long-term physiological and behavioral consequences. Depending on the parameter, changes may last from several hours up to days and weeks. This makes the model highly suitable for the study of the processes in time underlying the development of affective disorders. Highly characteristic for affective disorders in human beings is the reduction in 5-HT neurotransmission and the changes in the HPA axis. Pharmacological challenge tests, using serotonergic agonists demonstrate a gradually developing diminished corticosterone and hypothermia response. Initially a hyperreactivity of ACTH and corticosterone to a CRH challenge is observed. At the same time, a gradual reduction of the corticosterone feedback develops, as reflected by an enhanced ACTH and corticosterone response in the dexamethasone CRH challenge test. This is accompanied by changes in MR and GR binding having a different course in time in different brain areas. Hence, HPA axis regulation changes gradually at various levels of organisation. Despite these changes in regulation, plasma levels of corticosterone remain relatively constant after the defeat. The dynamic changes in behavior and physiology depend on the social housing conditions after the defeat. It seems that the absence of social support after the social defeat is essential for the development of depression-like symptoms in the male rat. The temporal dynamic of the various stress parameters implies that the state of the animal shortly after the stressor will be different from the state several days or weeks later, i.e. the syndrome depends on the time of measurement after the stress experience. Therefore, it is often misleading to label these symptoms as signs of human psychopathology. In fact, the social defeat model allows a detailed analysis of the cascade of events triggered by a traumatic live event. Understanding this cascade in terms of causal and sequential processes and the conditions that might speed up or delay its progressive character is relevant in understanding the etiology of human affective disorders.

S-4.-SYMPOSIUM

RESPONDING TO POLITICAL VIOLENCE: HELPING ITS VICTIMS AND PREVENTING ITS RETURN

Organizer and Discussant:

Colvard, Karen

H.F. Guggenheim Foundation, New York, U.S.A.

Symposium Abstract

This session will look at attempts by local and international organizations to respond to political violence and to prevent its recurrence. A South African political psychologist will analyse what the Truth and Reconciliation Commission can and cannot do to help South Africans remember the violence of apartheid in a way that helps construct a new, more peaceful society. An American looks at the successes of the international human rights movement in curbing violence by marginal states and its comparative failure to affect the behavior of the U.S. government, and a physician-anthropologist team contrast the activities of local elites and disaster-response agencies treating victims of war in Sri Lanka with local healing and violence-control practices.

S-4.1.- DEALING WITH THE AFTERMATH OF POLITICAL VIOLENCE IN SOUTH AFRICA: EVALUATING THE IMPACT OF THE TRUTH AND RECONCILIATION COMMISSION

Hamber, B.

Centre for the Study of Violence and Reconciliation, Johannesburg, South Africa

During the apartheid era, numerous South Africans, particularly within black communities, were severely traumatised as a result of ongoing violence, oppression and political violence. The psychological impact of the atrocities has been exacerbated over an extended period of time by factors such as socio-economic deprivation, continuous trauma, loss and bereavement. In some areas political violence has also been ongoing. The Truth and Reconciliation Commission was established in 1995 and aimed, through a number of mechanisms, to heal the wounds of the past. Over the life of the TRC it has been argued time and time again by its proponents that the discovery of the truth is central to psychological healing. However, in the assessments that the Centre for the Study of Violence and Reconciliation in South Africa has been carrying out for the last four years, it is evident that coming to terms with political violence is infinitely more complex. Thus, the presentation will explore the role the TRC has played in facilitating an individual and collective healing process. The tensions inherent in balancing the individual needs of survivors, the needs of communities that have been destroyed by political violence and the compromises intrinsic to political peace making will be elucidated. The multifaceted interplay between truth, justice and reparations during times of transition will be explored from a victim-centered methodology. The ability of political processes such as truth commissions, commissions of enquiry and tribunals to address the needs of survivors will be critically reviewed. The social and political role of an individualised psychological approach and trauma counselling will also be discussed and evaluated.

S-4.2.- ARE HUMAN RIGHTS THE SAME FOR CITIZENS OF WEAK AND STRONG NATIONS?

Slattery, B.

H.F. Guggenheim Foundation, New York, USA

The human rights treaties signed and ratified by most countries work essentially to one end: to protect people from repression and violence by the state. They are invoked when a state abuses its people, either by denying them basic rights, or worse, by starving, driving out, torturing, and killing them because of political, ethnic, or religious differences. The treaties have become increasingly a part of international politics, and their implementation has led to the arrests of former heads of state, economic sanctions, and military interventions. But even their successes point out a fundamental problem with human rights law as it is currently practiced: while the treaties rely on some notion of international justice, it takes national strength to enforce those treaties. This means that human rights standards can be imposed by force on smaller, less powerful countries, but larger countries--who have the potential to do much greater damage in the world--can remain exempt from those standards, undermining human rights laws and the ability of those laws to control a state's aggression against its people.

S-4.3.- **THE TREATMENT AND CONTROL OF VIOLENCE AND THE
EROSION OF CONTEXTS: IS NEUROPSYCHOLOGY
WHAT SRI LANKA NEEDS?**

Argenti, N.

World Art Studies and Museology, University of East Anglia, Norwich, U.K.

While the diffusion into the popular media of undigested information on state-of-the-art neurobiological research on aggression has been a major concern for many researchers on aggression, the introduction of neuropsychological views on aggression and trauma in developing countries via much more respected channels has largely been ignored. The paradigms underlying research on the neuropsychological bases of cycles of violence have been introduced in Sri Lanka by mainstream scientists through guest lectures and workshops financed by international humanitarian organizations (such as UNICEF and Oxfam). Sri Lankan intellectuals have readily committed themselves to this modernist approach to violence. Such workshops and conferences provide a much-needed forum where otherwise taboo subjects such as widespread human rights abuses, atrocities, and an ongoing cycle of violence can be addressed. Elites in Colombo have acquired a paradigm by means of which they can discuss violence without having to mention its context: the caste, ethnic origin, or political affiliation of the people involved. While the neurobiology of violence has played a positive role in opening up such a debate close to the centre of a repressive regime, its cultural impact amongst the wider population is potentially dangerous. As a result of this recent cultural input Sri Lankan professionals have implemented (and plan to implement) nationwide treatment programs for violence-prone individuals in rural areas and remote communities. Such programs play a role in the reestablishment of contact between the alienated political elite of a violent nation-state and survivors in rural no-go areas virtually beyond the reach of the Sri Lankan state. As will be discussed in Alex Pillen-Argenti's presentation, rural Sinhala Buddhist communities only manage to interrupt a cycle of violence by means of maintaining a strong tie between a violent event and its context. The imminent large-scale spread of a context-free understanding of violence and aggression to non-Western communities who rely on the preservation of contexts to contain violence should therefore be called into question.

S-4.4.- **INDIGENOUS FORMS OF VIOLENCE CONTROL
IN THE RURAL SLUMS OF SOUTHERN SRI LANKA:
THE PRESERVATION OF CONTEXTS**

Pillen-Argenti, A.

