



Tic Disorders

What is Tic Disorders?

Tic is a sudden, rapid, recurrent, non-rhythmic motor movement or vocalization. There are 2 types of tics, including motor tic and vocal tic, and both are involuntary with a waxing and waning nature. Motor tics include eye blinking, eye rolling, jaw movements, neck stretching, shoulder shrugging, abnormal gait, forced touching etc. Vocal tics include sniffing, throat clearing, coughing, snorting, even speaking offensive languages to others etc. To be diagnosed with persistent/chronic tic disorder, the person must have at least 1 motor or vocal tic, for a minimum of 1 year since the first tic onset. For those with 2 or more motor tics and at least 1 vocal tic for at least 1 year, it is classified as Tourette's disorder.

The manifestation of tic, its frequency and intensity can vary among individuals differently. Some individuals present one form of tic only, whereas others may present both motor and vocal tics at the same time. For some, the symptoms may be transient and wane off, while for some individuals, the symptoms may persist for a prolonged period of time.

How do Tic Disorders affect the child?

The presence of tics commonly leads to others' misperception. Some tics might be hardly noticeable even for parents or close others, as they appear to be similar as common cold (e.g. coughing) or allergic rhinitis (e.g. sniffing, throat cleaning). However,





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more salient symptoms can be easily misperceived as disruptive or even aggressive behaviours. Tics may also lead to interpersonal conflicts, social isolation or even bullying by peers, as well as difficulties for the child to stay focused at school. These can lower their quality of life and increase the substantial psychological distress.

How common are Tic Disorders?

Prevalence of tic disorders varies from 0.77% for Tourette's disorder, to around 3% for provisional tic disorder. Males are at higher risk of developing tic disorders than females.

The onset of all tic disorders is before age 18. However, tics typically emerge as early as at age 4 to 6, while the frequency and intensity of tics are likely to become the most severe in early adolescent years (age 10 – 12), with a decline in severity during adolescence. Many adults with tic disorders experience diminished symptoms. A small proportion of individuals will have persistently severe or worsening symptoms in adulthood.

What are the causes of Tic Disorders?

Multiple contributing factors are found which lead to tic disorders including:

- Genetic components: Tic disorders can be inherited as genes and familial linkage in the passage of tic disorders are identified. Despite advancement in genetic studies, a single causative gene has not been found.





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- Brain-based factors: certain chemicals (e.g. dopamine imbalance) and connections affect brain's functions in receiving and transmitting messages relating to voluntary motor control may relate to tics. Some studies reported that Tourette's disorder may relate to the dysfunctions or abnormalities of the cortical neural circuitry, including basal ganglia and cortico-striato-thalamo-cortical circuit.
- Environmental factors observed within the child (e.g. stress, anxiety) and familial factors (e.g. family conflicts, stressful life events etc.) can also influence how the tics present. Other environmental factors such as infection, autoimmunity as well as perinatal problems are reported in some genetically predisposed individuals.

What are the treatment options for Tic Disorders?

Everyone experiences tics differently and impacts of tics disorder on an individual may vary. Seeking comprehensive assessment and consultation from relevant professional help devise suitable treatments. Given there is no complete cure for tics disorder, the major goal of treatment is symptoms control. Treatments may not be necessary for those with mild tics as the symptoms are transient and soon disappear even without active treatment. Supportive counselling and psychoeducation on the possible course and development of tics disorder might better facilitate the psychological adjustment of affected individuals and their caretakers. For more severe tic disorders causing prominent and persistent impacts on daily functioning, the following treatment approaches may be considered:





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- Cognitive-behavioral intervention for tics (CBIT)- consists of Habit reversal training (HRT), relaxation training and functional interventions to address situations that sustain or worsen tics:
 - Habit reversal training (HRT) – When children with tics disorder get older, they begin to report their tics being associated with “premonitory urge”, a somatic sensation of itchiness or impulse that precedes the tic- and a feeling of tension reduction following the expression of tic. HRT involves training individual to work out the feelings that trigger tics, and to find an alternative, less noticeable way of relieving the urge to tic.
 - Relaxation training – helps an individual to release the stress related to daily functioning impairments brought about by tics disorder.
- Pharmacotherapy- There is some existing evidence to support pharmacotherapy can reduce tics severity by altering the way certain chemicals in the brain work, which is commonly combined with behavioural therapy for those with moderate and severe tics disorder to achieve positive outcomes.
- Psychotherapy- Help individuals cope with the disorder and deal with accompanying problems or conditions.

Are there any other developmental disorders commonly existing with tic disorders?





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Some studies revealed that Attention Deficit/Hyperactivity Disorder (60-80%), Obsessive-Compulsive Disorders (11-80%) and Anxiety disorders (29-70%), are particularly common as co-occurring neuropsychiatric conditions with tic disorders. Other studies reported that some individuals with Tic Disorders have co-morbid conditions of Autism Spectrum Disorders (10-25%) and Specific Learning Difficulties (23-50%). Among those children with Tic Disorders, some also have problems with aggression, anger control, sleep disturbance (12-60%) and migraine (25%).

Can an individual suppress tic symptoms voluntarily?

Some individuals can suppress tics symptoms temporarily with volition, but it requires strenuous physical and mental effort. For individuals who try to avoid social distress and mockery, they often make conscious attempts to suppress their tics in the public. However, when they are relaxed, it is usually followed by a surge of more intense and frequent involuntary tic movements shortly after suppression. Family members, caretakers and school personnel could consider showing great understanding that suppression of tics is not often easy but exhaustively effortful, and they might avoid blaming their children for failure to do so.

