

THE DIETARY SELF-EFFICACY CHANGES IN CHILDREN OF OBESE PATIENTS ENROLLED IN A PARENT-ONLY WEIGHT-LOSS PROGRAM

YALNIZ EBEVEYNLER İÇİN DÜZENLENEN ZAYIFLAMA PROGRAMINA KAYITLI OBEZ HASTALARIN ÇOCUKLARINDAKİ DİYET ÖZ YETERLİLİK DEĞİŞİKLİKLERİ

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ABSTRACT

Background: In families, reports indicate that parents have an essential role in improving the weight-related behaviors of the children. The study aimed to present the changes in dietary self-efficacy improvement in the children of parents involved in a weight-loss program.

Materials and Methods: The study design was cross-sectional and analyzed the potential links between the dietary self-efficacy reports of children and their weight-losing parents' data. The Children's Dietary Self-efficacy Scale (DSES) was used in the nutritional self-appraisal assessment. The scales were recorded at the beginning and at the end of the third month of a weight-loss program in which the parents were enrolled.

Results: There were 173 DSES report pairs available for comparison with parent data. The statistical analysis revealed significant associations between the before and after mean parent BMI and children BMIz values (38.43 ± 5.72 , 33.26 ± 5.19 , $p < 0.001$, and 0.36 ± 1.12 , 0.25 ± 1.16 , $p = 0.007$, respectively). The employment status and smoking data of the parents were positively correlated with the change in the total DSES scores of the children ($p = 0.016$ and $p = 0.043$, respectively).

Conclusion: Professionals attending nutritional improvement practices for children might achieve better results if employment status and smoking issues of their obese parents were added to their agenda.

Keywords: Childhood Obesity, Dietary Self-Efficacy, Obesity, Weight Loss.

ÖZET

Amaç: Çalışmalar ebeveynlerin çocukların kiloyla ilgili davranışlarını iyileştirmede önemli bir rolü olduğunu göstermektedir. Bu çalışma, kilo verme programına katılan obez ebeveynlerin çocuklarında diyet öz-yeterlik gelişimindeki değişiklikleri sunmayı amaçlamıştır.

Materyal ve Metod: Çalışma tasarımı kesitsel olarak planlandı ve çocukların diyet öz-yeterlik raporları ile kilo veren ebeveynlerin verileri arasındaki potansiyel bağlantıları analiz etmiştir. Beslenme öz değerlendirmenin incelenmesinde Çocukların Diyet Öz-yeterlik Ölçeği (DSES) kullanılmıştır. Veriler ebeveynlerin katıldığı bir kilo verme programının başında ve üçüncü ayının sonunda kaydedilmiştir.

Bulgular: Ebeveyn verileri ile karşılaştırma için kullanılacak 173 DSES rapor çifti vardı. İstatistiksel analiz, ortalama ebeveyn BKİ ve çocuk BMIz değerleri öncesi ve sonrası arasında anlamlı ilişkiler ortaya koymuştur (sırasıyla 38.43 ± 5.72 , 33.26 ± 5.19 , $p < 0.001$ ve 0.36 ± 1.12 , 0.25 ± 1.16 , $p = 0.007$). Ebeveynlerin çalışma durumu ve sigara içme durumu, çocukların toplam DSES puanlarındaki değişim ile pozitif yönde ilişkiliydi (sırasıyla $p = 0.016$ ve $p = 0.043$).

Sonuç: Çocuklara yönelik beslenme iyileştirme uygulamalarına katılan profesyoneller, obez ebeveynlerinin istihdam durumu ve sigara içme sorunları gündemlerine eklendiğinde daha iyi sonuçlar elde edebilirler.

Anahtar kelimeler: Çocukluk Çağı Obezitesi, Diyet Öz-Yeterliği, Obezite, Kilo Kaybı.