Department of Anthropology, University College, London, U.K.

In the late nineteen-eighties people in the south of Sri Lanka participated in a gruesome civil war. Neighbors from opposing factions killed one another or denounced one another to death squads deployed by the Sri Lankan state and its Western allies. It is estimated that approximately thirty thousand people disappeared over a period of two years. Poverty-stricken communities in the rural south coming to terms with the social and cultural destabilization this civil war has brought about now provide soldiers for the war against the Tamil minority in the north and east of the country. Many soldiers desert, however, and come back to their villages, only to lead an itinerant life-style, permanently on the move to avoid the regular raids organized by the army. Extremely high levels of suicide (the highest suicide rate in the world for young men) form another aspect of this violent reality. A sociolinguistic analysis of the way in which Sinhala Buddhist villagers talk about violence revealed how they forge strong links between violent events and their contexts. Rather than participating in modernist discourses such as "the war against the Tamil separatists" or "communist insurgents", violence is discussed in relation to very localized feuds and struggles. This culture-specific discourse on violence brings about a social (re)organization of the community into multiple, small-scale bounded social units and contributes to the fact that both the families of victims and the families of perpetrators are able to continue to live together in close-knit neighbourhoods. The cycle of revenge did not include the family members of killers, nor those with the same political convictions as the killers. This containment of violence depends on a contextualization of past violent events brought about by linguistic techniques that restrict accounts of violent events within a bounded social context and prevent them from spilling over into the wider community. Modernist discourses on violence, such as the discourse on "aggressive" or traumatized individuals" (independent from their social context) or the discourse on a general "Tamil enemy" threaten this indigenous discourse on violence which promotes the preservation of contexts and plays a role in limiting the community-wide spread of violence.

S-5.-SYMPOSIUM

INFERRING CONSENT/ INFERRING DANGER: THE ROLE OF PERCEPTIONS IN SEXUAL ASSAULT

Organizers:

Norris, Jeanette

Alcohol and Drug Abuse Institute, University of Washington, Seattle, USA.

White, Jacquelyn W.

Department of Psychology, University of North Carolina at Greensboro, Greensboro, North Carolina, USA

Discussant:

Arias, Ileana

National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, Atlanta, USA.

Symposium Abstract

Depending on circumstances, some men view sexual aggression as seduction. But despite the high risk of acquaintance sexual assault, women often do not perceive social encounters as potentially dangerous. This symposium will first examine women's perceptions of acquaintance sexual assault risk and their implications for engaging in high risk behaviors. Jacquelyn White's longitudinal study of sexual assault risk will form the basis for examining factors influencing women's risk perceptions and how they influence high risk behaviors. Kathleen Parks will present results of an experiment that examined drinking women's perceptions of a man's sexual advances. The symposium will then examine factors that influence men's interpretation of forced sex as consensual. Antonia Abbey will present findings from a survey of more than 300 men, one-third of whom were self-reported sexual aggressors, who rated a broad range of sexually assaultive behaviors. Jeanette Norris will focus on findings from an experiment which compared inebriated and sober men's perceptions of an eroticized rape. The discussant, Ileana Arias, will examine the differing perspectives of men and women and how these may contribute to the commission of sexual assault.

S-5.1- A LONGITUDINAL PERSPECTIVE ON WOMEN'S RISK PERCEPTION

White, J.W., Smith, P.H. and Humphrey, J.A.

Department of Psychology, University of North Carolina at Greensboro, Greensboro, North Carolina, USA

Data from a five-year longitudinal investigation of sexual assault experiences spanning adolescence through four years of college address four questions: How does risk perception for stranger and acquaintance assault change over time? How does prior victimization affect perceived risk across time? Does perceived risk affect likelihood of engaging in behaviors known to increase the likelihood of an assault, in particular number of sex partners and use of alcohol and drugs? Does perceived risk act as a risk or protective factor for further victimization?. Results indicated that although the perceived risk of sexual assault declined across the four years of college, perceived risk of assault by a stranger remained higher than perceived risk of assault by an acquaintance. Results also revealed that victims of adolescent victimization reported a greater risk perception than nonvictims across the four collegiate years. Furthermore, victimization in one year of college elevated risk perceptions in the subsequent years, even when controlling for prior victimization. Additionally, there was a relationship between perceptions one year and engaging in high risk behaviors in the subsequent year. However, this was true only for women without a sexual victimization in the preceding year. Among women without a prior victimization, perception of risk was associated with higher levels of alcohol and drug use, as well as the number of sex partners, in the following years. Apparently, the awareness of risk does not lead to a reduction in risky behaviors for women without a prior victimization. Finally, analyses indicated that for women with a prior history of victimization, perceptions of risk are not related to future victimization. However, for women with no prior victimization perceptions were related to an increased risk of victimization in subsequent years. These results have implication for deterrence programs. Simply alerting women to the possibility of acquaintance assault, i.e., increasing their perceived risk, does not lead to a reduction in risky behaviors, i.e., alcohol/drug use and multiple sex partners, nor to a reduction in the likelihood of assault. In fact, the opposite appears to be the case for women with no prior victimization histories.

S-5.2.- **DANGEROUS BODY LANGUAGE:
ALCOHOL'S EFFECT ON WOMEN'S PERCEPTION OF MEN
DURING SOCIAL INTERACTIONS IN BARS**

Parks, K.A.

Research Institute on Addictions, Buffalo, New York, USA.

Previous findings from my research suggest that women are at greater risk for experiencing aggression associated with drinking in a bar when they have more contact and interactions with men, experience more behavioral impairment after consuming alcohol, and have made "riskier" choices (e.g., leaving alone with a man, bringing a man to her home) when interacting with male strangers in the past (Parks, 1999). Women bar drinkers have described overtly sexual or suggestive male behavior that makes women uncomfortable during social interactions in bars (Parks et al., 1998). In a study by Norris, Nurius, and Dimeff (1996) women indicated that alcohol makes it difficult to recognize and successfully resist unwanted sexual advances. Using female participants and male confederates, the present study was designed to assess a woman's perception of a social interaction with a male stranger after she had consumed either a low (.02 g/100ml Blood Alcohol Level; BAL) or high (.08 g/100ml BAL) dose of alcohol. The male confederates were trained to engage in five overt, sexually suggestive "probe" behaviors during a 20 minute interaction with the female participant, after a period of getting to know her and drinking with her in the bar laboratory. The probe behaviors included: complimenting her appearance, moving closer, touching her arm, whispering in her ear, and touching her hair. We hypothesized that women would respond more positively and less negatively to the men under the high dose alcohol condition. We also hypothesized that women in the high dose condition would be less aware of these probe behaviors than women in the low dose condition. This research is unique in the use of actual social interactions with female participants and trained male confederates, rather than written or video-taped vignettes of social scenarios, to assess alcohol's role in risk perception. Changes in the women's perceptions and non-verbal behavior during these social interactions will be discussed in terms of previous findings on recognition and avoidance of situations that are potentially dangerous for sexual aggression.

