Cognitive-Behavioral Management of Tic Disorders

Kieron O’Connor
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ABOUT THE AUTHOR

Kieron O’Connor began his research career working as a research officer at the Medical Research Council (UK) Clinical Psychiatry Unit at Graylingwell Hospital, Chichester, Sussex. In 1979, he was awarded a Master of Philosophy (MPhil) by thesis in experimental psychology from the University of Sussex, and in 1984 a doctorate degree (PhD) in research psychology at the Institute of Psychiatry, University of London. He completed the British Psychology Society clinical diploma training course in 1986, and transferred to the University College, Institute of Laryngology and Otology, working partly as a research lecturer, investigating psychological aspects of vertigo and dizziness, and also as a clinical psychologist at Bloomsbury Health Authority.

In 1988, he was awarded the first of a series of fellowships by the Fonds de la Recherche en Santé du Québec, and established a clinical research program at the Fernand-Seguin Research Center, Louis-H. Lafontaine Hospital, University of Montreal, Canada. The multidisciplinary research program, which focuses on obsessive-compulsive disorder (OCD), Tourette and tic disorder and delusional disorder, is currently funded by the Canadian Institutes of Health Research. He is actively involved in several community-based initiatives to provide support and information to people with OCD and Tourette’s syndrome and their families, and is scientific advisor to the Quebec OCD Foundation.

He is currently associate research professor at the Psychiatry Department of University of Montreal, and also holds an honorary cross appointment as associate professor in the Department of Psychology, University of Quebec at Montreal. He is author or co-author on over 100 scientific publications. He is also co-author with Frederick Aardema and Marie-Claude Pélissier of Beyond Reasonable Doubt: Reasoning Processes in OCD Disorder and Related Disorders, published in 2005 by Wiley.
The focus in this text is on cognitive-behavioral approaches and related psychoeducational and psychophysiological methods, to aid the management of tics in people with Gilles de la Tourette’s syndrome and chronic tic disorder. The initial section of the book reviews the relevant literature and research work in this area. The middle section presents a cognitive–psychophysiological model of tics, together with an outline of empirical studies testing the model. The final section and appendices provide a therapist and client manual for use in tic management, with four case illustrations.

Cognitive-behavior therapy (CBT) will probably be familiar to professional and non-professional readers alike as a recently developed evidence-based psychological intervention that has been successfully applied to anxiety, affective and, lately, psychotic disorders. In practice, the CBT approach often complements other more medical approaches, but it nonetheless follows a distinct case conceptualization of psychiatric disorder based on CBT principles. It views symptoms as behavior, actively maintained by thought and behavior patterns in the here and now, rather than as the result of more remote hypothetical intrapsychic processes. Consequently, treatment follows a learning model, where control over symptoms depends on the active collaboration of the client in successful acquisition and application of new ways of thinking and behaving. In this tradition, behavioral and learning principles have been applied in several recent attempts to understand and treat tic and habit disorders. The term “habit disorder” has an uncertain diagnostic status in psychiatric nosology, but covers a range of usually manual habits such as nail biting, skin picking, scratching, rubbing, hair pulling, teeth grinding, neck and knuckle cracking.

A habit disorder generally seems to be under some degree of voluntary control but which the person, nonetheless, is unable to stop, unlike tics which appear more like neurological reflexes. There is debate as to whether tics and habits form a continuum. However, habit disorders, in particular trichotillomania, have already formed the subject of a number of comprehensive manualized CBT treatments emphasizing, in addition to behavioral control, the emotional, interpersonal and cognitive dimensions of the habitual behavior (e.g., Mansuetto et al., 1999). There is a less extensive CBT literature on treating tics, but tics as found in Tourette’s syndrome and other tic disorders have, however, formed the target for a behavioral approach termed “habit reversal” (Azrin & Nunn, 1973; Woods & Miltenberger, 2001). There is a growing body of clinical evidence supporting the effectiveness of habit reversal in reducing tics, but there have been few large-scale studies of its efficacy, and since habit reversal is a multicomponent program, it is unclear which are its crucial
elements. Also, habit reversal procedures are inspired by behavioral principles rather than a specific model of tic phenomenology. But tics are not just conditioned responses. Consequently, the clinical success of behavior therapy has not been accompanied by an improved and more comprehensive cognitive-behavioral conceptualization of tic maintenance or genesis. Also, the habit reversal view of tics as isolated behavioral events, and the failure to explicitly address cognitive variables, can limit its consideration of the wider everyday cognitive-behavioral context relevant to tic management.

The gap between behavior and cognition is, to some extent, an artificial one, and even in a strictly behavioral approach, the clients must understand the model, and articulate their motivation and reasons for changing the habit and be able mentally to link cause and effect in their application of techniques. Although seldom explicitly measured, it is clear from case studies reporting behavior therapy for tics that, as in other psychiatric disorders, behavioral change can be accompanied by a change in thinking about the disorder. However, in our own work, we realized that cognitive factors were not only a useful adjunct to behavior therapy but were often central to the occurrence of the tic. For example, anticipation can provoke tics or even just thinking about ticcing can provoke tics, and negative evaluation of high-risk situations can lead to increased levels of tension and ticcing.

