Final Report – Professional Development Grant Association for Behavioral and Cognitive Therapies 2007 Annual Conference

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Restatement of Problem

This grant allowed me to attend the 41st annual conference of the Association for Behavioral and Cognitive Therapies on November 15-18 in Philadelphia, PA.

Review of the Work / Procedure

I presented research entitled "Prediction of functional impairment and quality of life in youth with Tourette's Syndrome."* Attending the conference not only allowed me to present this research and discuss my findings with others doing work on similar problems, but also allowed me to attend numerous presentations in my research areas as well as ways to improve my teaching abilities at the graduate and undergraduate level.

Outcomes

I attended the conference, met with others in the field, and discussed options for publishing the work. The presentation is currently being reworked into a manuscript, with a submission expected in early January 2008 to the peer-reviewed *Journal of Clinical Child and Adolescent Psychology*, where I have published my research before. In addition, many of the talks and presentations I attended have helped inform my teaching regarding empirically supported therapies to both my graduate and undergraduate students.

Conclusions

This grant allowed me to attend a conference, gain knowledge, and meet other researchers that would not have been possible otherwise. I plan to apply for similar grants in the future to allow me to continue my scholarship.

* I have attached a copy of the poster as presented at the conference, as well as the handouts that were given to attendees.

Prediction of Functional Impairment and Quality of Life in Youth with Tourette's Syndrome

Caleb W. Lack¹, Eric A. Storch², Laura E. Simons³, Tanya K. Murphy², & Gary R. Geffken²

Introduction

While development of tics during childhood for a short period of time is fairly immarkive (Kurlan, Beltr, & Needver, 1988), youth with full-blown Tourette's Syndrume (TS) experience a wide range of furctional impairments and behavioral difficulties. These typically introduce shood-related problems (Abwarder et al., 1985), Embergi, Class & Rothner, 1987), social interactions (Abwarder et al., 1985), Embergi, Class & Rothner, 1989), difficulty coping with TS (Emberg, Seley, Timible, & Robertson, 2001). In addition, highly disquive behavior (Sukndolsky et al., 2003) and anxiety and mod disturbance (Roberson, Barrajee, Eepen, & Tox-Hilly, 2002) are very common in youth with TS. Consequently, there is a high comorbidity between 18 and other psychiatric datachers, including attention. TS and other psychiatric datachers, including attention of Roberson, 1805. Little research, however, has been conducted to examiline what fectors are predictive of current functional impairment and quality of the in youths with TS. The factors exemited in the entered and current functional impairment and quality of the in youths with TS. The factors communication to the predictive and the psycholetic datachers are predictive of current functional impairment and control and productions to the production of the productio rent exploratory shudy are demographic variables, such as ege, nder, and race, current emotional and behavioral difficulties, and specific type of TS symptoms possessed.

Piro to study creed, the University of Floride Institutional review board granted relevant ethical permissions. Witten parental consent and child seasen was obtained for test perticipating which sease the substitute of the seasen was obtained to read and institution measures (consent rate = \$10%; \$10%; \$10%). Participation was voluntary, and familiars were compensated \$5.00 for their participation with familiar being given to the consenting parent for destribution. Researched admitiscation was counterdatened with approximately \$50% of familiar being admitiscated the VISS before compiliarly and parent. Teport measures. A trained research assistant provided instructions for each measure and was available for assistant provided instructions for editival personal operations of the section of the first author, admitiscated the VISS to both the child and parent pointly in a private clinical office. VISTS to both the child and parent pointly in a private clinical office. VISTS to built consisted of an instructional meeting elbout the VISS, four practice interviews, and four directly observed interviews.

Neasures

Vouth and their parents completed a series of questionnaines that
Included a demographic questionnaine, the Yale Gobal Tic Severity Scale
(YGTSS: Leavanne et al., 1989). Child Selvand Checklats (CR3C1,
Achenbach, 1991), the Schwartz Peer Victimization Scale (SPAS;
Schwartz, Parver, Change, & Lee-Shin, 2002), Child Tourethe's Syndrome
Timpairment Scale - Parent Report (CTIN-P, Storch et al., 2007), and the
Pellahric Quality of Life Inventory version 4.0 (PestsQL; Vami, Seld, &
Rode, 1999).