S-5.3.- **PERCEPTIONS OF FORCED SEX:
WHAT DETERMINES HOW MEN LABEL IT?**

Abbey, A., McAuslan, P., Zawacki, T., Buck, P. and Clinton, M

Department of Community Medicine, Wayne State University, Detroit, USA.

College women in the United States report being the victims of sexual assault at a much higher rate than college men report being the perpetrators of sexual assault. For example, in a survey of 6,159 women and men, 54% of the women reported experiencing some type of sexual assault since the age of 14. In contrast, 25% of the men reported perpetrating sexual assault since age 14 (Koss, et al., 1987). Some of this difference may be explained by women being sexually assaulted by individuals who are not college men or by some college men sexually assaulting many women. A third explanation is that men and women perceive these events differently. Thus, a woman feels that she was sexually assaulted but the man does not realize it. From our perspective, if a woman reports that she was forced to have sex she should be believed. However, it is important to know if perpetrators do not always realize how their actions were perceived. This presentation explores men's perceptions of forced sexual experiences and what factors relate to whether they label the event as consensual sex or sexual assault. Self-report questionnaires were completed by 343 male college students from a large, urban university. Sexual assault perpetration was measured with a modified version of Koss et al.'s (1987) instrument. Twelve behaviorally specific questions asked about acts that constitute sexual assault without using that label. Thirty-three percent of the men reported committing some type of sexual assault (15% sexual contact, 10% verbally coerced sexual intercourse, 3% attempted rape, and 5% rape). Multiple regression analyses were conducted with the dependent measure being participants' perceptions of the extent to which the physically or verbally forced sex that they acknowledged committing was consensual (rated on a 7-point scale). Surprisingly, the type of assault committed did not influence perceptions of how consensual the sex was. Significant predictors included the amount of physical force used, how well he knew the woman, if they had engaged in some type of consensual sexual activity (such as kissing), and his beliefs about alcohol as a disinhibitor of inappropriate behavior. The implications of these results for prevention programming are discussed.

S-5.4.- MEN'S PERCEPTIONS OF AN EROTICIZED RAPE: THE ROLE OF RAPE MYTH ATTITUDES AND CONTEXTUAL FACTORS**Norris, J., Martell, J. and George, W.H.**

Alcohol and Drug Abuse Institute, University of Washington, Seattle, USA.

Prior research has shown that judgments of what constitutes rape can vary as a function of both individual difference traits and contextual factors (see, for instance, Norris & Cubbins, 1992). Thus, it is possible that a man may commit a sexual assault because he believes that he is seducing a woman, even if she clearly resists his advances. The present study addresses two questions related to this proposition. First, under what circumstances do some men view sexual assault as sexually consensual behavior? Second, would any of these circumstances lead a man to indicate a willingness to commit sexual assault himself? In addition to a strong belief in rape myths, three contextual factors thought to influence this phenomenon are alcohol consumption, the victim's reaction to an assault, and the amount of violence inflicted. A 2 (Alcohol - .08 mg% BAC/ no alcohol) X 2 (victim reaction - pleasure/ distress) X 3 (violence - low/ moderate/ high), between-subjects factorial design was conducted. A community sample of 132 men, 21 - 45 years old, was recruited through newspaper advertisements. Beverage administration was followed by reading one of six versions of a three-page story depicting the forcible rape of a female character by a male character. Multiple regressions were performed predicting subjects' perceptions of the male character's behavior, as well as their own willingness to behave like the assailant, from rape myth attitudes and the contextual factors. Several significant main effects and interactions were found. In general both alcohol consumption and the victim reacting with pleasure resulted in the perception that the male character's behavior was seductive, justified, caring and moral and in less violence being employed than among sober subjects or when the victim expressed distress. However, only alcohol consumption increased subjects' reported willingness to behave like the assailant. Rape myth attitudes similarly affected subjects' perceptions and interacted with each of the contextual variables. Findings will be discussed in terms of alcohol's myopia effect, which results in overattention to permissive cues. In addition, these findings indicate the importance of addressing men's rape myth attitudes in rape prevention programs.

W-2.-WORKSHOP

THEORY, ASSESSMENT, RESEARCH AND THERAPY OF ATTITUDES TOWARD OFFENSE

Organizers:

Pereyra, Mario

Department of Psychology, River Plate Adventist University, Entre Ríos, Argentina.

Moreno, José Eduardo

Interdisciplinary Research Center of Experimental and Mathematical Psychology National Research Council, Argentina.

Workshop Abstract

Aggression, interpersonal violence and prosocial behaviour are very important issues in contemporary society. When a person is offended, the aggression damages the relationship, bringing multiple harmful repercussions at a personal and social level, demand research efforts and the search for therapeutic strategies to reconstruct the interpersonal relations. In this workshop we present:

- 1) an Interpersonal Aggression Model (IAM) and some considerations in contrast to other models and theories;
- 2) an instrument to measure attitudes towards a person who is injured psychologically or physically in different situations -Attitude Scale Towards Offenders, ASTO-;
- 3) the results of psychometric validation, crosscultural and clinical research;
- 4) a psychotherapeutic intervention model for resolving disputes, oriented toward forgiveness and reconciliation.

W-2.1.- RESEARCH AND THERAPY OF ATTITUDES TOWARD OFFENDER

Pereyra, M.

Department of Psychology, River Plate Adventist University, Entre Ríos, Argentina.

The issues I consider and the activities correspond to the following points:

- 1) *Crosscultural research.* I present investigations that we carry out with the purpose of evaluating the scales of the ASTO in different sociocultural context, in Argentina and foreign countries: a) inside the Argentina (n=1200), they were administered in Buenos Aires, Entre Ríos and other areas of this country. We study particularly, the variables: sex, age, systems of values and religious practice. We were found that there were significant differences in the ratings among the groups. The most significant result was the gravitation of the religious practice in prosocial and passive behaviors; b) outside of the Argentina (n=728) we investigate undergraduate students in different countries: Ecuador (n=100), Brazil (n=450), Puerto Rico (n=81) and USA (n=97). We find that the versions in Portuguese and in English of the ASTO exhibited psychometric properties similar to the original version in Spanish. We discuss each population's profiles considering cultural variables.
- 2) *Clinical research.* We carry out comparative studies of different clinical inpatient samples, with cancer (n=50), heart (n=50), chronic renal failure (n=59) and psychiatric with attempted suicide (n=50), contrasted with their respective control groups (n=209). The passive and aggressive behaviors showed significant differences according to the pathologies, as long as, the answers prosociales was more homogeneous, probably for mediation of the cultural factors. We make a brief presentation and discussion of some typical clinical cases.
- 3) *Psychotherapeutic intervention model for resolving disputes.* We expose an intervention model in cases of rupture of the relationship oriented toward forgiveness and reconciliation, based on the evangelical parable of the "prodigal son". We identify different stages with their own problems in the process of repairing the damaged bond. We present some cases to illustrate and to discuss with the participants of the workshop, with the purpose of highlighting strategies and specific techniques of intervention.

