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Controversies in geriatric medicine

Disordered gambling and dementia



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ARTICLE INFO

Article history:

Received 26 January 2016

Accepted 26 February 2016

Available online 25 March 2016

Keywords:

Behavioral and psychological symptoms of dementia
 Dementia
 Gambling disorder
 Pathological gambling

ABSTRACT

Disordered gambling is a term used to describe the full range of gambling problems, which includes pathological and sub-clinical gambling. Pathological gambling is a psychiatric disorder with social consequences. The purpose of this paper was to explore the phenomenon of pathological gambling in persons suffering from dementia. Medline and Google Scholar searches were conducted for relevant articles, chapters, and books published before 2015. Search terms used included “pathological gambling”, “gambling disorder”, “behavioral and psychological symptoms of dementia”, “dementia”, “Alzheimer’s disease”, and “frontotemporal dementia”. Publications found through this indexed search were reviewed for further relevant references. Literature on pathological gambling in the course of dementia consists of case reports and small samples of patients. Pathological gambling arising late in life should be thoroughly investigated to rule out organicity. Neurological and neuropsychological assessments should be considered especially in late onset PG patients with other behavioral and cognitive symptoms. PG, which was associated with frontal lobe dysfunction, has also been reported in disorders such as FTD.

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1. Introduction

A majority of adults gamble, and most do so without encountering significant problems. Nonetheless, gambling problems among adults have been estimated as high as 5%, with certain groups (young adults, people with mental health disorders and incarcerated individuals) [1]. Gambling may be defined as any game of chance involving financial stakes and an element of risk; such games are common in our society, either using one’s own money (e.g. the National Lottery, betting on horse or dog racing, visiting a casino or on-line gambling) or, better, other people’s money (e.g. banking, insurance, the Stock Market) [2]. For a significant number of retired older adults (aged 65+), gambling has become a new form of recreation and entertainment. Older adults represent a growing proportion of callers to problem gambling helplessness in the USA [3]. Some senior gamblers are simply formerly middle-aged gamblers who have aged, whereas others should be considered as ‘late-uptake’ gamblers. Seniors who grew up in an environment where gambling was part of the family or cultural tradition may re-engage in this activity, or augment their involvement in this activity, in late-life when they experience a

need to reconnect with their familial/cultural roots (such as late-life relocation of residence), or where there is a desire to preserve certain special memories [4]. An unexplored reason why the elderly may be at risk for gambling problems is the influence of mild cognitive impairment and dementia.

2. Nosology of gambling disorder

When gambling behavior becomes compulsive, starts to interfere with relationships, and negatively affects social activities or work, it is defined as pathological gambling (PG). Disordered gambling is a term used to describe the full range of gambling problems, which includes pathological and sub-clinical gambling [5]. Maladaptive and persistent gambling behaviors such as excessive preoccupation with gambling, lying to conceal the extent of involvement with gambling, need to gamble with increasing amounts of money, unsuccessful efforts to stop gambling, and chasing one’s losses, are all related to the difficulties in social adjustment faced by people with PG. Gambling research has become increasingly focused on the association between psychopathology and excessive gambling. Pathological gambling (PG) was first introduced as a mental disorder in the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) [6]. In the DSM-IV [7], PG was classified under the section titled, “Impulse

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Control Disorders Not Elsewhere Classified,” along with Compulsive Hair Pulling (Trichotillomania); Intermittent Explosive Disorder; Kleptomania; and Pyromania (Table 1). It was defined as ‘...persistent and recurrent maladaptive gambling behaviour that disrupts personal, family and vocational pursuits’. The DSM-5 Substance-Related Disorders Work Group proposed several changes for the diagnosis of PG [8]. The condition previously named PG was renamed gambling disorder (GD). The DSM-5 [9] includes GD as the sole condition in a new category on behavioral addictions (Table 2). This new term and its location in the new manual reflect research findings that GD is similar to substance-related disorders in clinical expression, brain origin, comorbidity, physiology, and treatment. In terms of clinical expression, it is well known that pathological gamblers display withdrawal symptoms (irritability when attempting to stop or cut down the amount of gambling), and signs of tolerance (the tendency to gamble higher and higher amounts), both of which are considered hallmarks of addiction [10]. In addition to the change in classification, the diagnostic criteria for GD in the DSM-5 differ from those for PG in the DSM-IV in two key aspects: firstly, the criterion of ‘commission of gambling-related illegal acts’ has been removed, secondly, the number of criteria needed for a diagnosis of GD has been lowered to four criteria (whereas five criteria were required for a diagnosis