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Bu makaleye atf yapmak için / Cite this article: Belibağlı MC, İrday K. (2022). The Dietary Self-Efficacy Changes in Children of Obese Patients Enrolled in a Parent-Only Weight-Loss Program. *Gevher Nesibe Journal of Medical & Health Sciences*, 7(20), 140-146. <http://dx.doi.org/10.5281/zenodo.7133600>

INTRODUCTION

Most accumulation and change in physical, mental, and social behaviors occur before adulthood, and interventions addressing these domains in children may have far greater impacts (Wilson 2015). In families with strong bonds, reports indicate that parents play an essential role in improving weight-related behaviors (St George and Wilson 2012; Haines et al. 2016). Parent-only interventions were suggested as an effective treatment option for overweight or obese children aged 5 to 11 years (Loveman et al. 2015). Similar studies also propose that parent-only interventions can reduce body weight and body image concerns (Eldridge et al. 2016). A study analyzing mothers' weight control and physical activity improvement showed that the child's health behavior and parental weight loss were associated (Pona et al. 2019). A father-only intervention study planned to treat overweight and obesity in fathers and prevent obesity in their children stated that the intervention significantly improved weight status, physical activity, and diet for both fathers and children (Morgan et al. 2014). In a recent scientific summary addressing specifically parent-based interventions for childhood obesity treatment, the American Heart Association highlighted the need to expand relatives' involvement, including grandparents, brothers and sisters, and even cousins, in future efforts (Faith et al. 2012).

Nutritional self-efficacy is the self-appraisal of an individual regarding his or her capability in making correct selections of food and is suggested to be considered as an essential factor in increasing healthy food consumption and remodeling the nutritional habits of children (AbuSabha and Achterberg 1997; Rinderknecht and Smith 2004). The increase in the diversity of the foods consumed is shown to be related to the self-efficacy of the child. Long-term periodic health nutrition interventions in schools are reported to increase the knowledge and the nutritional self-efficacy of the children (Tuuri et al. 2009; De Bourdeaudhuij et al. 2008).

Currently, there is limited data regarding the nutritional efficacy of Turkish children in the indexed literature.

In the study, by analyzing the dietary self-efficacy reports of children of obese patients enrolled in a weight loss program, we expected to show a collateral benefit of the parental weight management improvement in participants' children not only in weight loss but also in nutrition patterns.

MATERIALS AND METHODS

The study design was cross-sectional. The files of patients with one or more children between the age of 9 and 18 and registered to the Adana City Training and Research Hospital Obesity Center Multi-Disciplinary Training Module Therapy program between June 1, 2018, and October 31, 2019, were included in the analysis.

Exclusion criteria were, during the program, having been diagnosed with a medical condition or an exacerbation of a condition that had a major effect on weight loss, failed to attend the program for more than four weeks (e.g., undergoing major surgery), change in employment status and change in marital status. Also, the weight reports of children with a newly diagnosed medical condition or an exacerbation of a condition that had a significant effect on weight loss or physical activity for more than four weeks and a significant change in a social environment (e.g., surgery, bone fractures or starting, changing or dropping out of school) were excluded.

The analyzed data of the parents included age, gender, level of education, employment, financial status appraisal, body mass index (BMI), smoking, and alcohol consumption. The children's data included age, gender, weight data, and the Turkish version of the Children's Dietary Self-efficacy Scale (DSES) reported by the parents.

The DSES was developed as a subscale among the HBQ (Health Behavior Questionnaire) in the CATCH trial study (Child and Adolescent Trial for Cardiovascular Health) designed to help in measuring the self-efficacy for food choices. The single factor scale had 15 items. The scores range between -15 and 15, questioning the determination in desire salty or fatty foods or vice versa. The higher scores demonstrate high self-efficacy (Perry et al. 1997). The Turkish version of the DSES with reliability and validity checked for the Turkish language by Öztürk was used in the study (Öztürk and Erdoğan 2013).

The data of the children were provided by the parents at the beginning and at the end of the third month. There were 173 dietary self-efficacy report pairs included in the analysis. The body mass index z (BMIZ) scores of the children were calculated using the Microsoft Office 365 Excel software

file downloaded from https://www.cdc.gov/growthcharts/percentile_data_files.htm. The BMIz scores were calculated by the following equation: $Z = ((X/M)^L - 1)/LS$, $L \neq 0$, or $Z = \ln(X/M)/S$, $L = 0$. The parameters used in the equation were; the median (M), the generalized coefficient of variation (S), and the power in the Box-Cox transformation (L).

The IBM Statistical Package for the Social Sciences for Windows (SPSS) 23.0 software was used in the data analysis. Descriptive statistics were summarized using mean (M), standard deviations (SDs) for continuous variables, and the number and the percentage of participants for categorical variables. Data were compared by Wilcoxon and linear regression tests. The models were used to examine the relationship between the total DSES score differences and parent and children data. Critical significance was set as 0.05.