Previous models of tics have focused either on the role of central brain structures or on localized social or behavioral operants reinforcing the tic, but there is also a vast and largely untapped literature on the intermediate processes between brain and behavior relating to the psychology and psychophysiology of motor behavior. Motor psychophysiology can shed light on how central commands control the intricacies of preparation and muscle tension, and how such preparation and tension can produce unwanted voluntary and involuntary movements. This approach views cognition and behavior, voluntary and non-voluntary action as different stages in the same motor action sequence. Thought-action, cognitive-motor coupling can be accommodated by a cognitive–psychophysiological model which takes account of forward planning and feedback correction as a part of motor control, and views even non-voluntary actions as occurring against a background behavioral action plan.

As the motor theorist Bernstein (1967) pointed out, no individual contraction can be considered independent of the wider intentional actions of the motor program, and this motor program, in turn, has to be understood in terms of an ecological adaptation to the environment. Hence, it may be towards the overall telic activity of the person that we need to look for clues about tic onset rather than to just neurobiological structures or situational operants. The cognitive–psychophysiological model led to the development of a CBT approach that, although complementing and building on previous behavioral interventions, placed cognitive factors center stage. In effect, isolated habit reversal strategies are integrated into a wider cognitive-motor restructuring of behavior preceding tic onset in order to prevent the tic occurrence rather than resist it once it has appeared. Inevitably, such cognitive and motor restructuring addresses the wider behavioral context surrounding the person’s style of action.
The major claims of the model have been empirically tested through psychometric, experimental and clinical studies discussed in Chapters 3 and 4. The program itself has been validated as an effective treatment for adults and adolescents with Tourette’s, chronic tic and habit disorder. It is designed to be implemented in conjunction with a professionally trained therapist, and both client and therapist manuals are provided. Issues about its future application to other client groups and disorders are discussed in Chapter 5.

*Kieron O’Connor
Montreal, September 2004

There is a dedicated website for this book at www.wiley.com/go/tic containing the forms from Appendices 1, 2, 6, 7 and 8 and the client manual. These are available to readers to view and download.
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Chapter 1

THE NATURE OF TIC DISORDERS

► DEFINITION

Tics are defined, rather vaguely, in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994) nosology as a recurrent, non-rhythmic series of movements (of a non-voluntary nature) in one or several muscle groups. Tics are usually divided into simple and complex tics of a motor, sensory, phonic or cognitive nature. In practice, simple tics have to be differentiated from behaviors such as routines, automatisms and stereotypes; from spasms of neurological or neurochemical origin, and from dystonias and torticollis of a possibly psychoneurological origin. Also, complex tics, which are complex if they involve sequences of several distinct muscle movements, can visibly resemble the ritualized compulsions of obsessive-compulsive disorder (OCD).

► DIAGNOSIS

Tics occur over all cultures, and have been reported anecdotally since classical times. The first clinical descriptions, however, were provided in the nineteenth century by Itard (1825), who reported a case of an aristocrat exhibiting tics, barking and obscenities, and later Gilles de la Tourette (1885), who gave a detailed description of eight additional cases. Currently, the DSM-IV distinguishes transitory tics from chronic tic disorders (TD) and Gilles de la Tourette’s syndrome (TS). Transitory tics are those occurring for a short period, usually in early childhood, which slowly disappear or show spontaneous remission later in adolescence. In TD, typically, one or several simple or complex tics are present. Often the tics are stable over a period of years since childhood. The tics occur daily and cause distress. Although the diagnostic criterion specifies onset prior to age 18, tics may develop in adulthood. TS is recognized in the DSM-III and DSM-IV as a distinct diagnostic category with multiple tics including at least one phonic tic occurring several times a day, every day, throughout a period of more than one year and whose location, number, frequency and severity can change over time with onset before the age of 18 years. Although clinician consensus tends to view TD as a milder form of TS, diagnosis of TS is categorical not dimensional. Kraemer et al. (2004) point well to the pitfalls of using categorical instead of dimensional approaches to classification, and although both have uses in different settings, the reliance entirely on
categorization of TS and TD in the complete absence of a dimensional model could be problematic. There seems to be a consensus among researchers that TD and TS share enough common aspects to be considered on a continuum of severity (e.g., Spencer et al., 1995). But the diagnosis of TS is currently dichotomous, not dimensional, and depends crucially on the existence of a vocal tic, although there has been controversy about current criteria for TS (e.g., First et al., 1995; Tourette Syndrome Classification Study Group, 1993). Some current assessment instruments do adopt a dimensional approach (see Table 6.1).