of PG in DSM-IV) [11]. PG has been estimated to affect 0.2–2% of the general adult population, with several-fold higher estimates reported in adolescents and young adults. Problem gambling is often associated with several psychiatric comorbidities. Precise prevalence rates of psychiatric comorbidities varied across the studies, in large part because most prevalence studies included only a very small number of pathological gamblers, but also because different studies used different methods to estimate prevalence. Around 30–50% of pathological gamblers have co-occurring substance misuse [12]. Authors found that the lifetime rate of alcohol abuse or dependence was 73.2% among those identified as lifetime pathological gamblers versus 25.0% among non-gamblers [12]. Toneatto et al. [13] studied a group of 169 Canadian gamblers and reported that 10.1% were using drugs the month before treatment. DG and affective disorders often go hand in hand. Depression is diagnosed in more than half of pathological gamblers. The incidence of any current mood disorder in Sinclair’s sample was 32% [14]. Furthermore, 32% of gamblers receiving treatment develop suicidal ideation and 17% actually attempt suicide [15]. Additionally, DG appears to be associated with anxiety disorders, attention-deficit disorder, eating disorders [16,17]. Also various personality traits, such as impulsivity and antisocial personality, seem to be more prevalent in pathological gamblers than in the general population [18]. DG is a potential adverse effect associated with the use of dopamine agonists. The full syndrome related to overuse of dopamine agonists includes gambling, shopping, overeating, hypersexuality and punding [19].

Table 1
DSM-IV-R diagnostic criteria for pathological gambling.

Persistent and recurrent maladaptive gambling behavior as indicated by five (or more) of the following
Is preoccupied with gambling (e.g., preoccupied with reliving past gambling experiences, handicapping or planning the next venture, or thinking of ways to get money with which to gamble)
Needs to gamble with increasing amounts of money in order to achieve the desired excitement
Has repeated unsuccessful efforts to control, cut back, or stop gambling
Is restless or irritable when attempting to cut down or stop gambling
Gambles as a way of escaping from problems or of relieving a dysphoric mood (e.g., feelings of helplessness, guilt, anxiety, depression)
After losing money gambling, often returns another day to get even (“chasing” one’s losses)
Lies to family members, therapist, or others to conceal the extent of involvement with gambling
Has committed illegal acts such as forgery, fraud, theft, or embezzlement to finance gambling
Has jeopardized or lost a significant relationship, job, or educational or career opportunity because of gambling
Relies on others to provide money to relieve a desperate financial situation caused by gambling
The gambling behavior is not better accounted for by a manic episode

Table 2
DSM-5 diagnostic criteria for gambling disorder.

Persistent and recurrent problematic gambling behavior leading to clinically significant impairment or distress, as indicated by the individual exhibiting four (or more) of the following in a 12-month period
Needs to gamble with increasing amounts of money in order to achieve the desired excitement
Is restless or irritable when attempting to cut down or stop gambling
Has made repeated unsuccessful efforts to control, cut back, or stop gambling
Is often preoccupied with gambling (e.g., having persistent thoughts of reliving past gambling experiences, handicapping or planning the next venture, thinking of ways to get money with which to gamble)
Often gambles when feeling distressed (e.g., helpless, guilty, anxious, depressed)
After losing money gambling, often returns another day to get even (“chasing” one’s losses)
Lies to conceal the extent of involvement with gambling
Has jeopardized or lost a significant relationship, job, or educational or career opportunity because of gambling
Relies on others to provide money to relieve desperate financial situations caused by gambling
The gambling behavior is not better explained by a manic episode

3. Aetiology

The neurobiological basis of DG remains unclear. Despite the paucity of theory, research suggests that its aetiology is complex and multi-factorial. As researchers identify and clarify the interactive roles that neurobiological, psychological and social factors play in the aetiology, maintenance and recovery processes associated with DG, it is important to consider the interactive nature of these factors. Biological advances in the disorder have extended to the examination of the various brain regions. Differences in brain function relating to multiple cognitive domains (cognitive control, decision-making, reward/loss and “near-miss” processing, delay and probabilistic discounting, reversal learning, alternation learning, and risk-taking) have all been linked to DG or problem gambling severity. Much of this literature supports relatively diminished activation of the prefrontal cortex (particularly ventromedial but also ventrolateral and orbitofrontal) and subcortical regions (particularly the ventral striatum) [20]. The ventromedial prefrontal cortex (vmPFC) has been implicated as a critical component of decision-making circuitry in risk-reward assessment in addiction [21]. Decreased activation has been noted in vmPFC in PG subjects [22]. Reviews of the neurobiological basis indicate that there is an abnormal dopamine, serotonin and noradrenergic neurotransmitter activity in PG [23,24]. While dopamine dysfunction has been hypothesized for PG [25], findings have been less conclusive. For example, dopamine replacement therapies (including dopamine agonists acting on dopamine D2-like receptors, which include D2, D3, and D4) have been associated with GD and other ‘behavioral’ addictions, but drugs that antagonize dopamine D2-like receptors, like olanzapine, have not shown clinical utility in randomized clinical trials involving people with gambling disorder [26]. One recent morphometric magnetic resonance imaging (MRI) study [27] suggests the presence of regional gray matter volume abnormalities in never-treated patients with PG, involving the basal ganglia, thalamus and hippocampus; these brain regions seem to be relevant to the pathophysiology of PG as well as to the

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