



# International Journal of Advanced Psychiatric Nursing

E-ISSN: 2664-1356  
P-ISSN: 2664-1348  
[www.psychiatricjournal.net](http://www.psychiatricjournal.net)  
IJAPN 2020; 2(1): 27-29  
Received: 16-02-2020  
Accepted: 19-03-2020

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## A review article: Tourette syndrome

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### Abstract

The purpose of this review is to provide the latest information on Tourette syndrome (TS). The authors conducted a literature search of available sources describing the issue of tic disorders with special focus on TS and made a comparison and evaluation of relevant findings. The results of this review indicate that TS is a complex disorder, which has a significant impact on the quality of life of both the patients and his/her family. Therefore, early and proper diagnosis and treatment are necessary in order to reduce or even eliminate both symptoms and social burden of the patient.

**Keywords:** Tourette syndrome, complex disorder, social burden

### Introduction

Tourette Syndrome is one type of Tic Disorder. Tics are involuntary, repetitive movements and vocalizations. It is a disorder that involves repetitive movements or unwanted sounds (tics) that can't be easily controlled. The disorder is named for Dr. Georges Gilles de la Tourette, the pioneering French neurologist who in 1885 first described the condition in an 86-year-old French noblewoman.

### Definition

Tourette syndrome (TS) is a neurological disorder characterized by repetitive, stereotyped, involuntary movements and vocalizations tics.

Tourette syndrome is defined as a physical disorder of the brain which causes involuntary movements (Motor Tics) and involuntary vocalization (verbal tics).

Tourette syndrome is a disorder that involves repetitive movements and unwanted sounds (tics) that can't be easily controlled. For instance, you might repeatedly blink your eye or shrug your shoulders.

### Etiology

- The cause of tourette syndrome is Unknown
- Genetics
- Environmental and developmental factors
- Brain regions such as basal ganglia, frontal lobe and cortex abnormalities in brain.

### Prevalence

TS and other tics disorder combined are estimated to occur in more than 1 in 100(1%) school age children in United States, although it is estimated that 50% will be undiagnosed. TS affect all races, ethnic group and ages but 3-4 times more common in boys than girls.

### Course of TS

Tics come and go over time, varying in type, frequency, location, and severity. The first symptoms usually occur in the head and neck area and may progress to include muscles of the trunk and extremities. Motor tics generally precede the development of vocal tics and simple tics often precede complex tics. Most patients experience peak tic severity before the mid-teen years with improvement for the majority of patients in the late teen years and early adulthood. Approximately 10-15 percent of those affected have a progressive or disabling course that lasts into adulthood.

### Symptoms & Behavior

Tics — sudden, brief, intermittent movements or sounds — are the hallmark sign of Tourette syndrome.

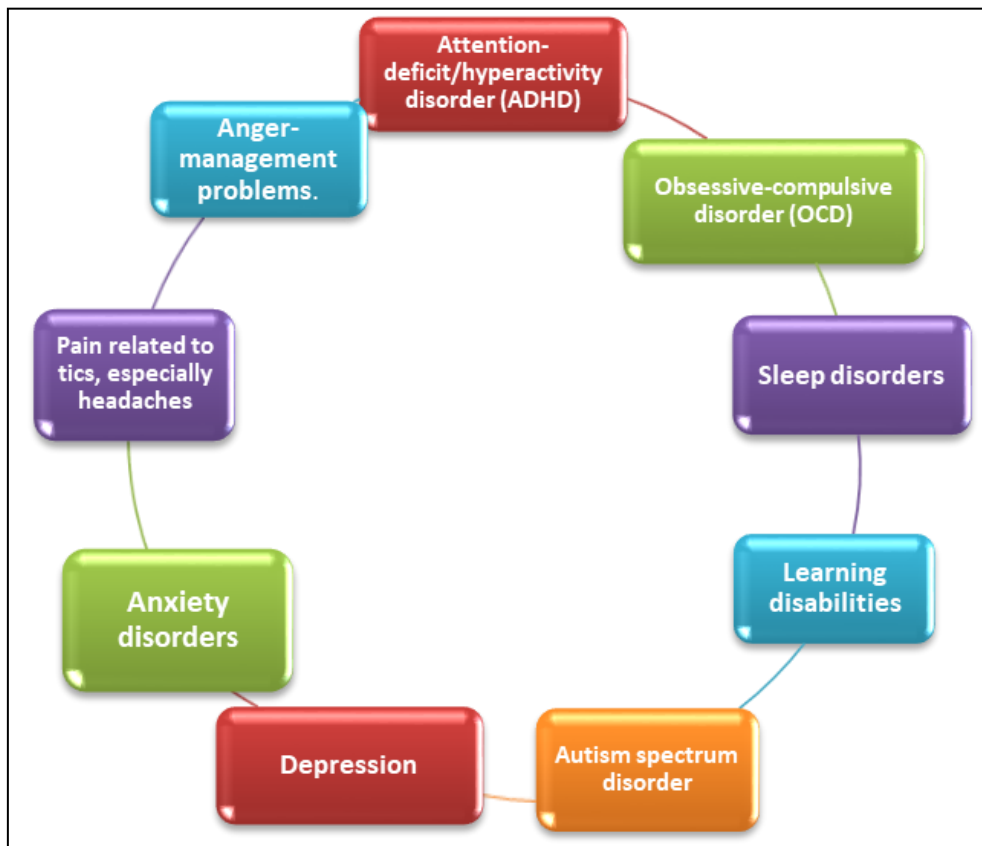
They can range from mild to severe. Severe symptoms might significantly interfere with communication, daily functioning and quality of life.