Ethics

The study was approved by the Adana City Training and Research Hospital Ethical Committee with reference number 615. Informed consent were obtained from all patients.

RESULTS

There were 194 parents approved the study protocol and participated in the study. Nine participants moved to another city, 12 dropped out and a total of 21 follow-up files were excluded. The number of DSES report pairs at the end of the third month was 173 (89.18%). The demographics of the parent group showed that females were predominant (n=146, 84.39%) and most of the participants had middle school education (n=133, 76.88%). The majority of the parents were non-smokers (n=123, 71.10%) and were not consuming alcohol (n=167, 96.53%). Although a great number of participants were unemployed (n=148, 85.55%), most of them declared that they were financially sufficient (n=145, 83.82%). The detailed results of the descriptive data are shown in table 1.

The initial mean BMI of the parents enrolled in the study was 38.43 ± 5.72 , with a median of 39.91, indicating that the group was class II obese. The initial mean BMIz score of the children was 0.36 ± 1.12 with a median of 0.38, presenting a thin/normal weight children population.

Table 1. Study population demographic data

Parents	
Age (total), years, M±SD	41.32±7.13
Gender, n, %	
Female	146, 84.39%
Male	27, 15.61%
Education, n, %	
Primary education	13, 7.51%
Middle school	133, 76.88%
High school	16, 9.25%
University	10, 5.78%
Phd	1, 0.58%
Financial appraisal, n, %	
More than enough	14, 8.09%
Enough	145, 83.82%
Less than enough	14, 8.09%
Tobacco consumption, n, %	
Smoker	50, 28.90%
Non-smoker	123, 71.10%
Alcohol consumption, n, %	
Drinker	6, 3.47%
Non-drinker	167, 96.53%
Employment, n, %	
Unemployed	148, 85.55%
Employee	16, 9.25%
Employer	9, 5.20%
Children	
Age (total), years, M±SD	12.84±2.74

Gender, n, %	
Female	95, 54.91%
Male	78, 45.09%

In table 2, the statistical analysis presenting a significant association between the before and after parent BMI and children BMIz data were presented (38.43 ± 5.72 , 33.26 ± 5.19 , $p<0.001$, and 0.36 ± 1.12 , 0.25 ± 1.16 , $p=0.007$, respectively). The parents' BMI values had no significant impact on the BMIz scores of the children ($p>0.5$). Class III obese parents had children with low BMIz scores, as well as class I parents with children with BMIz scores above 1.5.

The before and after total DSES scores of the children were -4.78 ± 3.58 and -4.67 ± 3.39 , respectively). Despite the significance of the weight-related parameters, there was no association between the before and after total DSES scores ($p>0.05$).

The multivariate analysis results revealed that there were no significant links between the change in DSES values and other parameters ($p>0.05$), excluding the parents' employment status and smoking data. Employment status and smoking data of the weight-losing obese patients were the sole factors related to the dietary self-efficacy scores of the children ($p=0.016$ and $p=0.043$, respectively).

Table 2. Parent BMI, children BMIz and total DSES scores correlation analysis

	Initial	End	p
Parent BMI, kg/m ²	38.43 ± 5.72	33.26 ± 5.19	<0.001
Children BMIz	0.36 ± 1.12	0.25 ± 1.16	0.007
Total DSES score	-4.78 ± 3.58	-4.67 ± 3.39	>0.05

DISCUSSION

The high prevalence of class II obese females in the parent group was an expected finding compared to the studies focusing on obese patients seeking weight loss (Aceves-Martins et al. 2020). However, the mean BMIz score of the children was between normal ranges, a contradicting result with other studies indicating that overweight and obese parents tend to have children with similar BMI values (Bahreynian et al. 2017). Also, our analysis showed that the BMI values of the parents were not related to the BMIz scores of the children. The lower than expected mean BMIz score and the lack of correlation with parent BMI values was interesting. Our study targeted treatment-seeking obese parents and the present obesity awareness of such population might have resulted in a more careful nutrition consumption environment at home, yielding a lower mean BMIz score children population compared to the aforementioned studies. Besides, the statistically significant correlation in weight loss of both parents and children underpinned the benefit of the parent-only interventions in childhood obesity prevention and treatment suggested by various researches. The reports highlighted that despite limited shreds of evidence, parent-only interventions were as effective as the parent-child interventions with lower cost and higher feasibility (Loveman et al. 2015; Ewald et al. 2014).

