

SUPPLEMENTAL MATERIALS

Longitudinal Association of Depressive Symptoms, Binge Eating and Quality of Life with Cardiovascular Risk Factors in Young

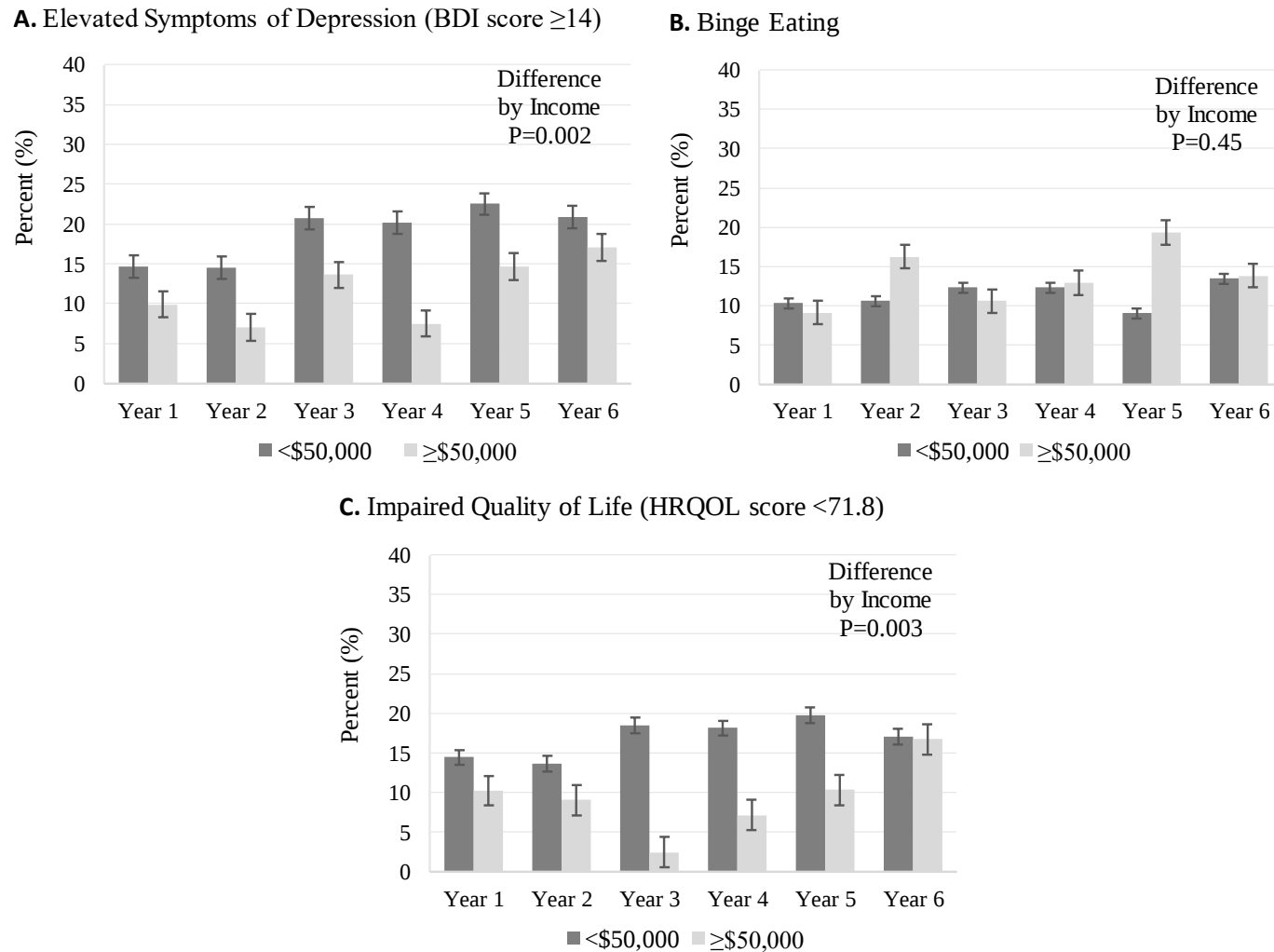
Adults with Youth-Onset Type 2 Diabetes: The TODAY2 Study

Table S1. Specific purging behaviors and diagnosable eating disorders by year of data collection in TODAY2*