Tics are classified as:

Classification	Division	Description	Examples
Simple	Motor	Tic affects a single muscle or a group of muscles	Eye movements; nose, mouth, tongue movements, or facial grimacing; head jerks/movements; shoulder jerks/movements; arm or hand movements; leg, foot, or toe movements; abdominal/trunk/pelvis movements
	Phonic	Simple, incomplete sounds	Coughing, throat clearing, sniffing, whistling, animal or bird noises
Complex	Motor	Tic consists of a coordinated and progressive movement, which may in some cases be socially inappropriate	Touching, tapping, picking, evening-up, reckless behaviors, rude/obscene gestures, obscene finger/hand gestures, unusual postures, bending, or gyrating, such as bending over, rotating, or spinning on one foot, copying the action of another (echopraxia), tic-like behaviors that could injure, self-injurious tic-like behavior(s)
	Phonic	The patient pronounces words or sentences that make sense	Rude or obscene words or phrases (coprolalia), repeating what someone else said, either sounds, single words, or sentences. Perhaps repeating what's said on TV (echolalia), repeating something the patient said over and over again (palilalia)

**Diagnosis**

1. At least 2 motor tics and at least 1 vocal (phonic) tics have been present, not necessary as the same time.
2. Tics may wax and wane in frequency but have occurred for more than 1 year
3. Tics started to appear before the age of 18yrs
4. Tics are not caused by use of substance or other medical condition.



Conditions often associated with Tourette syndrome include:

**Treatment**

- Most often, tics are mild, and treatment is not required. In all cases, it is essential to educate the individual and others in his/her life about TS and to provide appropriate supports across all settings (school, work, home).
- When tics become problematic or interfere with daily functioning, behavioral treatment or medication may be considered.

**Pharmacotherapy**

Medications can be used to reduce severe or disruptive tics that might have led to problems in the past with family and friends, other students, or coworkers

- **Atypical and Typical Antipsychotic agents:** Haloperidol (Haldol), pimozide (Orap), and aripiprazole (Abilify) are currently the only medications approved by the U.S. Food and Drug Administration (FDA) to treat tics.

- **Noradrenergic Agents:** Noradrenergic agents including clonidine and guanfacine, as well as atomoxetine, are frequently used in children as primary treatments or adjunctive treatment for comorbid

### Psychosocial treatment

**Habit Reversal therapy:** The primary component of habit reversal are awareness training, in which the child uses self-monitoring to enhance awareness of tic behaviors and the premonitory urges or sensation indicating that a tic is about to occur. In competing response training, the patient is taught to voluntarily perform a behavior that is physically incompatible with the tic, contingent on the premonitory urge or the tic itself, blocking expression of the tic.

### Prognosis

Although there is no cure for TS, the condition in many individuals improves in the late teens and early 20s. As a result, some may actually become symptom-free or no longer need medication for tic suppression. Although the disorder is generally lifelong and chronic, it is not a degenerative condition.

### Conclusion

Tourette syndrome is one type of vocal and motor Tic Disorder. It's mostly seen in male than female. Cause is remain unknown but family history is prevalent in this disorder. Each patient is unique, the individual or family should work with a clinician to determine an appropriate treatment plan.

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