W-2.2.- ATTITUDES TOWARD OFFENDERS: THEORY AND SCALE DEVELOPMENT

Moreno, J.E.

Interdisciplinary Research Center of Experimental and Mathematical Psychology National Research Council, Argentina.

- 1) Theory. I present a research review about aggressiveness, pasive response, forgiveness and reconciliation. Then I shall consider an Interpersonal Aggression Model (IAM) and prosocial behaviour. Benefit and harm in the psychology of interpersonal relations shall receive theoretical attention, specially forgiving as the forgoing of vengeful behaviour. The research review and the model are based on E. Fromm (1971), R. P. Fitzgibbons (1986), R. Enright (1994) and M. E. Mc Cullough (1998).
- 2) Scale Development. Aggression, interpersonal violence and prosocial behaviour are very important issues in contemporary society that demand research efforts. In this workshop I present an instrument to measure attitudes towards offenders. The evaluation of these attitudes give us information to develop knowledge and techniques which might reduce harmful aggression and improve prosocial behaviour.

The ASTO (Attitude Scale Toward Offenders; Moreno, Pereyra, 1995) is an instrument composed of seven scales: forgiveness, demand, hostile reaction, revenge, resentment, negation and submission. The subjects must answer a series of items after reading ten brief vignettes that describe different situations in which a person is injured or offended. The results of a factor analysis (n=1200) revealed seven dimensions and confirmed the construct of ASTO (validity). Correlations with some scales of SIV (L. Gordon) and MMPI showed a satisfactory level of convergence validity. Reliability tests showed also a satisfactory level of ASTO scales alfa de Cronbach, scales mean = .75). We must consider that each scale includes five different grievance situations.

OP-3.-ORAL PRESENTATIONS

AGGRESSION IN CHILDREN AND TEENAGERS IN THE SCHOOL CONTEXT

OP-3.1.- **SOCIAL COGNITION AND AGGRESSION IN THE HEAD START CLASSROOM: IMPLICATIONS FOR PREVENTION**

Giles, J.W. and Heyman, G.D.

University of California at San Diego, La Jolla, California, USA

The nature of children's thought processes has become an increasingly salient issue in the study of the development of aggressive behavior. Literature is reviewed that suggests that social cognition plays a mediating role in the relationship between early risk factors for aggression and subsequent social behavior. This study attempts to evaluate the relationship between social cognition and aggression among high-risk low-income preschoolers, specifically investigating the relationship between trait inference, attribution, social problem solving skills and social perspective-taking skills, and classroom aggression. Subjects in this study were 100 children enrolled in Head Start preschools in San Diego County (50 boys, 50 girls, mean age 4.6 years). Subjects were individually presented with several vignettes in which story characters committed ambiguous moral transgressions, either against the subject or against a peer; transgressions presented varied, within-subjects, in severity of outcome and in the degree to which they were intended. Subjects were asked to evaluate the severity of each act, why they thought it had occurred, and the extent to which it was indicative of an underlying trait of the actor. When ambiguous moral transgressions were committed against the subject, children who were rated as highly aggressive by their teachers (as measured on the Daycare Provider Form of the Achenbach Child Behavior Checklist) consistently reported that acts were more severe and more indicative of hostile intent on the part of the actor. Furthermore, children rated as highly aggressive by their teachers were more likely than their peers to endorse aggressive behavior as an acceptable solution to transgressions. Teacher reports of aggressiveness also correlated with low child self-ratings of competence in social situations, an inability to generate nonviolent solutions to social problems, and an inability to take the perspective of another child. These results suggest that the prevention of classroom behavior problems and the development of prevention curricula may be augmented by a consideration of the role of social cognition in aggressive behavior in preschool children.

OP-3.2.- **CHANGES IN SCHOOL PLAYGROUND AND AGGRESSIVE BEHAVIOUR REDUCTION**

Rebolo-Marques, M. A., Neto*, C. and Oliveira-Pereira, B.**

Escola Básica Integrada da Quinta do Conde (Sesimbra)

*Faculdade de Motricidade Humana, Universidade Técnica de Lisboa, Portugal

**Instituto de Estudos da Criança, Universidade do Minho, Portugal

The high level of aggression between the children in the school playground during recess time (Olweus, 1993; Whitney & Smith, 1993; Pereira, 1997) raises doubts concerning its importance as time of freedom, socialisation and formation. To check up how playground variation promotes or reduces aggressive behaviour and a greater or lower victimisation level, four types of playgrounds were tested in a primary school during four consecutive weeks: empty playground, supervised playground, playground with materials, playground with supervisor and materials. At the end of every week (on Friday) children from 2^o, 3^o and 4^o grade (n=112) answer an anonymous inquiry about the conflicts they felt in the playground and their representations of every type of playground. After the experience the children answer another anonymous inquiry about their favourite playground and their representations of the different playgrounds. The data collected after the empty playground week show that many students participate in incidents during recess as aggressors, victims or observers. Only about 50% of the victims tells the teacher about the problems, they are afraid of retaliations. The data collected after every period in a different space, show that the introduction of the supervisor in the playground is important specially for the children that usually stay alone during recess but the victimisation levels are very similar to the ones of the empty playground week. Only in the playgrounds with materials (with or without supervisor) the aggression and victimisation levels are significantly different (lower) from the levels found in the empty playground. The children's representations of every playground are very positive, it's important to refer the weight that is given to "play with friends" (near 75%) and "play different things" (41% to 53%). The highest values in these categories can be found in playground with supervision and materials which is also the favourite among most of the students (61%). The objects had a positive influence in the student occupation and their union around common goals, games and plays, and the active supervision makes the adult a precious helper in conflict, in learning and organising situations.

OP-3.3.- **MINDFULNESS PROJECT TO DEVELOP STRESS MANAGEMENT SKILLS IN THIRD AND FOURTH GRADE STUDENTS**

Napoli, M.