The sample consists of \$9 children and adolescents (w = 11.4 years, \$20 = 2.6)

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The year, range = 6-17, naise = 17) with a degeneral cell Transfer of Transfer of the presented to appealing outpetitus clinic. Although the age of the onest dense limes duration outpetitus clinic and control outpetitus clinic and the period outpetitus clinic and the period to the first of the first at least one year prior to presentation (without a the first period if ayear than there mentles). The most provident constraint dispersaries for the current angine very action of 15 period in the period of the period of great first there consists of dispersariity Discrete (r = 2) and o'D (s = 2), with clinic constraint Anality Discrete (s = 0). Asserting Generalized Anality Discrete (s = 0). Asserting and Particul Discrete (s = 0). Asserting and Particul Discrete (s = 0). Asserting and Particul Discrete (s = 0).

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Behavioral and Emotional Functioning
Table 1 gives the means and standard deviations for the various
measures of behavioral and emotional functioning in the current
study, as well as the Pearson product moment correlations between

Table 1

Pearson product moment correlations for various measures of psychological functioning.

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Presented at the annual meeting of the Association for Behavioral and Cognitive Therapies, Philadelphia, PA, November 2007

Results (cont.)

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¹ Arkansas Tech University ² University of Florida

Stepwass multiple regression analyses were used to examine the relationship between severity of tics, internalizing and exemalizing problems, social problems, peer Victimization, and degree of impairment due to tics as measured by the CITI-P4 (see Table 2). On Step 2, gender and age were entered on the first step to control for demographic effects and excumented for 15.9% of the varience. The Social Problems scale of the GBC, entered on step two, accounting for an additional 12.9%, with Phonic scale of the YGTSS added on step to three and defining 6% to the model. On the last step, the total of the SPA's was entered, accounting for a total additional broad (p. = .023).

Two more stepwise multiple regressions were used to examine prediction of quality of file, as reported by both perents and children. For the first enalysis, examining prediction of perent-reported QoL (see Table 3), gender and age were entered on step one and excounted for 1.3% of the valence. The CBL Inheralizing scale entered on step two and excounted for 46.3% of the variance in parent-reported QoL. The Social Problems scale of the CBCL entered on the files step of the model, bringing the total adjusted R^{D} to 570 for the model (D = .001).

To predict child-reported quality of life, another analysis was run. As before, gender and age were entred on size or us to control for demographic effects, with an adjusted *Re of VOL*. On step two, the SPSY ball store entred and accounted for 32.95% of the vertamen in SPSY ball as core entred and accounted for 32.95% of the vertamen in oild-reported CLBCL Social Problems entered on the final step of the model, bringing *R* to .484 for the bust model (ρ = .001).

Table 2

zing, YGTSB Motor, and YGTSB Total did not enter into the Stepwise Multiple Regression Analyses for Prediction of Impairment Due to Tios 3 Step 4 ASS A62 + Schwartz Peer Victimization Scale Note: CBCL Internalizing, CBCL Extection. Step 2 571 + CBCL Social Probi Step 3 £24 + YGTSS Phonie



Nds. CBCL. Externalizing, SVPS, YGTSS Mdva, YGTSS Pranic and YGTSS Total did not enter into the equation. Stepwise Multiple Regression Analyses for Prediction of Parent-reportes Quelity of Life ktep 3 .778 Variable Multiple R Step 1 Gender, age

Stopwise Multiple Regression Analyses for Prediction of Child-reported Quality of Life Table 4

Variable	Variable Multiple R	84	Adjusted R P change	P change	of P
Step 1 Gender, age	Ę	<i>11</i> 07	290	177	116
Step 2 - Schwartz P	Step 2 637 406 • Schwartz Peer Visitanization Scale	AD6 trion Scale	Ę	28.74	000">
Step 3 + CBCL Soc	Step 3 .722 - CBCL Social Problems	122	ş	12.34	1001
Note: CBCL Externalizing not enter into the equation	Internalizing, Che equation,	BCL Interns	lzing, TOTSS h	lder, TGI	NGo. CBCL, Edernalizing, CBCL, Identalizing, YOTES Molon, YOTES Phanic and YOTES Teles tot enter into the equation.

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These results point to the impact of acial environment and the reactures of includibule in the sentrements to the spouth's its, rather than the dayne of its, on functioning and quality of the. Bessel on the current results, chirchen may read to spend more time assessing the armont of difficulties in social problems and interactions with poens, hashed of spendings as much time assessing number and severally of the, when seeling youth with Tourcha's for therapy. Descriping social falls and transfaints of the public for the property of the public for the pub

Prediction of Functional Impairment and Quality of Life in Youth with Tourette's Syndrome

Caleb W. Lack ¹, Eric A. Storch ², Laura E. Simons ³, Tanya K. Murphy ², and Gary R. Geffken ²

¹ Arkansas Tech University, ² University of Florida, ³ Children's Hospital Boston