	TODAY2 Year (2014-2020)					
	Year 1 (n=478) **	Year 2 (n=472)	Year 3 (n=467)	Year 4 (n=465)	Year 5 (n=450)	Year 6 (n=452)
Purging behavior ($\geq$ once per month)						
Self-induced vomiting	2.4%	2.4%	2.4%	2.5%	2.8%	3.2%
Laxative or diuretic use	2.6%	2.6%	1.7%	3.4%	3.1%	4.2%
Diagnosable eating disorder						
Anorexia nervosa	n=0	n=0	n=0	n=0	n=0	n=0
Bulimia nervosa	n=3	n=3	n=5	n=3	n=0	n=3
Binge eating disorder (BED)	n=2	n=1	n=2	n=2	n=1	n=1
Atypical anorexia nervosa	n=0	n=0	n=0	n=0	n=0	n=0

* Data presented are percent or N of participants. ** A total of n=514 participants participated in TODAY2 and attended at least one of their yearly scheduled visit, however, not all participants year 1 (n=36) or year 2 (n=42), etc. Purging behavior was self-reported; participants were asked the number of times per month on average over the past 3 months did they engage in the behavior in order to prevent weight gain or counteract the effects of eating. Diagnosable eating disorders categories on the EDDS are based on the DSM-5, American Psychiatric Association 2013.

Figure S1. Percent of participants with elevated symptoms of depression (A), binge eating (B), and impaired health-related quality of life (C) over time during TODAY2, by baseline level of household income (collapsed into <\$50,000 vs. ≥\$50,000)*



* P-value from generalized estimating equations models testing for a baseline level of household income difference over time, in models adjusted for age and duration of diabetes.

Table S2. Glycemia, blood pressure, and diabetes-related complications at TODAY2 year 1 and 6, by symptoms of depression, binge eating, and impaired health-related quality of life

	Symptoms of Depression			Binge Eating			Impaired Quality of Life		
Characteristic	BDI-II score < 14	BDI-II score ≥14	P-value	No	Yes	P-value	HRQOL score ≥71.8	HRQOL score <71.8	P-value
<i>At TODAY2 Year 1</i>	<i>n=376</i>	<i>n=61</i>		<i>n=320</i>	<i>n=37</i>		<i>n=411</i>	<i>n=62</i>	
BMI (kg/m^2)	36.3 ± 7.9	37.3 ± 9.8	0.53	35.9 ± 7.8	38.1 ± 7.2	0.12	36.2 ± 8.1	38.7 ± 9.3	0.03
Mean HbA1c (1%)	7.8 ± 2.0	8.3 ± 2.0	0.07	7.9 ± 2.0	7.3 ± 1.9	0.05	7.9 ± 2.0	7.7 ± 2.1	0.42
Mean SBP (mmHg)	116.7 ± 8.5	115.0 ± 9.5	0.14	116.5 ± 8.9	113.8 ± 9.2	0.08	116.4 ± 8.6	118.0 ± 10.1	0.18
Mean DBP (mmHg)	70.5 ± 6.7	69.7 ± 6.5	0.43	70.4 ± 6.9	69.7 ± 6.2	0.58	70.3 ± 6.7	71.4 ± 7.8	0.11
Hypertension	55.8%	54.1%	0.80	55.9%	51.3%	0.59	53.3%	69.3%	0.02
Mean LDL (mg/dL)	91.0 ± 23.6	95.0 ± 26.9	0.23	91.2 ± 23.6	95.8 ± 28.6	0.29	91.0 ± 23.6	97.5 ± 25.7	0.05
Dyslipidemia	48.6%	51.7%	0.66	45.3%	55.9%	0.24	47.9%	50.8%	0.67
Microalbuminuria	31.9%	31.2%	0.90	30.3%	37.8%	0.35	30.9%	35.5%	0.47
Neuropathy	14.9%	25.0%	0.06	17.1%	11.8%	0.42	15.4%	22.9%	0.14
Retinopathy	41.6%	50.8%	0.18	41.6%	45.4%	0.67	45.0%	33.3%	0.09
Retinopathy progression	22.7%	40.0%	0.01	23.7%	28.0%	0.63	25.9%	21.7%	0.54
<i>At TODAY2 Year 6</i>	<i>n=358</i>	<i>n=85</i>		<i>n=307</i>	<i>n=45</i>		<i>n=375</i>	<i>n=75</i>	
BMI (kg/m^2)	36.3 ± 8.5	36.3 ± 8.0	0.96	35.3 ± 7.9	38.6 ± 8.5	0.01	36.2 ± 8.5	36.7 ± 8.0	0.63
Mean HbA1c (1%)	8.4 ± 2.1	8.6 ± 2.0	0.39	8.5 ± 2.1	7.9 ± 2.0	0.08	8.4 ± 2.1	8.7 ± 2.1	0.28
Mean SBP (mmHg)	118.2 ± 9.0	118.7 ± 9.5	0.62	117.7 ± 8.6	119.4 ± 8.6	0.20	118.2 ± 9.1	119.7 ± 9.5	0.20