Previous research conducted among adults presented contradicting suggestions both linking dietary self-efficacy to weight loss and otherwise (Clark et al. 1991; Martin, O'Neil, and Binks 2002). Despite the lack of a consensus, self-efficacy studies on adolescents suggest that family/parental factors might significantly affect the weight loss efforts of adolescents (White et al. 2004). In our study, the absence of a link between before and after DSES scores even with an improved mean BMIz score might be due to the children participants with a relatively low mean BMIz score compared to the obese ones. Nevertheless, the DSES scores of the children were significantly associated with their parents' tobacco consumption. The children of smoking parents scored lower DSES values. The universal consistency in the literature regarding the negative effects of fetal and postnatal exposure to parental tobacco smoking on childhood obesity remains undebatable (Banderali et al. 2015; Møller et al. 2014). Our findings indicate that the children of smoking parents have impaired dietary self-efficacy and might not experience the same recovery from obesity compared to the children of non-smoking parents.

The children of unemployed parents had lower DSES scores. A survey study conducted among 6113 children aged 10–12 years and their parents showed that children of unemployed parents were

more likely to underestimate their own weight status (Manios et al. 2015). A randomized control trial has shown that breastfeeding was less common in families with unemployed fathers, indicating an indirect link to childhood obesity (Reifsnider et al. 2018). Furthermore, a recent analysis of 10,011 Irish children presented that in families with either parent experiencing unemployment, the odds increase 8 percentage points for a child being classified as overweight or obese (Briody 2021).

Limitations

The study had several significant limitations. The study's design and the small number of participants were major limitations, and the patients registered to a single center were studied, so the sample size was minimal. Moreover, the data of the children were obtained from the parents, limiting the accuracy. The time between the paired reports was too small to present accurate results. In order to acquire better data, longer observation durations might yield more accurate findings since physical and psychological changes develop more frequently and stronger in children.

CONCLUSION

Although the opinion that parent-only obesity interventions yield better physical results once again has been supported in our study, an overall difference in dietary self-efficacy might not occur. Nevertheless, it seems that children of obese parents seeking treatment were more likely to be affected by relatively undesired or negative issues and expressions such as unemployment and smoking. The study showed that professionals attending nutritional improvement practices for children might achieve better results if the employment status and smoking issues of their obese parents were added to their agenda. The limited results of our study should be carefully interpreted and require more extensive research.

Conflict of Interest

Authors declare no conflict of interest regarding to this article.

Author Contributions

Plan, design: BMC, İK; **Material, methods and data collection:** İK; **Data analysis and comments:** BMC, İK; **Writing and corrections:** BMC, İK

Funding

This study did not receive any specific grant or funding.

REFERENCES

- AbuSabha, R., and C. Achterberg. 1997. 'Review of Self-Efficacy and Locus of Control for Nutrition- and Health-Related Behavior'. *Journal of the American Dietetic Association* 97 (10): 1122–32. [https://doi.org/10.1016/S0002-8223\(97\)00273-3](https://doi.org/10.1016/S0002-8223(97)00273-3).
- Aceves-Martins, M., C. Robertson, D. Cooper, A. Avenell, F. Stewart, P. Aveyard, M. Bruin, and the REBALANCE team. 2020. 'A Systematic Review of UK-based Long-term Nonsurgical Interventions for People with Severe Obesity (BMI ≥ 35 Kg m⁻²)'. *Journal of Human Nutrition and Dietetics* 33 (3): 351–72. <https://doi.org/10.1111/jhn.12732>.
- Bahreynian, Maryam, Mostafa Qorbani, Bita Moradi Khaniabadi, Mohammad Esmaeil Motlagh, Omid Safari, Hamid Asayesh, and Roya Kelishadi. 2017. 'Association between Obesity and Parental Weight Status in Children and Adolescents'. *Journal of Clinical Research in Pediatric Endocrinology* 9 (2): 111–17. <https://doi.org/10.4274/jcrpe.3790>.
- Banderali, G., A. Martelli, M. Landi, F. Moretti, F. Betti, G. Radaelli, C. Lassandro, and E. Verduci. 2015. 'Short and Long Term Health Effects of Parental Tobacco Smoking during Pregnancy and Lactation: A Descriptive Review'. *Journal of Translational Medicine* 13 (1): 327. <https://doi.org/10.1186/s12967-015-0690-y>.
- Briody, Jonathan. 2021. 'Parental Unemployment during the Great Recession and Childhood Adiposity'. *Social Science & Medicine* (1982) 275 (April): 113798. <https://doi.org/10.1016/j.socscimed.2021.113798>.
- Clark, M. M., D. B. Abrams, R. S. Niaura, C. A. Eaton, and J. S. Rossi. 1991. 'Self-Efficacy in Weight Management'. *Journal of Consulting and Clinical Psychology* 59 (5): 739–44. <https://doi.org/10.1037//0022-006x.59.5.739>.
- De Bourdeaudhuij, I., S. te Velde, J. Brug, P. Due, M. Wind, C. Sandvik, L. Maes, et al. 2008. 'Personal, Social and Environmental Predictors of Daily Fruit and Vegetable Intake in 11-Year-Old Children in Nine