Introduction

While development of tics during childhood for a short period of time is fairly normative (Kurlan, Behr, & Medved, 1988), youth with full-blown Tourette's Syndrome (TS) experience a wide range of functional impairments and behavioral difficulties. These typically include school-related problems (Abwender et al., 1996; Erenberg, Cruse & Rothner, 1986), difficulty coping with TS (Ernberg, Cruse, & Rothner, 1987), social interactions (Storch et al., in press), and a lower overall quality of life than their peers without TS (Elstner, Selai, Trimble, & Robertson, 2001). In addition, highly disruptive behavior (Sukhodolsky et al., 2003) and anxiety and mood disturbance (Robertson, Banerjee, Eapen, & Fox-Hiley, 2002) are very common in youths with TS. Consequently, there is a high comorbidity between TS and other psychiatric disorders, including attention-deficit/hyperactivity disorder (ADHD; 50-75% of cases; Robertson et al., 2002) and obsessive-compulsive disorder (OCD; 50% of cases; Robertson, 1995). Little research, however, has been conducted to examine what factors are predictive of current functional impairment and quality of life in youths with TS. The factors examined in the current exploratory study are demographic variables, such as age, gender, and race, current emotional and behavioral difficulties, and the specific type of TS symptoms possessed.

Method

Procedure

Prior to study onset, the University of Florida institutional review board granted relevant ethical permissions. Written parental consent and child assent was obtained for each participating youth before administering measures (consent rate = 91%; 59/65). Participation was voluntary, and families were compensated \$5.00 for their participation with funds being given to the consenting parent for distribution. Measurement administration was counterbalanced with approximately 50% of families being administered the YGTSS before completing child- and parent-report measures. A trained research assistant provided instructions for each measure and was available for assistance. Masters or doctoral level clinical psychology trainees, trained in administration by the first author, administered the YGTSS to both the child and parent jointly in a private clinical office. YGTSS training consisted of an instructional meeting about the YGTSS, four practice interviews, and four directly observed interviews.

Measures

Youth and their parents completed a series of questionnaires that included a demographic questionnaire, the Yale Global Tic Severity Scale (YGTSS; Leckman et al., 1989), Child Behavior Checklist (CBCL; Achenbach, 1991), the Schwartz Peer Victimization Scale (SPVS; Schwartz, Farver, Change, & Lee-Shin, 2002), Child Tourette's Syndrome Impairment Scale – Parent Report (CTIM-P; Storch et al., 2007), and the Pediatric Quality of Life Inventory version 4.0 (PedsQL; Varni, Seid, & Rode, 1999).

Participants

The sample consists of 59 children and adolescents (m = 11.4 years, SD = 2.6 years, range = 8-17, males = 41) with a diagnosis of Tourette's Syndrome who presented to a specialty outpatient clinic. Although the age of tic onset and illness duration were not systematically collected, by virtue of our inclusion criteria of TS or a chronic tic disorder, youth had tics for at least one year prior to presentation (without a tic-free period of greater than three months). The most prevalent co-morbid diagnoses for the current sample were Attention Deficit Hyperactivity Disorder (n = 28) and OCD (n = 25), with other co-morbid diagnoses in the population including Generalized Anxiety Disorder (n = 7), Major Depression (n = 6), Oppositional Defiant Disorder (n = 6), Asperger's Disorder (n = 3), Social Phobia (n = 2), and Panic Disorder (n = 1).

Results

Impairment due to Tics

There was a wide range of endorsement on particular types of impairments, but the majority of the sample reported significant functional problems in one or more areas (52.1%), with 37.5% of the sample reporting significant problems in two or more areas. The areas where parents reported the highest percentage of impairment (defined as a rating of 'pretty much' or 'very much' on CTIM-P) due to tics were primarily school related, such as writing during class (24.6%), doing homework (21.9%), concentrating on work (21.8%), and being prepared for class (18.5%), or social activity related, such as being teased by peers (17.5%) and making new friends (15.8%). There was a wide range of endorsement on particular items, but the majority of the sample reported significant problems in one or more areas (52.1%), with 37.5% of the sample reporting significant problems in two or more areas. Across broad categories of impairment, 35.6% of children were reported as having at least one significant problem area in school, 23.7% were reported to have at least one significant problem area at home, and 25.4% were reported to have at least one problem area in social activities. Of those children with significant problems, 10.2% reported at least one problem area in each domain (school, home, and social activities).

Behavioral and Emotional Functioning

Table 1 gives the means and standard deviations for the various measures of behavioral and emotional functioning in the current study, as well as the Pearson product moment correlations between the measures.