Tics may be simple or complex. A simple tic involves one principal muscle group. Simple tics include blinking, cheek twitches, head or knee jerks and shoulder shrugs. Tics are mainly confined to the upper body and the most common occur in the eye, head, shoulders and face, and follow a rostral–caudal development. Tics can also be vocal and include coughs, tongue clacking, sniffing, whistling, throat clearing, hiccing, barking and growling. Some recurrent involuntary somatic sensations are classified as sensory tics. These are identified as heavy, warm or tingling premonitory sensations, often muscle focused and leading to muscle tension (Lohr & Wisniewski, 1987; Shapiro & Shapiro, 1986; Shapiro et al., 1988) but the term “premonitory sensation” is now preferred over sensory tic (Cath et al., 2001a). Table 1.1 gives examples of common tics.

Tics are classified as complex if there is a contraction in more than one group of muscles (Comings & Comings, 1984). Complex tics may involve sequences of movements, and may take the form of bizarre mannerisms involving several limbs or extremities. J’s complex tic begins with a turn of the head towards the right, his hand comes up across his forehead and descends over his head, while his head makes a full semi-circle rotation, and he exhales at the same time. M’s complex tic begins with an extension of the shoulder and then a contraction back to the center while his left shoulder repeats the same action. He repeats this back and forth until he “feels right”. Complex tics may also take the form of self-inflicted repetitive injurious actions such as head or face slapping, face scratching, teeth grinding, neck cracking, tense–release hand-gripping cycles, or finger twiddling. In neck cracking, the person may manually lift, turn and replace the head on the cervical vertebrae, producing a clicking or grinding sound. Similarly, in knuckle cracking, the person will force the fingers down onto the knuckle joints.

Complex vocal or, more precisely, phonic tics (Jankovic, 1997) take the form of repeated sounds, words or phrases or swear words, and, in rare cases, coprolalia (swearing). Normal actions and words of the person may also be repeated or exaggerated, and copying others can itself evolve into a complex repetitive movement either by echopraxia (motor mimicry) or by echolalia (repeating others’ words, phrases or sounds). Complex tics can resemble habit disorders (HD) such as trichotillomania (hair pulling), bruxism (teeth grinding), scabomania (skin scratching or picking), onychophagia (nail biting), which are, however, classified among the impulse control disorders. There is a covariation between tics and HD and among different types of HD (Woods et al., 1996a). So a person with tics is more likely, than normal, to suffer also from HD. Although complex tics by their semi-voluntary nature may have some intentional aim even if the intention is
Table 1.1  Examples of simple/complex tics

<table>
<thead>
<tr>
<th>Parts of body</th>
<th>Involuntary repetitive movement habits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocal</td>
<td>Coughing, burping, throat clearing, humming, making noises, swallowing, repeating phrases or tunes</td>
</tr>
<tr>
<td>Hands</td>
<td>Rubbing fingers together, waggling or clinching fingers or cracking fingers or knuckles, scratching, twiddling, doodling, tapping, fidgeting, stroking (earlobes, chin, etc.), playing with objects, clenching/unclenching the fist</td>
</tr>
<tr>
<td>Eyes</td>
<td>Winking, excessive blinking, eyelid tremor, squinting, straining eye muscles</td>
</tr>
<tr>
<td>Face</td>
<td>Nose wrinkling, ear tics, cheek tics, forehead and temple tension</td>
</tr>
<tr>
<td>Mouth</td>
<td>Lip movements, chewing, teeth grinding, tongue ducking, parsing, pouting, forcing tongue against palate, biting tongue, biting fingernails</td>
</tr>
<tr>
<td>Head</td>
<td>Head tic to the side, front or back</td>
</tr>
<tr>
<td>Shoulders</td>
<td>Movement shrug up and down or forwards or backwards or on one side</td>
</tr>
<tr>
<td>Abdomen</td>
<td>Tensing stomach or abdomen into a knot</td>
</tr>
<tr>
<td>Legs</td>
<td>Moving legs repetitively up and down or towards and away from each other</td>
</tr>
<tr>
<td>Torso</td>
<td>Tensing, twisting or gyrating movements involving legs, arms or trunk</td>
</tr>
<tr>
<td>Mental</td>
<td>Playing a tune or phrase over and over in the head, mentally counting for no reason</td>
</tr>
</tbody>
</table>

sensory adjustment (making symmetrical movements to feel “just right”), simple tics seem to serve no purpose.

Tics generally appear in the superior part of the body, including eyes, forehead, mouth, face, neck, shoulders, and can occur anywhere between one and 200 times per minute. Simple facial tics generally have a higher frequency. The onset of simple tics generally precedes complex tics, and simple tics can develop at any time in childhood from 0 to 5 years. Vocal tics develop after motor tics and it is rare for tics to develop post-adolescence, although they can develop in adults (Cohen et al., 1992), often following trauma or surgery. For example, eye blinks may develop as a defensive reaction to light following eye surgery. However, tics seem to wax and wane in severity throughout life and may in the case of TS be substituted by completely different tics or may even spontaneously remit (Nomoto, 1989).

Technically speaking, complex tics are distinguishable from stereotypies and compulsive rituals, routines and habits, since tics are neither completely conscious purposeful rituals, nor totally non-sensical repetitions. In fact, the term “behavioral stereotypy” is usually applied to abnormal repetitive actions associated with organic loss and mental deficiency. In practice, however, it is sometimes