- European Countries'. *European Journal of Clinical Nutrition* 62 (7): 834–41. <https://doi.org/10.1038/sj.ejcn.1602794>.
- Eldridge, Galen, Lynn Paul, Sandra J. Bailey, Carrie Benke Ashe, Jill Martz, and Wesley Lynch. 2016. 'Effects of Parent-Only Childhood Obesity Prevention Programs on BMIz and Body Image in Rural Preteens'. *Body Image* 16 (March): 143–53. <https://doi.org/10.1016/j.bodyim.2015.12.003>.
- Ewald, H., J. Kirby, K. Rees, and W. Robertson. 2014. 'Parent-Only Interventions in the Treatment of Childhood Obesity: A Systematic Review of Randomized Controlled Trials'. *Journal of Public Health (Oxford, England)* 36 (3): 476–89. <https://doi.org/10.1093/pubmed/fdt108>.
- Faith, Myles S., Linda Van Horn, Lawrence J. Appel, Lora E. Burke, Jo Ann S. Carson, Harold A. Franch, John M. Jakicic, et al. 2012. 'Evaluating Parents and Adult Caregivers as "Agents of Change" for Treating Obese Children: Evidence for Parent Behavior Change Strategies and Research Gaps: A Scientific Statement from the American Heart Association'. *Circulation* 125 (9): 1186–1207. <https://doi.org/10.1161/CIR.0b013e31824607ee>.
- Haines, Jess, Sheryl L. Rifas-Shiman, Nicholas J. Horton, Ken Kleinman, Katherine W. Bauer, Kirsten K. Davison, Kathryn Walton, S. Bryn Austin, Alison E. Field, and Matthew W. Gillman. 2016. 'Family Functioning and Quality of Parent-Adolescent Relationship: Cross-Sectional Associations with Adolescent Weight-Related Behaviors and Weight Status'. *The International Journal of Behavioral Nutrition and Physical Activity* 13 (June): 68. <https://doi.org/10.1186/s12966-016-0393-7>.
- Loveman, Emma, Lena Al-Khudairy, Rebecca E. Johnson, Wendy Robertson, Jill L. Colquitt, Emma L. Mead, Louisa J. Ells, Maria-Inti Metzendorf, and Karen Rees. 2015. 'Parent-Only Interventions for Childhood Overweight or Obesity in Children Aged 5 to 11 Years'. *The Cochrane Database of Systematic Reviews*, no. 12 (December): CD012008. <https://doi.org/10.1002/14651858.CD012008>.
- Manios, Yannis, George Moschonis, Kalliopi Karatzi, Odysseas Androutsos, Mai Chinapaw, Luis A. Moreno, Elling Bere, et al. 2015. 'Large Proportions of Overweight and Obese Children, as Well as Their Parents, Underestimate Children's Weight Status across Europe. The ENERGY (European Energy Balance Research to Prevent Excessive Weight Gain among Youth) Project'. *Public Health Nutrition* 18 (12): 2183–90. <https://doi.org/10.1017/S136898001400305X>.
- Martin, Corby K., Patrick Mahlen O'Neil, and Martin Binks. 2002. 'An Attempt to Identify Predictors of Treatment Outcome in Two Comprehensive Weight Loss Programs'. *Eating Behaviors* 3 (3): 239–48. [https://doi.org/10.1016/s1471-0153\(02\)00065-x](https://doi.org/10.1016/s1471-0153(02)00065-x).
- Møller, Susanne Eifer, Teresa Adeltøft Ajslev, Camilla Schou Andersen, Christine Dalgård, and Thorkild I. A. Sørensen. 2014. 'Risk of Childhood Overweight after Exposure to Tobacco Smoking in Prenatal and Early Postnatal Life'. Edited by Mohammad Ali. *PLoS ONE* 9 (10): e109184. <https://doi.org/10.1371/journal.pone.0109184>.