Regression Analyses

Stepwise multiple regression analyses were used to examine the relationship between severity of tics, internalizing and externalizing problems, social problems, peer victimization, and degree of impairment due to tics as measured by the CTIM-P (see Table 2). On Step 1, gender and age were entered on the first step to control for demographic effects and accounted for 15.9% of the variance. The Social Problems scale of the CBCL entered on step two, accounting for an additional 12.9%, with Phonic scale of the YGTSS added on step three and adding 6.8% to the model. On the last step, the total of the SPVS was entered, accounting for a total adjusted R^2 to .408 for the total model (p = .023).

Two more stepwise multiple regressions were used to examine prediction of quality of life, as reported by both parents and children. For the first analysis, examining prediction of parent-reported QoL (see Table 3), gender and age were entered on step one and accounted for 1.3% of

the variance. The CBCL Internalizing scale entered on step two and accounted for 46.3% of the variance in parent-reported QoL. The Social Problems scale of the CBCL entered on the final step of the model, bringing the total adjusted R^2 to .570 for the model (p = .001). To predict child-reported quality of life, another analysis was run. As before, gender and age were entered on step one to control for demographic effects, with an adjusted R^2 of .042. On step two, the SPVS total score entered and accounted for 32.9% of the variance in child-reported QoL. CBCL Social Problems entered on the final step of the model, bringing R^2 to .484 for the total model (p = .001).

Discussion

Tourette's Syndrome can be a devastating illness to youth, with impairments seen across a wide range of areas. Understanding what factors are most predictive of impairments and quality of life in TS youths can allow for more targeted interventions and improvements. Contrary to what may be expected, the results of the current study do not implicate severity of tics as the major contributing factor to a decrease in either functional impairment or quality of life. For example, the amount of social problems were found to be the most predictive index of parent-reported functional impairment, with degree of phonic tics and peer victimization contributed further predictive validity to the model, for a total of 41% of the variance in functional impairment accounted for by those factors. Similar results were found for parent- and child-reported quality of life, in that social problems were a significant predictor in each. For parent-reported QoL, however, the most predictive factor was the presence of high levels of internalizing behaviors, with social problems completing the model and account for a total of 57% of the variance in QoL. For child-reported QoL, amount of peer victimization was the most significant predictor, with the addition of social problems totaling 48% of the variance in QoL.

These results point to the impact of social environment and the reactions of individuals in the environment to the youth's tics, rather than the degree of tics, on functioning and quality of life. Based on the current results, clinicians may need to spend more time assessing the amount of difficulties in social problems and interactions with peers, instead of spending as much time assessing number and severity of tics, when seeing youth with Tourette's for therapy. Developing social skills and increasing coping abilities for these youth in conjunction with standard treatment for controlling tics (e.g., habit reversal training) may assist in improving treatment outcomes.

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Pearson product moment correlations for various measures of psychological functioning. Table 1.

	(1)	(2)	(3)	(4)	(5)	(9)	(7)	(8)	(6)	(10)	(11)
(1) CTIM-P-Tic	1.00	.370*	.433**	.513**	.513**	.298*	.081	.436**	422**	321*	.077
(2) YGTSS Motor		1.00	.565**	**L0L	.824**	040	123	030	.048	190	.153
(3) YGTSS Phonic			1.00	.710**	.842**	.174	860.	.195	184	331*	.282*
(4) YGTSS Impairment				1.00	**956	.214	.170	.338*	247	394*	.462**
(5) YGTSS Total					1.00	.162	.063	.240	181	369*	.383**
(6) CBCL Externalizing						1.00	**629	.581**	636**	309*	.243
(7) CBCL Internalizing							1.00	.514**	**699"-	491**	.397**
(8) CBCL Social Problems								1.00	651**	**065	.502**
(9) PEDS-QL Parent									1.00	.647**	427**
(10) PEDS-QL Child										1.00	653**
(11) SPVS											1.00
Mean	12.41	12.41 13.39	7.91	18.21	39.52	11.56	12.81	3.83	71.78	71.93	8.61
Standard Deviation	15.91 6.40	6.40	7.33	13.90	24.73	8.86	68.6	3.33	16.28	16.18	3.83

Note: CTIM-P = Child Tourette's Syndrome Impairment Scale - Parent Report about Child, YGTSS = Yale Global Tic Severity Scale, CBCL = Child Behavior Checklist, PEDS-QL = Pediatric Quality of Life Scale, SPVS = Schwartz Peer Victimization Scale

