Heboidophrenia and pseudopsychopathic schizophrenia: Current knowledge and critical perspective

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Abstract

In this article, based on extensive literature review, we present an integrated description of heboidophrenia and pseudo-psychopathic schizophrenia. Both diagnostic constructs describe latent psychotic processes inextricably bound with psychopathic features. Although both syndromes have been described in different eras and research threads, they are so similar that we could not find divergent characteristics. We formulated operational criteria for clinical and research purposes. The recognition of this syndrome improves risk management, treatment and legal decisions.

Introduction

Heboidophrenia (Hd) [1] and pseudopsychopathic schizophrenia (PPS) [2] are more than a mere co-occurrence of schizophrenia (Sz) and psychopathy (PP)\(^1\). Despite the far-reaching clinical, forensic and legal implications of both syndromes, and their ever-present relevance, they seem to have been on and off-radar continuously. The present paper examines the convergence of both concepts which have been described in separate research traditions and eras, and presents an operational definition.

Kahlbaum proposed the construct of “heboidophrenia” as a milder, less severe “hebephrenia”, implying a “less stormy course, mood changes, and little or no intellectual impairment, confusion or weakness of mind [than hebephrenia]” [1]. With a clear idea of a “hebetic continuum”, Kahlbaum described this syndrome for “the young”, hence the prefix “hebe” (late adolescents, early adulthood), were delusional ideas are missing, were thinking “passes the point”, and were conduct disorders are frequent. Because heboidophrenic are not full-blown hebephrenics, Kahlbaum asserts a good treatability and prognosis. Kahlbaum’s ideas gained little interest after publication, but surfaced in ‘20 forensic literature in France [5,6].

\(^1\) We used the definition of psychopathy provided by the work of Robert Hare through his work on the PCL-R [3] and contributions of David Cooke and colleagues [4] which exclude behavioural components. From a psychopathological perspective, see Englebert (2015) and De Page et al. (in press).
Dunaif and Hoch (1954) introduced the concept of PPS whose main manifestations are pan-anxiety, pan-neurosis, and chaotic sexuality. Anxiety is expressed through antisocial behaviour. Dunaif and Hoch illustrated their thinking through seven case studies, all of which had conduct disorders as children, had several legal charges against them, and marginal adjustment at best throughout free life, and were finally convicted for sexual offenses. They observed that: 1) psychotic episodes are not reactive to situations, the reactive elements are exacerbating stimuli to a continuous underlying (latent) schizophrenic disorder, 2) they undergo a more or less rapid return to a compensated state or to an adjustment on a lower level of functioning (no severe deterioration, but a full remission was never observed), and 3) the why of the acting-out behaviour only illuminates some of the motives behind the criminal act; it does not explain why the conflictual situation which seeks solution in the acting-out behaviour. Despite its more recent origin, PPS has known little interest, but remains present in the *International Classification of Disease* as a variant of the schizotypal personality disorder [7].

Authors of both research tradition have presented numerous case studies of highly similar patients. The purpose of this study is to examine the convergences of both constructs and derive a common operational definition for clinical and research purposes, discuss risk and treatment related issues, and present supporting evidence in published empirical research.

**Method**

The aim of our literature search was to identify all papers pertaining to Hd, PPS, or comorbid Sz (or psychosis) and PP (or antisocial personality and conduct disorder). Were included: theoretical dissertations, case studies, historical accounts, empirical investigations, including gray literature such as unpublished manuscripts and conference presentations. Multiple databases were searched (Google Scholar, PubMed, Scopus, and PsychInfo). Authors of unpublished manuscript were contacted in order to obtain full texts. Additional articles were searched for by examining reference lists. We found 32 documents, Hd (n=21) and PPS (n=12), which provide meaningful clinical or theoretical information, not mere references.
We grouped our findings in four categories: a) semiological convergences, b) risk for violence, c) treatment and prognosis, and d) supporting empirical research. Although clinical descriptions are similar throughout publications, these have been formulated with very different vantage points and frameworks (ranging from early case descriptions from French psychiatrists in the 1920’ to clinical studies in the 1950’ in the United States), and long before the more consistent work fuelled by Hare’s Psychopathy Checklist [3].

Results

We did not find evidence of diverse semiology (see Table 1). The European tradition focused on (historical) nosology debates of Hd [5,8–12] and the careful study of index offenses (“passage à l’acte”) through which they enter forensic care [10,11,13]. The American tradition, using the concept of PSS, focused on experimental and follow-up studies [14,15] and the adaptation-defensive functioning adjustment aspect [16]. The bulk of the “European” literature stems from the 1920’s, while the “American” literature started in the 1950’s.