Arizona State University College of Public Programs, School of Social Work, Tempe, Arizona, USA

The proposed project is designed to evaluate the effectiveness of a 25-week program that teaches third and fourth grade students mindfulness techniques. Mindfulness is defined as the student's ability to keep his/her attention in the present moment-to focus on "what I am doing now?" The ability to focus, notice what is happening at the moment without judgement can facilitate children's' ability to respond rather than react to situations. Students will be taught the following mindfulness techniques: breathing exercises, creative visualization, body movement, stretches, storytelling and art. Building skills through mindful activities allow teachers and students to utilize them in the classroom, a place where children spend the most active time of their day. Results during the academic year 1996-7 of third and fifth grade students respectively using these mindful techniques indicated that: (81% & 86%) enjoyed participating in the classes; (67% & 67%) enjoyed the yoga; (48% & 70%) enjoyed the breathing exercises; (86% & 83%) enjoyed the guided imagery; (62% & 63%) felt more relaxed after the classes; (52% & 41%) used some of the techniques at home; (90% & 86%) would have liked more classes and (86% & 86%) would have liked the teacher to use some of the exercises during the school year. Results of the data received from September to December 1999 of the third and fourth grade students respectively indicate that that the children used the skills outside of the mindfulness classes. The students reported: (96% & 96%) used the breathing techniques (69% & 81%) used the mindfulness skills and (81% & 63%) used the yoga. The number of times the third and fourth grade students used these skills during that time were: sports (44&50); emotional relaxation (20 & 22); physical relaxation (16 & 12); at home (3 & 22); at school (11 & 16); other mood stabilizer (1& 10); and anger management (0 & 7). Due to the decreasing availability of nurturing adults, children have turned to activities like computer games and television for companionship, which often model violence and aggression. It is the goal of this project to have children who are well equipped to deal with daily stressors in school and in the home. The proposed pilot project lays foundations for a viable, long-term research project.

OP-3.4.- **INTERVENTIONS TO REDRESS TEENAGE GIRLS' INDIRECT AGGRESSION: A SPECULATIVE PAPER**

Owens, L.

School of Special Education and Disability Studies, Flinders University of South Australia, Adelaide, South Australia

Because males have been considered the more aggressive sex, interventions have been mainly concerned with male aggression. Over the past dozen years, however, a form of aggression more typical of girls has been identified and described. This aggression has been termed indirect and typical examples include spreading rumours about others and exclusion from the peer group. Previous research has concluded that girls indulge in indirect aggression because of the nature of their friendship groups - membership of the group and close personal relationships are vitally important to girls so indirect or social forms of aggression are particularly effective in hurting or harming peers. Previous research, too, has shown that indirect aggression is very painful to the girl victims. Yet unlike the typical male forms of direct aggression, there has been very little research into how to prevent or intervene to reduce indirect aggression among girls. In an earlier study, the author found that teenage girls were sceptical about existing school based interventions. Speculations can be made about the types of interventions that may be successful, drawing upon a range of possible approaches from the existing literature on more overt forms of aggression, including bullying. These include whole school approaches, the no blame approach, the method of shared concern, peer counselling, peer mediation, and systems thinking. The last of these is a rejection of traditional individual approaches in psychology and education which seek to identify an aggressor or victim and remediate deficits in, for example, thinking patterns or social skills. Instead, the indirect aggression "problem" is seen to reside within relationships and interactions within the whole school or community system and requires overarching systemic responses. Interventions need to take account of the explanations for indirect aggression and in particular the nature of teenage girls' friendship groups. Paradoxically, the group and friendship processes which are the context for girls' indirect aggression may also be a source of strength to girls in resolving their conflicts.

OP-4.-ORAL PRESENTATIONS

AGGRESSION IN THE WORKPLACE

OP-4.1.- EDUCATING MANAGEMENT IN COMBATING LOW-LEVEL AGGRESSION IN THE WORKPLACE

Jekielek, J., Eng, P. and Koczorowska*, M.

Organizational Consultant, Toronto, Ontario, Canada. *Psychiatrist, Toronto, Ontario, Canada.

Aggression in the workplace is on the rise, but low-level aggression is often not even recognized. Dealing with low-level aggression limits both reciprocation and escalation to the more harmful forms. An educated management can recognize and limit aggression, mainly through self-correction and worker education. It is important to deal quickly and effectively with low-level aggressive behaviour stemming from several seemingly unrelated areas, such as performance feedback, employee fatigue, coercive features of organizational learning, diversity and generational gaps. A multiplicity of articles has been written about human aggression in the workplace. This paper is based on personal reading from numerous sources as well as recent experiences in helping organizations to combat low-level aggression in the workplace. Dealing with organizational teaching and learning, i.e. educating management and workers, who are battle fatigued and over-trained from the current "corporate training frenzy", is a challenge in itself. The proposed approaches center on educating management and involve time-compression, ad-hoc experimentation, an ability to utilize chaos, quick judgements, re-assessments and re-adjustments. The tone of any consultant intervention must lead to a collaborative effort directed towards each individual's personal learning potential. Effectively dealing with low-level aggression does not require a major effort or expenditure. When management gains sufficient insight and knowledge, it can effect both a self-improvement process and worker education. The benefits are enormous; by addressing this issue, every company will gain by increasing productivity and simultaneously creating a better, more enjoyable, and safer workplace.

OP-4.2.- DEALING WITH WORKPLACE - INDUCED POST-TRAUMATIC STRESS DISORDER (PTSD)

Koczorowska, M., Jekielek*, J. and Eng*, P.

Psychiatrist, Toronto, Ontario, Canada. *Organizational Consultant, Toronto, Ontario, Canada.

According to the Canadian Mental Health Association, 42 percent of Canadians reported that stress has a negative effect on their job performance. Workplace stress is costing Canadian businesses \$5 billion dollars annually. Many workers report mental health problems related to their job, blaming a "hostile" workplace. Some seek psychotherapy, displaying several symptoms characteristic of PTSD. Some of them seem to be victims of apparently invisible aggression, violence or abuse. Workplace aggression, violence or abuse may not be limited to explicit forms, such as harassment, which can be defined in legal terms. It can be invisible; the perpetrators may be following established rules and procedures, but the victims suffer as if they had actually been subjected to harassment or physical violence. This paper is based on working experience and personal reading from a variety of psychiatric, psychological, medical and business sources. There are numerous potential sources of workplace aggression. Examples of corporate coercive persuasion and a common workplace paradox, performance versus procedures, are described. Selected case vignettes illustrate dealing with workplace-induced PTSD. Recommendations for treatment follow, covering both "conventional" cases of prolonged abuse, as well as a proposed "cognitive/educational approach", designed for treatment in the early stages of abuse. Invisible workplace aggression, violence or abuse stems from organizational tolerance of behaviours harmful both to the organization and to the people involved with it. Any larger organization needs to develop both awareness and a policy to prevent and deal with such cases. From a societal point of view, it should not be tolerated. From a business point of view, it is detrimental to both short and long term productivity.

POSTERS

P-13.- **A COMPUTER-BASED DATA LOG FOR DESCRIBING SAMPLES OF MALTREATED CHILDREN****Knutson, J.K. and Sternberg*, K.**

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One of the major problems in making inferences from existing research on child maltreatment has been the inadequate description of samples and lack of a systematic approach to operationally defining child maltreatment. This failure of the research literature to develop a framework for describing samples and defining maltreatment led to one of the recommendations offered by the National Research Council Panel on Research on Child Abuse and Neglect (1993). That recommendation was a call for a more systematic approach to developing empirically-based operational definitions of maltreatment and a more comprehensive description of abused samples. In part in response to this recommendation, and in part by the needs expressed by scientific review panels of funding agencies, several U.S. child health and child welfare agencies that fund abuse-related research initiated an interagency task force to develop a framework for describing maltreated samples and defining that maltreatment. By bringing together several panels of experts in the areas of research on physical abuse, sexual abuse, neglect, and psychological abuse over a four year period, a set of preliminary guidelines were established that detailed the ideal set of data that should be obtained in studies of child maltreatment. After revising these preliminary guidelines, a computer-based data log system was developed to permit the recording of a common set of variables to permit comparisons among studies and the aggregation of data sets from different sites. This computer software, soon to be available from NICHD for a nominal cost will be described in this presentation.