- Morgan, Philip J., Clare E. Collins, Ronald C. Plotnikoff, Robin Callister, Tracy Burrows, Richard Fletcher, Anthony D. Okely, et al. 2014. 'The "Healthy Dads, Healthy Kids" Community Randomized Controlled Trial: A Community-Based Healthy Lifestyle Program for Fathers and Their Children'. *Preventive Medicine* 61 (April): 90–99. <https://doi.org/10.1016/j.ypmed.2013.12.019>.
- Öztürk, M, and S Erdoğan. 2013. 'Interaction Model Of Client Health Behavior: A Guide To Determination Of Childrens' Diet Habits'. *E-Journal of Dokuz Eylul University Nursing Faculty* 6 (4): 218–23.
- Perry, C. L., D. E. Sellers, C. Johnson, S. Pedersen, K. J. Bachman, G. S. Parcel, E. J. Stone, et al. 1997. 'The Child and Adolescent Trial for Cardiovascular Health (CATCH): Intervention, Implementation, and Feasibility for Elementary Schools in the United States'. *Health Education & Behavior: The Official Publication of the Society for Public Health Education* 24 (6): 716–35. <https://doi.org/10.1177/109019819702400607>.
- Pona, Ashleigh A., Jordan A. Carlson, Robin P. Shook, Meredith L. Dreyer Gillette, and Ann M. Davis. 2019. 'Maternal BMI Change Linked to Child Activity Change in Family-Based Behavioral Interventions for Pediatric Weight Management'. *Childhood Obesity* 15 (6): 371–78. <https://doi.org/10.1089/chi.2018.0284>.
- Reifsnider, Elizabeth, David P. McCormick, Karen W. Cullen, Michael Todd, Michael W. Moramarco, Martina R. Gallagher, and Lucia Reyna. 2018. 'Randomized Controlled Trial to Prevent Infant Overweight in a High-Risk Population'. *Academic Pediatrics* 18 (3): 324–33. <https://doi.org/10.1016/j.acap.2017.12.007>.
- Rinderknecht, Kimberly, and Chery Smith. 2004. 'Social Cognitive Theory in an After-School Nutrition Intervention for Urban Native American Youth'. *Journal of Nutrition Education and Behavior* 36 (6): 298–304. [https://doi.org/10.1016/s1499-4046\(06\)60398-9](https://doi.org/10.1016/s1499-4046(06)60398-9).
- St George, Sara M., and Dawn K. Wilson. 2012. 'A Qualitative Study for Understanding Family and Peer Influences on Obesity-Related Health Behaviors in Low-Income African-American Adolescents'. *Childhood Obesity (Print)* 8 (5): 466–76. <https://doi.org/10.1089/chi.2011.0067>.
- Tuuri, Georgianna, Michael Zanovec, Linda Silverman, James Geaghan, Melinda Solmon, Denise Holston, Annrose Guarino, Heli Roy, and Ellen Murphy. 2009. "Smart Bodies" School Wellness Program

- Increased Children's Knowledge of Healthy Nutrition Practices and Self-Efficacy to Consume Fruit and Vegetables'. *Appetite* 52 (2): 445–51. <https://doi.org/10.1016/j.appet.2008.12.007>.
- White, Marney A., Pamela D. Martin, Robert L. Newton, Heather M. Walden, Emily E. York-Crowe, Stewart T. Gordon, Donna H. Ryan, and Donald A. Williamson. 2004. 'Mediators of Weight Loss in a Family-Based Intervention Presented over the Internet'. *Obesity Research* 12 (7): 1050–59. <https://doi.org/10.1038/oby.2004.132>.
- Wilson, Dawn K. 2015. 'Behavior Matters: The Relevance, Impact, and Reach of Behavioral Medicine'. *Annals of Behavioral Medicine: A Publication of the Society of Behavioral Medicine* 49 (1): 40–48. <https://doi.org/10.1007/s12160-014-9672-1>.