How to treat the comorbid conditions of Tic Disorders?

Comorbid conditions are often the main sources of impairments in individuals with Tic disorders and compromise overall well-being much more than tics themselves. Thus, a thorough investigation and early intervention of associated comorbidities in individual with tics is highly imperative.





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- **Attention Deficit/ Hyperactivity Disorder (ADHD):** Treating children with Tics Disorder and co-morbidity of ADHD would benefit from a multimodal treatment approach, including psychoeducation, cognitive-behavioral treatment (CBT) and medication. Three classes of medications are commonly used for the treatment of ADHD in patients with tic disorders, including stimulants, alpha-agonists and norepinephrine reuptake inhibitors.
- **Obsessive-compulsive Disorder (OCD):** Pathogenesis of obsessive-compulsive disorder share similar pathway as tic disorders which may also involve dopamine imbalance and abnormalities of cortical neural circuit, affecting the control of voluntary motor movements. Clinically, it is found that CBT works significantly well in managing the tics and obsessive-compulsive symptoms in adolescents with comorbidities of Tourette's Disorder and ADHD, whereas poor treatment outcome is reported when medication stands alone.
- **Autism Spectrum Disorder (ASD):** Some individuals with ASD is co-morbid with various severity of tic disorders (22%) and Tourette's disorder (11%) that severely impede the daily functioning of affected individuals. The pathogenesis of those cases is strongly associated with genetic and neurobiological factors, making treatment for these individuals a tremendous challenge.
- **Specific Learning Disorders:** Reading disorder, writing disorder and mathematic learning difficulties are common co-morbid learning difficulties reported in children with tic disorders. These conditions can greatly interfere with their





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academic performance, social adjustment and self-care functioning. Although most children with tic disorders can study in mainstream education, a comprehensive assessment of their learning functioning to ascertain their educational needs and necessary school accommodations are essential. For some individuals co-morbid with language impairments, speech therapy in enhancing their verbal expressive skills may be needed.

- **Mood problems:** Coping with the challenges on daily functioning and psychological adjustments due to tics disorders have undoubtedly brought along prolong stress to affected individuals. Common mood problems including anxiety disorders and depression are reported. Given the changing patterns of tic disorder across lifespan, close monitoring and evaluation of the impacts of tic disorders on the daily functioning and psychological impacts of an affected individual is recommended. Multimodal treatment approach including psychoeducation, cognitive-behavioral approach and medication are proven to be effective for anxiety disorders and depression. Better understanding of the possible causes of mood problems of individuals with tic disorders paves way for more timely and appropriate interventions.

What services are available in Hong Kong to help children with Tic Disorders?

There are no blood, laboratory, or imaging tests needed for diagnosis. For children with suspected Tic Disorders, referral to specialists can be made if necessary. Tourette's Disorder and Tic Disorders Clinic under the Hospital Authority provides medical and





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psychological treatments specifically designed for children with Tic Disorders, including habit reversal training and comprehensive behavioural intervention etc.

How would Tic Disorders affect the children when they grow up?

Some evidence showed that majority of tics will be diminished in adolescence and adulthood. However, a small percentage of individuals will have persistently severe or worsening symptoms in adulthood. As Tic Disorders are not degenerative diseases, they will have no impact on life expectancy under normal circumstances.

How parents/caretakers can help children with Tic Disorders?

Tics are involuntary movements which are mostly uncontrollable with a waxing and waning nature. Although some individuals may try to suppress tics by volition, it is exhaustingly effortful and may lead to worsening condition afterwards. Reactions of others to tics may also significantly impact the child's self-esteem and self-confidence. Therefore, parents/caretakers play a significant role in helping your child to understand own conditions, promote his/her acceptance of own condition, and develop his/her self-esteem.

Parents/Caretakers are suggested not to:

- Blame, criticize, punish or try to suppress child's tics which would only worsen their condition, causing adverse psychological impacts





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- Be overprotective, isolate or avoid bringing your child out due to fear of embarrassment in public which would only negatively impede the child's social development, affecting his/her physical and psychological development in the long run

Parents/Caretakers are suggested to:

- Explain and share information about tics with your child and express your understanding towards tics
- Encourage your child to share the experience with tics and acknowledge the difficulties which he/she might have faced in daily functioning with attentive listening
- As stress and emotions may affect tics, try to pay more attention to your child's emotional needs and provide support especially under the circumstances which can easily provoke the child's anxiety
- Help your child build up good habits in daily routine, including healthy eating habits, maintaining regular exercise and sleeping patterns which help to alleviate stress associated with tic disorders
- Collaborate closely with school personnel proactively to facilitate communication, appropriate classroom management, optimal curriculum planning and necessary examination accommodations for your child
- Share your difficulties with closed ones and look for mutual support from other parents with similar experience





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Raising a child with tic disorders could be challenging and stressful, as parents/caretakers also suffer from the embarrassment and even stigmatization caused by own child's condition and others' reactions towards tics. It is common to experience stress, frustration, guilt, worry, and other emotions, and you are encouraged to seek support from others, and look for professional advice when needed.

Related Information:

- 香港妥瑞症協會

<https://tourette.org.hk/zh/welcome-to-hkta-zh/>

- 瑪麗醫院妥瑞症及抽動症診所

http://www3.ha.org.hk/hkwc/ppi/InfoPam/docs/PSY/psy_22.pdf





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<https://tourette.org/about-tourette/overview/living-tourette-syndrome/parent-family-resources/tips-for-parents/>

<https://www.nhs.uk/conditions/tics/treatment/>