Both traditions heavily emphasize the latent or forme frustre aspect of the psychosis, and its swings with conduct disorders and PP traits. As (Durst et al, 1997) stated: “the argument between the various authors does not refute the existence of disorganisation in this syndrome, it rather revolves around its degree”.

Clinical symptoms and criteria

Based on theoretical and clinical accounts, we present semiological features for an operational definition of Hd/PPS in Table 1².

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² We included articles describing or contributing to the description of both syndromes. When an author endorsed views or descriptions of other/previous authors, these were also coded in this table in order to provide a sense of agreement across publications. Clinical features not consistently reported, were grouped in secondary clinical signs.
An attenuated or latent form of Sz as is evidenced by the overall lack of delusions and hallucinations, [1,14,17,18]. Although Kahlbaum stated that these patients do not have delusions nor hallucinations, subsequent authors are less strict on this matter. General consensus suggest that they have infrequent florid outbursts, but a continuous latent schizophrenic process. They might have mildly formed delusional ideas (perhaps of a transitory nature). These tend to be spoken of, but not experienced emotionally [19]. These patients give an impression of defensive containment about their psychotic experiences if they have any. Occasional florid outburst are not reactive to situations and are more or less brief [2,20]. “Pan-neurosis” and “Pan-anxiety” are clinical signs which were often reported as a main manifestation of the latent schizophrenic process in early literature [2,10,13,14,21,22]. Definition of these are vague, pervasive and persisting anxiety, unstable or rapidly shifting neurotic symptoms. Patients cannot offer detailed, causal or structured explanations for their apparition. Although “pan-anxiety” and “pan-neurosis” have disappeared from current clinical jargon, these bizarre manifestation of otherwise known symptoms are signs of an underlying psychotic process.

Cognition. Three aspects of their cognitions are repeatedly cited through literature. First, their cognition is generally intact, the schizophrenic cognitive decline is less severe, but both a full blown deterioration and remission are inhibited [1,5,10,14,20,23,24]. Secondly, the use of their intellectual abilities is inconsistent and discordant [19,25]. Finally, their moral understanding can be highly idiosyncratic as is evidenced by a particular way to distinguish what is right and what is wrong, or faulty logic [19]. For example, a patient otherwise capable of logic reasoning and thoughtfully reported that he did not understand why it was “wrong” to rape women who he accepted to shelter for a night, but that it would be wrong he had not accepted to shelter them.

Conduct disorders and antisocial behaviour. These symptoms, beginning with puberty, are proposed as a manifestation of the latent schizophrenic process [19,24–26]. These behaviours are not thought through and lack in utility, benefit and tenacity. Patients offer vaguely coherent explanations, but they don’t stand a more in-depth confrontation with reality [19]. The reasons behind the acting-out
behaviour can only be partially identified [2]. The scope of their antisocial behaviour is immediately determined by their direct surrounding. Therefore, antisocial tendencies tend to be curbed by supervision and admissions into hospitals, and might therefore go unrecognized at admission [16,27]. Their antagonism and oppositional tendencies, whether passive or active, is often noticed at school or in family when they are young, and then quietly proliferate through adulthood in society until spotted by authorities [19]. Absconding and wandering is often reported; they tend to abruptly subtract themselves from context where they have not been able to find fulfilment. These patients reach a marginal adjustment at best (vagrancy, prostitution, alcoholism, deviant/criminal, etc.; [2,13,18–21].

Psychopathic personality traits such as unreliability, unruliness, impulsiveness, anger, cheating, bullying, bad judgment, malice, inability to profit from experience, disregards for truth, etc. are characteristic [2,14,20,27,28]. They often act intentionally in a rebellious way or bully care-givers such as nurses [27]. These symptoms are not transient nor episodic. Authors emphasize lifestyle and early development rather than flamboyant PP personality such as eloquence, charmingly manipulative, or grandiose sense of self. Their psychopathic features revolve around passive opposition, lack of guilt and remorse. During interviews they are described as evasive and circumstantial, defensively contained, and affectively shallow. Although a subgroup of patients is markedly more assaultive, this is not systematic.