	Symptoms of Depression			Binge Eating			Impaired Quality of Life		
Characteristic	BDI-II score < 14	BDI-II score ≥14	P-value	No	Yes	P-value	HRQOL score ≥71.8	HRQOL score <71.8	P-value
Mean DBP (<i>mmHg</i>)	72.2 ± 7.1	73.1 ± 7.4	0.33	72.2 ± 6.8	72.7 ± 7.2	0.65	72.4 ± 7.0	73.1 ± 7.9	0.39
Hypertension	60.9%	69.4%	0.14	59.2%	62.8%	0.65	61.9%	69.3%	0.22
Mean LDL-cholesterol (<i>mg/dL</i>)	96.5 ± 24.1	92.6 ± 21.4	0.17	96.5 ± 23.5	93.5 ± 24.2	0.44	95.8 ± 24.0	94.6 ± 21.5	0.69
Dyslipidemia	60.1%	51.2%	0.15	59.6%	56.0%	0.53	58.6%	58.3%	0.97
Microalbuminuria	46.1%	49.4%	0.58	46.9%	37.8%	0.25	45.9%	48.0%	0.73
Neuropathy	32.6%	29.3%	0.55	31.3%	32.6%	0.87	30.8%	37.5%	0.27
Retinopathy	44.7%	53.1%	0.17	44.9%	41.9%	0.70	44.2%	52.8%	0.18
Retinopathy progression	24.6%	31.8%	0.25	23.6%	31.3%	0.35	25.0%	30.6%	0.36

* Data are mean ± SD or %. Sample sizes may vary due to missing data (about 25% data is missing for retinopathy and retinopathy progression). P-values are based on the difference between those with symptoms of depression, binge eating or impaired quality of life vs. those without, using the t-test for quantitative variables or the contingency chi-square for qualitative variables.