P-14.- **STUDY OF THE EFFECTS OF HYPERICUM PERFORATUM ON PAIN INDUCED AGGRESSION****Piper, B.J., Davis, D., Mapes, R., Hall, E., Hill, D., Bercaw, E. and Renfrew, J.W.**

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Extracts of hypericum perforatum (HYP), commonly known as Saint John's wort, are reported to improve mood among people suffering from depression, and this common medicinal herb has become increasingly popular for treatment of a number of psychological problems. In vitro studies of the neurotransmitters affected by HYP have yielded varied results, including suggestions of an inhibition of serotonin reuptake. It has been reported that antidepressants with a serotonergic mechanism inhibit aggressive behaviors and also that HYP attenuates social isolation aggression in mice. The present report considers the role of HYP on shock induced fighting in rats. Results of a preliminary study suggested a reduction in the percentage of fights following shock. In a second, better controlled replication effort, three pairs of Long-Evans rats received daily ip injections of a vehicle control solution for two weeks followed by three weeks of 0.5ml/kg HYP. Daily foot shock induced fighting assessments revealed an increase in the percentage of fights following shock after HYP administration. The frequency and duration of fights were also elevated. The study was expanded to a between subject-intra subject design in a third experiment to include three HYP and four control pairs. Results were less consistent but suggestive of a bimodal effect over time, with an increase in fighting in the experimental subjects by the end of testing, compared to the controls. Taken together, these observations provide little support for HYP as a consistent, long term contributor to the control of aggression, possibly because of the particular changes in the neurotransmitter mechanisms associated with its use. Further work is in progress to identify the neurotransmitter systems influenced by HYP.

P-15.- DOMESTICALLY VIOLENT MEN: COGNITIVE PROCESSING PATTERNS IN RESPONSE TO SOCIAL INTERACTIONS

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Much of the current research in the area of domestic violence against one's intimate partner, or battering, has its roots in the research base established for cognitive and behavioral processes and aggression. The Social Information-Processing theory is a commonly used model in this area which outlines a series of steps which precede a behavioral response. The steps are (1) encoding cues, (2) interpretation, (3) response consideration, (4) response decision, and (5) enactment. Biased or deficient processing at each of the steps will contribute to deviant or aggressive behavior. Skillful processing at each step will lead to socially competent performance within the situation. The current study examined the social skills of fifty-four domestically violent and nonviolent men. The participants read thirteen scenarios depicting problematic hypothetical situations involving either the participant or his wife, or the participant and a non-intimate female associate. Open-ended reports of behavioral response were rated for presence of skillful processing at various steps within the model. Differences were found between the violent and nonviolent groups at certain processing steps. Domestically violent men were less likely to attribute the cause of the negative interaction to nonhostile social cues than their nonviolent counterparts. They were less likely to attribute the cause of the problem to circumstances beyond the other person's control. Domestically violent men were also less likely to choose a prosocial response option, such as proposing a problem-solving strategy or using open direct communication than their nonviolent counterparts. They were more likely to choose a response that was inept, such as sulking or doing nothing. In addition, when asked to recall information about the social interaction, violent men had more difficulty remembering critical details of the interaction. These processing patterns were similar in both types of social relationships. In addition, the patterns were similar regardless of the level of negative emotional arousal. Based on the results of this study, it is suggested that treatment for domestically violent men include training in social cue reading and recall, and behavioral role plays of prosocial interactions.

P-16.- RELIGION AND DIFFERENT TYPES OF AGGRESSION: THE CASES OF INDIA AND ISRAEL

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The use of physical, verbal, and indirect aggression in interpersonal conflict was investigated among 677 Indian and 630 Israeli adolescents of three age groups (8, 11, and 15 years of age) of different religious background: Hindu (n=411), Muslim (n=87), and Sikh (n=179) in Delhi, U.P., India and secular (n=335) and orthodox (295) Jews in Jerusalem, Israel. Aggressive behavior was measured with the Direct & Indirect Aggression Scales (DIAS; Björkqvist, Lagerspetz, & Österman, 1992), based on peer estimations. Findings varied to some extent from previous findings with the same methodology in Western countries. Indian boys displayed all three types of aggression significantly more than Indian girls. Physical aggression diminished by age while verbal and indirect aggression reached its peak at age 11. Sikhs were significantly more physically aggressive than Hindus or Muslims, but in the cases of verbal and indirect aggression, there was no difference between the ethnic groups. In the case of girls, there were no differences between the ethnic groups on any of the three kinds of aggression. With respect to boys there was no difference between the ethnic groups regarding verbal or indirect aggression, but Sikh boys were found to be more physically aggressive than both Hindu and Muslim boys. Israeli boys were both physically and verbally more aggressive than Israeli girls. On indirect aggression, there was no sex difference. At the age of 11, Israelis reached the highest scores on all three types of aggression. Secular Jews were significantly more indirectly aggressive than orthodox Jews. There was no difference between the two groups on physical or verbal aggression.

P-17.- **FEATURING DOMESTIC STOCKHOLM SYNDROME:
A COGNITIVE BOND OF PROTECTION IN BATTERED WOMEN**

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An etiological hypothesis for conceptualising a new psychopathological category, the Domestic Stockholm Syndrome (DSS), is presented. DSS comes from the application of a theoretical model for the classical Stockholm Syndrome, developed by the author, to the context of battered women in a domestic environment. DSS will be described as an interpersonal bond of protection built between victim woman and aggressor, within a traumatic and stimuli restricted environment, through the induction of a mental model, of cognitive nature and contextual anchoring, that will be aimed at the victim's physiological and behavioural balance recovering and psychological integrity protection. The feature of the syndrome would be determined by a pattern of cognitive changes, its adaptive functionality, and its terminal course as a result of a psychological reactive process in the victims through several phases. According to our theoretic model, these phases would be: trigger, reorientation, coping and adaptation. In the trigger phase, the first thrashings will break a secure setting previously built on an affective relationship where the woman had placed her trust and expectations: these will produce a general disorientation pattern, lost of referents, an acute stress reaction and even depression. In the reorientation phase, the woman searches for new referents of future and tries to build a cognitive reordering based on the principle of attitudinal congruence, everything in order to avoid dissonance between her conduct of election and compromise with her partner and the traumatic situation she is living. During the phase of coping the woman self-blames by the situation and tries to find ways to protect her self-esteem and to manage the traumatic situation. Finally, she goes to the last phase of adaptation, where she assumes her husband's mental model and projects the guilt outside the domestic milieu of the couple; there, the Stockholm Syndrome emerges around the induced mental model.