Interpersonal and emotional relations. These patient are isolated and asocial [10,14]. They are perceived as negativistic, sulky (“boudeurs”), pessimistic, oppositional, or unruly [8,22,27,29]. Several authors delineate a « morose/torpid form of autism », constructing a dynamic whereby they live on their own, insensible to affective bonds, loss of pleasure, withdrawal on their own [2,10,14,18,20,22]. Other case studies report an oscillation between inertia, loss of interest, lack of affect, emptiness [5,10,11,30] on one hand, and labile, variable and jumpy episodes on the other hand [2,20,22,24]
Secondary clinical symptoms and correlates. Alcohol and substance use are present in many case studies [2,13,14], but about 60% of schizophrenic patients [31] and up to 52% of antisocial personality disordered individuals have a diagnosis of alcohol or substance abuse [32]. Troubled sexuality has often been reported [2,14], but a specific sexual pattern to Hd/PSS cannot be ascertained [33]. Kaplan offered a differentiation: psychopaths show a strong sexual drive while schizophrenia patients often experience impairments in addition to reduced sexual desire [14,34]. Stereotyped behaviour patterns; occupationally speaking, these patients are often absorbed in routinelly and stereotyped, sometimes sterile or apragmatic, behaviours [10,13,27,29,33]. Hypochondrial trends have been reported in some patients. Bizarre physical complaints might serve as an expression of psychotic phenomena [2,12,14].

Psychodynamics and developmental pathways

Different developmental or psychodynamic pathways specific to Hd/PPS have been described. We have been able to group these in three groups. Many authors use a conjecture of these hypotheses.

**Defensive hypothesis.** The psychopathic dynamic serves as a shield against disorganizing effects of Sz [10,12,19,25,29,30]. When successful, “anxiety is handled so well that it ceases to be overt and neurotic defenses are no longer needed, and intellectual functioning is increased” [25]. The defensive hypothesis can work proactively, but also retroactively: “chronic psychotic patients may develop the capacity to bend the course of [their] psychosis to [their] will, forcing it to serve their practical needs. In these instances, we deal with sociopathic adaptions reactive to psychotic outbursts” [16]. Antisocial tendencies can be considered as a temporary dominance of defensive instincts [19]. The defensive hypothesis relies upon an assumed hierarchy in maturity of personality functioning: Hd/PPS patients defend themselves from disaggregation with reactional conduct stemming from more mature dynamic organizations. These views rely upon the work of Minkowski who indicated the existence of schizophrenic attitudes who enabled to resist disaggregation [35].

**Process or Cycling hypothesis.** Psychopathic and psychotic dynamics trigger each other in a cycling manner [2,8,12,22,30]. Beck sharpened this defensive cycle as follow: “(a) phase of serious personality
disorder, followed by (b) a stabilizing and apparent integration of their personalities, and lasting over a period of years; but following in turn by (c) either a new breakdown which is of psychotic proportion, or by very delinquent behaviour” [25]. Both components trigger each other because the PP functioning has a disorganizing effect upon the psychotic core of their personality [8,22], but at the same time antisocial behaviour predominates in periods of remission [36]. In our clinical experience, this dynamic often revolves around paranoid features, whereby the psychopathic functioning is an active variant of the paranoid persecutory position, and is further facilitated by disordered mood regulation (e.g. schizo-affective disorder) [12,37].

The prodromal hypothesis. Kahlbaum considered conduct disorders as an early sign of the underlying psychotic process. Psychopathic traits and antisocial conduct are seen as a prodromal stage [1,8,17,19,20,26]. This view considers Hd/PPS as a pre-psychotic state whose process persists in a discrete fashion, and is occasionally augmented by paroxistic/symptomatic periods [19].

Differential diagnosis

Compared to Hd/PSS, PP as children tend to be oppositional, lack empathy and be cold-hearted while the Hd/PPS children are less disturbed [19,38–41]. Offense committed by PP have clear personal gain and self-preservation is calculated [19]. Hd/PSS subjects are antisocial and asocial as well, withdrawing from others. The true PP is definitely social [14]. The Hd/PPS patient may be paranoid as a result of reactions conceived within; the so-called paranoid reactions in the true psychopath relate only to interference encountered in the immediate environment [14].