^{*} p < .05, ** p < .001

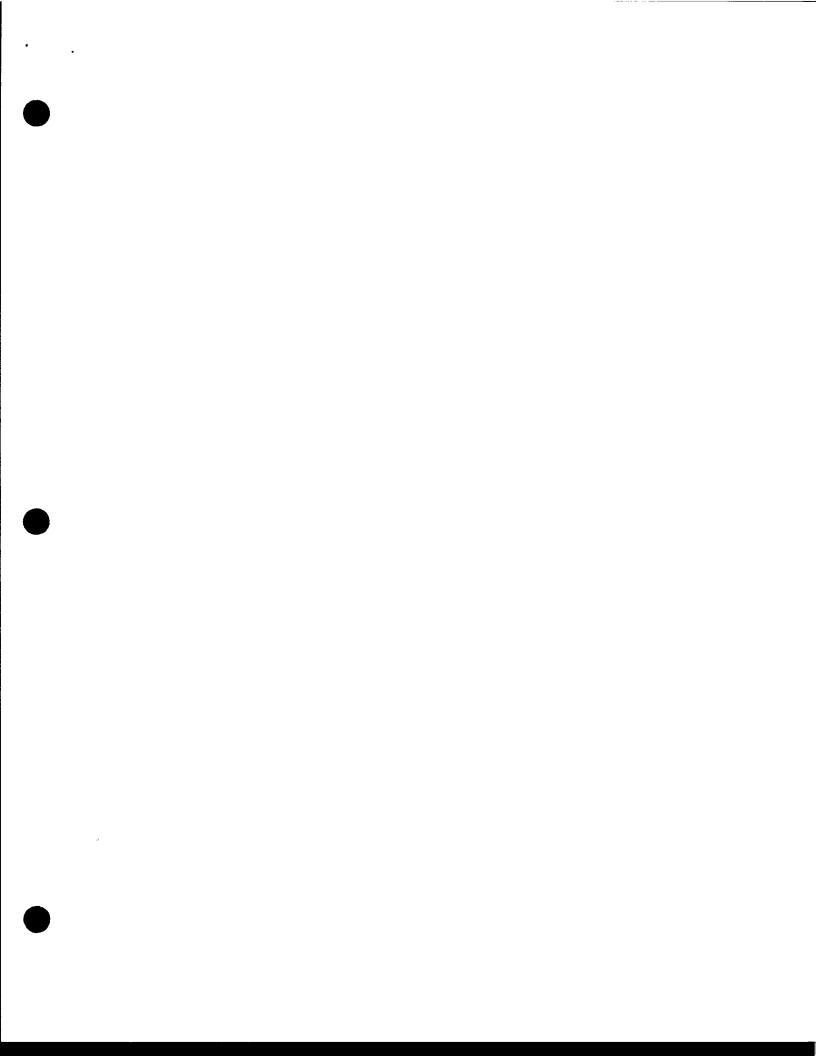


Table 2.

Stepwise Multiple Regression Analyses for Prediction of Impairment Due to Tics

Variable	Multiple R	R ²	Adjusted R ²	F change	Significance of <i>F</i>
Step 1 Gender, age	.435	.189	.159	6.19	.004
Step 2 + CBCL So	.571 cial Problems	.326	.288	10.59	.002
Step 3 + YGTSS P	.634 honic	.402	.356	6.49	.014
Step 4 + Schwartz	.680 Peer Victimizat	.462 ion Scale	.408	5.54	.023

Note: CBCL Internalizing, CBCL Externalizing, YGTSS Motor, and YGTSS Total did not enter into the equation.

Table 3.

Stepwise Multiple Regression Analyses for Prediction of Parent-reported QoL

Variable	Multiple R	R²	Adjusted R ²	F change	Significance of F
Step 1 Gender, age	.220	.049	.013	1.35	.267
Step 2 + CBCL Into	.710 ernalizing	.505	.476	47.90	< .000.
Step 3 + CBCL Soc	.775	.601	.570	12.33	.001

Note: CBCL Externalizing, SVPS, YGTSS Motor, YGTSS Phonic and YGTSS Total did not enter into the equation.

Table 4.

Stepwise Multiple Regression Analyses for Prediction of Child-reported QoL

Variable	Multiple R	R²	Adjusted R ²	F change	Significance of <i>F</i>
Step 1 Gender, age	.278	.077	.042	2.21	.119
Step 2 + Schwartz	.637 Peer Victimizat	.406 tion Scale	.371	28.74	< .000.
Step 3 + CBCL So	.722 cial Problems	.521	.484	12.34	.001

Note: CBCL Externalizing, CBCL Internalizing, YGTSS Motor, YGTSS Phonic and YGTSS Total did not enter into the equation.