P-18.- **MDMA ("ECSTASY") ADMINISTRATION PROVOKES CHANGES
IN THE TEMPORAL AND SEQUENTIAL STRUCTURE OF THE
AGONISTIC BEHAVIOUR IN MALE MICE**

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D-amphetamine administration provokes changes in the structure of the agonistic behavior of mice (1). Recently, it has been found that 3-4-methylenedioxy-methamphetamine (MDMA), a synthetic amphetamine derivative popularly known as "ecstasy", exhibits a behavioural profile characterized by a reduction of aggression (threat and attack) without a concomitant increase of immobility, accompanied by a decrease of social investigation and an increment of exploration from a distance, avoidance/flee and defense/submission behaviours, especially at high doses (5-20 mg/kg) (2). The aim of this study was analyze the effect of three acute doses of MDMA (0.5, 1.25 and 2.5 mg/kg, i.p.) on the temporal structure of the agonistic behaviour of male mice using a model of isolation-induced aggression. For this purpose, individually housed mice were exposed to anosmic "standard opponents" 30 min after drug administration. The encounters were videotaped and the accumulated time allocated by subjects to ten broad behavioural categories was estimated using an ethologically based analysis. The names of categories were as follows: 1. Body care; 2. Digging; 3. Non social exploration; 4. Exploration from a distance; 5. Social investigation; 6. Threat; 7. Attack; 8. Avoidance/flee; 9. Defense/submission, and 10. Immobility. The parameters examined were frequency, total and mean duration of each behavioural category, including latency of attack, inter-attack intervals and temporal distribution of attacks. Results showed that the frequency, total and mean duration of aggressive behaviour (threat and attack) were not significantly affected by MDMA. However, the temporal analysis of "Attack" revealed a temporal redistribution of the attacks to later in the course of the social encounters, in concordance with other studies using d-amphetamine (1). On the other hand, MDMA (0.5 and 1.25 mg/kg) provoked a decrease in the number of very short (0.1-2.5 s) inter-attack intervals, as compared with the control group, a result which clearly contrasts with those described with d-amphetamine. Moro M et al. (1997). *Pharmacology Biochemistry & Behavior*, 56, 47-54. Navarro JF, Maldonado E (1999). *Progress in Neuropsychopharmacology & Biological Psychiatry*, 23, 327-334.

P-19.- **SELF VERSUS OTHER REPORTED MEASURES OF AGGRESSIVENESS IN CHILDREN**

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Measures of aggressiveness in children are thought to be predictive of antisocial and deviant behavior in adulthood. This prediction mostly bases on evaluation by third persons, whereas the child's view on own aggressive potential often is neglected. On the other hand, the acknowledgment of one's own unfit inclinations holds preliminary relevance to any intervention aimed at improvement. We used a renewed Italian version of the Buss-Durkee Hostility Inventory (BDHI) in a sample of 392 (m = 210; f = 182) school-aged children (aged on average 11 y, range 10 to 15). We compared children's BDHI scores with those drawn out teacher's ratings on a check-list, measuring maladjusted and aggressive behaviors of children, and on a dichotomous judgement (aggressive/not aggressive). Our version of BDHI proved good face validity: all children completed the inventory, with a good understanding of questions (Cronbach's alpha = .88). Males showed higher BDHI scores than females ($p < .005$), particularly on Aggression and Indirect Hostility sub-scales. However, we found only a scarce ($r = .15$ in both genders) relationship between children's BDHI scores and those of teacher's check-list on antisocial behavior. Moreover, BDHI scores did not discriminate against the teacher dichotomous judgement on aggressive behavior. Our results suggest that a substantial divergence separate one's own evaluation and that of third parties as far as aggressive behavior is concerned. Though self-reported measures bear inherent limitations, we feel confident that our results renew the importance of taking into account the point of view of the child when evaluating aggressive behavior and misconduct. Recent studies, indeed, stressed the links between aggressiveness and the risk of premature death, and self-reported measures of aggression have been found predictive of suicide risk, even in adolescent samples, strengthening their value for prevention.

P-20.- **SOCIAL DEFEAT IN C57BL/6 MICE INDUCED EXAGGERATED FEAR AND INHIBITION OF TERRITORIAL MARKING IN RESPONSE TO AGGRESSOR'S URINE**

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Social defeat (SD) has marked and prolonged behavioral effects, including avoidance of a non-aggressive intruder and inhibition of territorial urine marking in response to both male and female mice. We examined whether SD-induced exaggerated fear and inhibition of marking would generalize given exposure to aggressors' urine. In a modified resident-intruder test, mice were exposed within their home cages to bedding removed from aggressors' cages. The bedding was placed on the opposite side of a perforated barrier, relative to the resident subject mouse. SD mice displayed more avoidance, flights, crouch defense, and Straub tail in response to aggressors' urine placed on the other side of a perforated barrier, than did NOSD mice. In addition, SD mice had more risk assessment, including stretched-approach and stretched-attend posture than NOSD mice. NOSD mice displayed more dig behavior, especially at the front of the cage. When the barrier was removed, SD mice continued to display increased flights, crouch defense, Straub tail and risk assessment. NOSD mice spent more time in proximity of the aggressors' bedding and sniffed the bedding more than did SD mice. In a test of territorial urine marking, SD mice displayed less marking in response to both aggressor urine and within a novel empty cage, relative to NOSD mice. NOSD mice displayed increased marking with repeated tests, but SD mice did not. In sum, the exaggerated fear responses and inhibition of territorial marking generalize to olfactory cues from aggressive mice.

P-21.- **DEVELOPMENT OF LOCALLY SHARED ATTITUDES TOWARD AGGRESSION: DYNAMIC SOCIAL IMPACT THEORY**

Curtayne, E., Hur, T., Morio, H., Richardson, D. S. and Latané, B.