Listing of the TODAY Study Group

CLINICAL CENTERS **Baylor College of Medicine:** S. McKay*, M. Haymond*, B. Anderson, F. Bacha, C. Bush, S. Gunn, H. Holden, S.M. Jones, G. Jeha, S. McGirk, N. Miranda, S. Seributra, S. Thamotharan, R. Zagado
Case Western Reserve University: L. Cuttler (deceased)*, S. Narasimhan*, R. Gubitosi-Klug*, E. Abrams, T. Casey, W. Dahms (deceased), R. Farrell, C. Ievers-Landis, B. Kaminski, M. Koontz, K. Kutney, S. MacLeish, P. McGuigan
Children's Hospital Los Angeles: M. Geffner*, V. Barraza, E. Carcelen, N. Chang, L. Chao, B. Conrad, D. Dreimane, S. Estrada, L. Fisher, E. Fleury-Milfort, V. Guzman, S. Hernandez, B. Hollen, F. Kaufman, E. Law, D. Miller, C. Muñoz, R. Ortiz, J. Quach, A. Ward, K. Wexler, Y.K. Xu, P. Yasuda
Children's Hospital of Philadelphia: L. Levitt Katz*, R. Berkowitz, S. Boyd, C. Carchidi, B. Johnson, J. Kaplan, C. Keating, C. Lassiter, T. Lipman, G. McGinley, H. McKnight-Menci, B. Schwartzman, R. Shah, S. Willi
Children's Hospital of Pittsburgh: S. Arslanian*, L. Bednarz, K. Brown, S. Cochenour, A. Flint, S. Foster, B. Galvin, N. Guerra, T. Hannon, K. Hughan, A. Kriska, I. Libman, M. Marcus, K. Porter, T. Songer, E. Venditti
Columbia University Medical Center: R. Goland*, C. Bohl, G. Covington, D. Gallagher, R. Gandica, K. Gumpel, C. Hausheer, P. Kringas, N. Leibel, D. Ng, M. Ovalles, J. Pring, D. Seidman
Joslin Diabetes Center: L. Laffel*, A. Goebel-Fabbri, M. Hall, L. Higgins, E. Isganaitis, J. Keady, M. Malloy, K. Milaszewski, L. Rasbach
Massachusetts General Hospital: D.M. Nathan*, A. Angelescu, L. Bissett, C. Ciccirelli, L. Delahanty, V. Goldman, O. Hardy, D. Koren, M. Larkin, L. Levitsky, K. Martin, R. McEachern, D. Norman, D. Nwosu, S. Park-Bennett, J. Quintos, D. Richards, N. Sherry, B. Steiner
Saint Louis University: S. Tollefsen*, S. Carnes, T. Cattoor, D. Dempsher, D. Flomo, J. Meyer, K. Schopp, M. Siska, B. Wolff
State University of New York Upstate Medical University: R. Weinstock*, D. Bowerman, J. Bulger, S. Bzdick, P. Conboy, R. Dhaliwal, J. Hartsig, R. Izquierdo, J. Kearns, R. Saletsky, P. Trief
University of Colorado Denver: P. Zeitler*, N. Abramson, P. Bjornstad, A. Bradhurst, N. Celona-Jacobs, C. Chan, J. Higgins, C. Hovater, M.M. Kelsey, G. Klingensmith, K. Nadeau, C. Retamal-Munoz, K. Vissat, T. Witten
University of Oklahoma Health Sciences Center: K. Copeland*, J. Tryggestad*, S. Chernausek*, E. Boss, R. Brown, J. Chadwick, L. Chalmers, M. George, A. Hebensperger, J. Less, C. Macha, R. Newgent, A. Nordyke, D. Olson, T. Poulsen, L. Pratt, J. Preske, J. Schanuel, S. Sternlof
University of Texas Health Science Center at San Antonio: J. Lynch*, N. Amodei, R. Barajas, C. Cody, E. Escaname, D. Hale, J. Hernandez, C. Ibarra, E. Morales, C. Orsi, M. Rayas, S. Rivera, G. Rupert, A. Wauters, D. Word
Washington University in St Louis: N. White*, A. Arbeláez, D. Flomo, J. Jones, T. Jones, M. Sadler, T. Stich, M. Tanner, A. Timpson, R. Welch
Yale University: S. Caprio*, M. Grey, C. Guandalini, S. Laviates, P. Rose, A. Syme, W. Tamborlane

COORDINATING CENTER **George Washington University Biostatistics Center:** K. Drews*, B. Braffett, B. Burke, K. Cross, S. Edelstein, L. El ghormli, J. George, N. Grover, M. Gunaratne, P. Kolinjivadi, A. Lauer, C. Long, M. Payan, T. Pham, L. Pyle, K. Tan, B. Tesfaldet, M. Tung, M. Turney, D. Uschner, S. Zhou

PROJECT OFFICE **National Institute of Diabetes and Digestive and Kidney Diseases:** B. Linder*

CENTRAL UNITS **Central Blood Laboratory (Northwest Lipid Research Laboratories, University of Washington):** S.M. Marcovina*, J. Albers, V. Gaur, J. Harting, P. Parbhakar, J. Ramirez, M. Ramirez, G. Strylewicz
DEXA Reading Center (University of California at San Francisco): J. Shepherd*, B. Fan, L. Marquez, M. Sherman, J. Wang
Diet Assessment Center (University of South Carolina): M. Nichols*, E. Mayer-Davis, Y. Liu
Echocardiogram Reading Center (Johns Hopkins University): J. Lima*, H. Doria de Vasconellos, S. Gidding, K. Keck, J. Ortman, J. Puccella, E. Ricketts
Fundus Photography Reading Center (University of Wisconsin): R. Danis*, B. Blodi*, M. Mititelu*, A. Domalpally, A. Goulding, S. Neill, P. Vargo
Lifestyle Program Core (Washington University): D. Wilfley*, D. Aldrich-Rasche, K. Franklin, C. Massmann, D. O'Brien, J. Patterson, T. Tibbs, D. Van Buren
Pulse Wave Velocity Reading Center (Cincinnati Children's Hospital Medical Center): E. Urbina*, A. Shah
Sleep Reading Center (University of Chicago): B. Mokhlesi*, H. Whitmore

OTHER **Hospital for Sick Children, Toronto:** M. Palmert
Medstar Research Institute, Washington DC: R. Ratner
Texas Tech University Health Sciences Center: D. Dremaine
University of Florida: J. Silverstein