The differential diagnosis between Hd/PPS and Sz is not merely quantitative. Motives for offenses committed by Sz are either nonexistent or frankly delusional [19]. Hd/PPS have a pseudo-logic explanation for their offenses. If present, paranoid cognitions are latent and not necessarily connected with violence [11]. The magnitude of their delusions and conviction strength, if they are present hitherto, is inferior in Hd/PPS. Conduct disorders are the main extraversion of the psychotic process, while in Sz, they represent a fragment of psychotic signs [19].
Risk

Hd/PPS reflect a subgroup prone to violence and offending of individuals with major mental disorders (eg. [13,42]. Risk in Hd/PPS is higher than in Sz, and does not appear to diminish as their psychosis stabilizes [13,30]. The probability of violence or general offending is often independent of their clinical state. Offenses are polymorphous ranging from simple theft [43] to sexual abuse [2], misuse of psychiatric facilities [22,30], etc. With regard to hospitals, they can abuse other patients, and deplete staff patience [19,20,22,30,44]. They can be very manipulative [16]; “in periods of schizophrenic remission, these patients take legal advantage of their mental illness, break the law with impunity and escape prosecution owing to insanity” [22]. Their delinquent side often grabs the attention more than their psychotic side; danger to themselves is often neglected. The risk stems from the phenotypical versatility; “they swing from perversion, to an autistic state, to a sociopathic condition”, “they are unpredictable, they jump for trivial reasons, they may boil over or get over-agitated. Other times they may fall prey to malicious impulsiveness” [18].

Treatment & Prognosis

The prognosis is good insofar as the degenerative influence of schizophrenia is halted, but the improvement by therapy is limited due to the psychopathic features [1,14,36,45]. The prognosis is influenced by the severity of the conduct disorder: severe behavioural disturbances lead to prison and security services, while minor disturbances enable to wait until natural improvement in adult age [9]. Age has been reported as a protective factor [19].

Despite overall therapeutic pessimism, all authors agree on the need of constant judicial supervision in addition to care [13,22,46], if only to prevent progress in criminal careers. Psychopharmacological treatments and responses have only been discussed in a few articles [14,19,47]. Judicial third-party evaluators are useful to triangulate and enforce credibility of carers [13].

Careful examinations of their history reveals that families often unsuccessfully tried to bring these patients to care [13,19]. These patients have great difficulty forming therapeutic alliance, during
psychotherapy little insight is gained and a dearth of ideas and associations is frequently observed [12,14].

Supporting empirical research

Only a few studies have involved actual Hd/PPS patients [15,19,30,45]. Hypotheses regarding a less severe cognitive decline, the mixed prognosis, and less symptomatic patients were supported. Only a few studies reported prevalence: 1-2% in a general psychiatric hospital, and 7% in a forensic psychiatric ward for psychosis.

Supporting evidence can be found in broader literature on comorbid Sz and Antisocial Personality Disorder (ASPD) or PP. Comorbidity between PP and Sz in forensic patients is as high as 23%-33% [44]. Schizophrenic patients with high PP traits had higher mean number of previous offences, have less self-control, are less compliant, more coercive, hostile, higher mean total risk estimates, have more resentment, are more assaultive, deviant, and impulsive. Tengström et al. [42] asserted that symptoms of illness are more important than PP for the accuracy of violence prediction. In long-term prediction, the PP assessment becomes a better predictor of violence.

The prodromal hypothesis is supported by the Coté & Hodgins study [48] who identified a subgroup of offenders with major mental disease, where antisocial behaviour precede the onset of Sz by many years. Furthermore, violence of young criminals predicts Sz at 3.3% and any psychosis at 4.5% [49].

We must be aware that many of these studies are structured in the perspective of violence. Although this group is probably more assaultive, the risk is polymorphous and focusing on this literature might divert us from the discreet, less violent cases [12]. Many recent publications on schizophrenia and PP (or ASPD) focus on lifetime overtly psychotic patients and PP identified through PCL-R assessment [e.g. 44]. Hb/PPS patients are likely to be excluded from these studies because of the latent psychotic process. However, these patients might be included in PP (or ASPD) samples and studies, because they are misdiagnosed [2,46].
Discussion

Despite its ever-present relevance in forensic settings, theses diagnoses have fallen into oblivion for different reasons. Often therefore, these patients receive a “hospital diagnosis”, and are described as pseudopsychopathic or heboidophrenic later in case studies. These diagnoses are based on a diachronic, psychodynamic basis rather than clinical symptomatology [20,45]. Because conduct disorders are one of the main signs of their illness, they can’t always be diagnosed when they have been stationary for a long time [19]. Contrary to schizophrenia and other psychoses [such as defined in the DSM for example; 50,51], firm delusions and hallucinations cannot be considered as central nor sufficient diagnostic hallmarks in Hb/PPS. The heboidophrenic psychosis/pseudo-psychopathic schizophrenia is epidemiologically infrequent but clearly distinct in semiology and correlates from other schizophrenic processes. In addition, the separation of psychopathology vs. personality introduced by the DSM makes it difficult for a syndrome who mixes both to gain recognition [22,52]. The lack of an operational semiological definition, which we hope to help solve, and the lack of actual empirical research, which we hope will be conducted, have probably contributed to the little interest in these diagnoses.