Recent research on the "culture of honor" as an explanation for relatively high levels of violence in the United States South presents evidence on aggression in particular social contexts that associate aggressive retaliation with threats to personal honor (Nisbett and Cohen, 1996). The present study examined the process by which attitudes that associate violence with honor might develop and maintain in delineated regions. Dynamic Social Impact Theory (DSIT; 1996) proposes the strength, immediacy, and number of persons in social environment as the determinants of interpersonal influence on an individual's attitudes or beliefs. It suggests that these factors will act upon the individual(s) and lead to an emerging pattern of shared beliefs at the group level. Also, the exchange of information within a defined social space, influenced by the persuasibility and number of "neighbors", will produce local clusters of attitudes. Therefore, DSIT predicts group-level clustering and consolidation of attitudes or beliefs as a function of individual-level social influence. The present research investigated the effects of interpersonal interaction on development of attitudes or beliefs about aggression (broadly, regionally shared cultures or values). The present study utilized a group-brainstorming paradigm as an interpersonal interaction setting. Participants were randomly assigned to small groups of 3-4 people and conducted a series of group-brainstorming task about four aggression-related topics. They, then, completed questionnaires including aggression-related items (that were designed to assess social representations of aggression; culture of honor) and a non-aggression items (specifically, judging moral appropriateness of various social behaviors). Clustering indexes (d) – a ratio between differences of a participant's rating from their own group members' ratings and those of the outside-of-group others' ratings – were calculated on both the aggression items and the non-aggression items separately. Consistent with the prediction, participants' ratings on aggression-related items, but not those on non-aggression items, were significantly clustered after group-brainstorming tasks about aggression-related topics. This finding showed that social interactions, even group brainstorming focusing on divergent thinking processes, results in locally shared attitudes (or beliefs). Furthermore, it suggests that Dynamic Social Impact may be the underlying mechanism of development of regional cultures (or values).

P-22.- **BULLYING AT SCHOOLS: A PILOT STUDY USING SEMI-STRUCTURED INTERVIEWS¹**

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Throughout life, but especially in childhood and adolescence, peer relationships are important experiences in a person's development. However, in some cases, peer relationships may become conflictive and lose their positive influence, thus turning into something fearful. This is what happens with *bullying* at schools, a type of aggressive behaviour, which can take a variety of forms. Often it is assumed by adults to be a normal and infrequently occurring phenomenon. As a result, it is difficult to identify types of bullying and become aware of its damaging consequences². Ever since research interest in bullying began, questionnaires have been the normal instrument for studying the phenomenon. In this pilot study the method employed has been that of the semi-structured interview, based on the *Piagetian clinical method* (Piaget, 1926, 1947; Turiel, 1983; Castorina *et al.*, 1989). A sample of 36 participants was used, belonging to three age groups: children (9 – 11 years), adolescents (13 – 15 years) and adults (18+ years). Half the sample was interviewed at schools in Madrid and the other half at schools in Oviedo. In the frame of a wider study, an analysis was carried out which extracted categories corresponding to the following aspects: nature of bullying, dynamics of the relationship (origin, maintenance, ending, and consequences of the bullying episodes) and the emotions attributed to aggressors, victims and bystanders. The information gathered using the semi-structured interview revealed an age effect in the way children, adolescents and adults approach many issues related to the phenomena of peer maltreatment. The shift from primary to secondary school is confirmed as the time during which this type of situation occurs more frequently. This study shows the possibilities that the semi-structured interview offers for a deeper knowledge of bullying.

¹ This study forms part of the European TMR network project: *The nature and prevention of bullying*.

² For more information on the situation of bullying in Spain, please refer to the *Informe Nacional del Defensor del Pueblo sobre Violencia Escolar*, in which the authors of this poster participated.

P-23.- **DIFFERENT SOCIAL STRESS SITUATIONS, SPLENIC NOREPINEPHRINE, INTERLEUKIN-1 AND INTERLEUKIN-2 CONTENTS, AND SERUM CORTICOSTERONE LEVELS IN MALE MICE**

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Two different social stress situations (cohabitation in pairs or fixed dyadic interactions) were assessed for their effects on splenic contents of norepinephrine (NE), Interleukin-1 (IL-1) and Interleukin-2 (IL-2), and on serum levels of corticosterone in male OF1 strain mice. Two durations were used for each of the social stress paradigms, namely 6 or 16 behavioral tests for fixed dyadic interaction animals and 6 or 16 days of cohabitation for cohabiting subjects. After 2 weeks of individual housing, 24 animals were allocated to cohabitating or fixed dyadic interaction pairs for both durations. Serum corticosterone titers were generally higher in interacting pairs and subordinates, than in cohabiting animals and dominants. Dominants had higher levels of IL-1 than subordinates and the dyadic encounter exposed animals showed higher levels than cohabiting counterparts. Spleen IL-2 did not respond in the same way as IL-1 to the treatments (social status, paradigm and duration). IL-2 levels are higher in cohabiting animals and the effect is strongest in the acute category. The stress of acute experiences (seen in both dominant and subordinate) may stimulate IL-2 levels but this response declines with time. Spleen NE contents did not significantly differ. The differences in splenic interleukin contents could not be directly related to observed changes in serum corticosterone levels. This suggests that different mechanisms regulate changes in glucocorticoids and the measured cytokines. These physiological phenomena are not solely related to the animal's social status (dominant or submissive). The intensity and duration of the agonistic behavior displayed and the amount of interaction experience accumulated, may account for the observed differences. On the whole, results in the present study support the idea that stress does not affect different immunological measures in a simple, consistent way and that the role of endogenous glucocorticoids in immunoregulation could be less clear-cut than studies with synthetic glucocorticoids have led us to believe.

P-24.- **REWARDING PROPERTIES OF TESTOSTERONE IN MALE MICE DIFFERING IN THEIR BASAL LEVELS OF AGGRESSIVENESS**

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Testosterone derivatives have been widely abused, and dependence has been reported for some individuals. A few studies suggest that basal levels of aggressiveness could be relevant to explain individual differences that could mediate vulnerability to developing dependence. Rewarding properties of testosterone involve the dopaminergic system that has been shown to be different in aggressive and non-aggressive male mice. The present study was carried out to explore whether the basal levels of aggressiveness could modulate the rewarding properties of 4-androsten-17 β -ol-3-one testosterone (T) in intact male mice using the conditioned place preference (CPP). After three weeks of isolation, experimental animals were pre-screened for aggressive behaviour. Tests finished when the experimental animals attacked for the first time or after 10 minutes without attacking, being classified either in short attack latency group (SAL) if they attacked before the fifth minute of the encounter or in long attack latency group (LAL) if they attacked afterwards. The CPP procedure started five days later, involving three phases: preconditioning test (one session); conditioning (eight sessions); and post-conditioning test (one session). SAL and LAL animals were allocated to three groups of treatment, forming six experimental groups: SAL + vehicle (n=12); SAL + 1 mg/kg T (n=12); SAL + 2 mg/kg T (n=12); LAL + vehicle (n=12); LAL + 1 mg/kg T (n=12); LAL + 2 mg/kg T (n=12). In the preconditioning test, subjects were allowed to explore the environment for 30 minutes in order to determine the initial preference for the floor textures, which were different in each compartment under non-drug conditions. In the conditioning phase in every session each mouse was injected with testosterone or vehicle and 30 minutes later was confined in the apparatus for 30 minutes. CPP assessments followed the last conditioning session by 24 hours. CPP was observed after 1 and 2 mg/kg administration of testosterone, although these doses had similar rewarding effects in SAL and LAL animals. Data were reanalysed selecting animals above percentile 70 (n=21) and below percentile 30 (n=21) in the latency of attack but no differences in CPP were found between these groups.