Kalhbaum’s original definition cannot be integrally sustained in the light of a century of research on this diagnosis. Contrary to Kahlbaum’s assertion, Hb/PPS patient can have transient hallucinations and loosely defined delusion [1,5,13,20]. The age of occurrence is situated in early adulthood by Kahlbaum, but subsequent research support the lifetime character of the construct [5,14,22]. More generally speaking, Kahlbaum proposed the diagnosis as a “lighter” version of hebephrenia, while literature insists on the severe but less overt nature of the condition [2,22,28,29].

The construct and assessment of PP in Sz is a sensitive topic. Some authors contend that the validity of the PP construct hasn’t been properly established [42,44,53,54]. The apparent resemblance between Sz and PP features complicates the assessment (e.g. flat affect, hostile and paranoid ideations, etc.). Notwithstanding, assessing PP in Sz has proven to be effective to improve risk
assessment [42,55]. Therefore, it is important to distinguish a syndrome in which PP features are structurally integrated into the psychotic process, especially for the assaultive correlates [5,13,14]. Leaving the PP features inherent to Hb/PPS unrecognized, is incurring a substantial risk of violence and offending.

Given the clear legal and forensic implications of this diagnosis, we would not be complete if legal responsibility wasn’t discussed. We think that the question of intentionality is central in this debate: psychopaths are considered legally responsible, while schizophrenics are not. Hd/PPS commit offense from either core. Durst et al. argued that the concept of Hd/PPS enables to present, with conceptual clarity, why a psychiatric evaluation of criminal culpability can change from one assessment to another, at different times regarding the same examinee. We do agree that psychosis is best treated by mental health services, whereas sociopathic behaviour is better handled through behavioural approaches, or dealt by legal authorities. In any case, Hd/PPS patients aren’t necessarily irresponsible [20,56]. Given the fact that health services are the preferred choice in case of doubt [20], it is important to have a clear diagnostic framework.

Conclusion

The current review of literature suggests that Hd and PPS are highly similar constructs. We integrated findings from different literature threads in order to present operational diagnostic criteria, risk-related issues, treatment perspectives and supporting evidence. The diagnosis of Hd/PPS does not broaden the concept of Sz [19,22]. It filters a specific subgroup with distinctive psychopathological dynamics and risk correlates from a broader comorbid group [31]. The use of this diagnosis might enable a better triage [13], acknowledges subtleties in legal responsibility debates, and prevent abuse of psychiatric facilities [22].
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References

RUNNING HEAD: HEBOIDOPHRENIA AND PSEUDO-PSYCHOPATHIC SCHIZOPHRENIA


19  Carraz Y-C: L’héboïdophrénie 1968;


30  De Page L, Titeca P: Psychopathy and psychosis: a hazardous interplay and questionnable treatment 2014;


37 De Page L, Englebert J: Réflexion psychopathologique sur le diagnostic d’héboïdophrénie 2016;
50 American Psychiatric Association: Diagnostic and statistical manual of mental disorders DSM-IV-TR fourth edition (text revision) 2000;
52 Zagury D: Place et évolution de la fonction de l’expertise psychiatrique. Psychopathol Trait Actuels Auteurs D’Agression Sex 2001;


<table>
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<tr>
<th>Latent schizophrenia</th>
<th>No firm delusions, no hallucinations</th>
<th>Rarely florid, quick to return to compensated state</th>
<th>Psychotic experience provoke little emotional distress</th>
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<td>Cognition</td>
<td>Generally intact, no complete deterioration</td>
<td>Inconsistent use of cognitive abilities, bad judgment, childish, past the point thinking</td>
<td>Idiosyncratic moral understandings and logical reasoning</td>
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<td>Conduct disorder</td>
<td>Starting in adolescence (or earlier)</td>
<td>Offenses lack of utility, benefit, are not thought through.</td>
<td>General antagonism, oppositional nature</td>
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<td>Psychopathic traits</td>
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<td>Cheating, impulsive, lying, superficial, callous, etc.</td>
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<td>Lifetime and early maladjustment features</td>
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<td>Lack conflict within themselves, but (intentional) opposition.</td>
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<td>Can be more acting-out/assaultive, but not necessarily.</td>
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<td>Interpersonal and emotional style</td>
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Columns in gray refer to PPS publications. Other columns refer to Hb.

--- NOTE TO THE EDITOR, the “1” in this table can be replaced with any symbol ---