

Anti-psychotics, Weight Gain, and Children's Health: Making Informed Choices

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Acknowledgements

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Background

- One out of five children in the United States suffer a mental illness
- Most common occurring childhood mental illnesses:
 - ADHD, bipolar-spectrum disorders, MDD, Impulse control, autism related irritability, and disruptive behavior
- Complications if untreated
 - Lower academic achievement, criminal involvement, violent behavior, drug use, and poor social interactions
- Second Generation Antipsychotic (SGA) therapy is necessary to improve quality of life
- SGA therapy adverse effects
 - Metabolic and Cardiac problems
- Preventing weight gain may prevent complications

(CDC, 2018; Correll, et al., 2009; McIntyre, & Jerrell, 2008; Üçok & Gaebel, 2008; Vitiello et al., 2009)



Gap Analysis

- Gap identified by Edith Kanyongo as SGA related weight gain and weight related complications.
- Lack of knowledge and failure to take action by patients to prevent weight gain.
- Gap was identified by observation and root cause analysis through discussions with other providers.



Literature Review

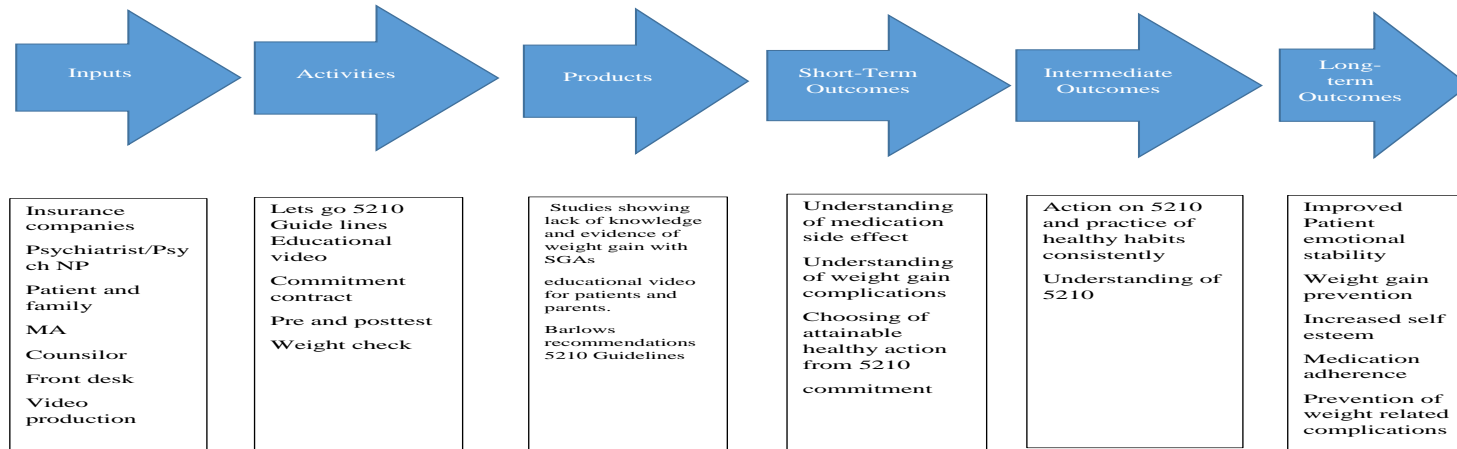
- Strong relationship between SGA use and metabolic effects
- Strong association between Metabolic effects and complications
 - DM, myocarditis, prolonged QTC interval,
- Strategies to manage SGA metabolic effects in children
 - Guidelines - Barlows & NIH
 - *Lets Go 5210* (Rogers & Motyka, 2009)
- Effective patient education—One of 3 main functions of a medical encounter
 - multifactorial, individualized
 - delivered in a variety of methods
 - Use of videos and leaflets supported by multiple studies

(Abed et al., 2014; Krouse, 2001; Barlows, 2007; NIH, 2018; Polascek et al., 2014; Correll, et al., 2009; McIntyre & Jerrell, 2008; Rogers & Motyka, 2009)



Framework: Logic Model + Health Belief Model

Managing Second Generation Antipsychotic Related Weight gain in children -- Logic Model



Logic Model – Project Change	Health Belief Model – 5210 Education
Inputs - Provider, Patient, video	Perceived susceptibility - SGA related weight gain
Activities - <i>Lets go 5210</i>	Perceived severity –Obesity, cardiac problems
Products - Guidelines, video production	Perceived benefit –prevent complications
Short term outcomes -Knowledge	Perceived barriers -lack of family support, financial
Intermediate outcomes - Taking action on 5210 choice	Cues to action - awareness, weight gain, support from provider
Long-term outcomes - Weight gain and complication prevention	Self-efficacy -confidence, taking action, social support

(Hochbaum, Rosenstock & Kegels, 1952; Weiss, 1972)

Inquiry Question

In mentally ill children aged 8 to 18 receiving SGA therapy, will an educational video on SGA side effects and use of the *Let's Go 5210* (Rogers & Motyka, 2009) recommendations increase awareness and help promote action to prevent weight gain compared to usual care?



Methods and Procedures

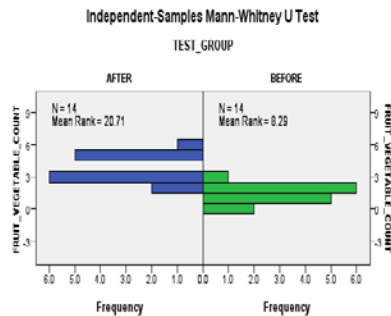
- **Design:** Quasi experimental one group pre and post-test comparison design
- **Population and Sampling.** Convenience sampling
 - **Inclusion criteria –**
 - Ages 8-18 years old on SGA therapy- current or new patients
 - **Exclusion criteria-**
 - Children with eating disorders, severe Intellectual disability, or those unable to learn
 - **Setting.** Outpatient mental health community clinic
 - **Data collection period.** Collected over 12 weeks
 - Visit 1: Weight, questionnaire, 5210 video, prescription
 - <https://drive.google.com/file/d/0ByZXUZolUPO6S2EzNHlmbmpPakE/view>
 - Visit 2: Reminders
 - Visit 3: Weight, questionnaire
- **Privacy and Confidentiality.**
 - IRB approval from both UTA and MHMR clinic.
 - Consent, assent and HIPPA forms signed
 - All information was protected as regulated by HIPPA



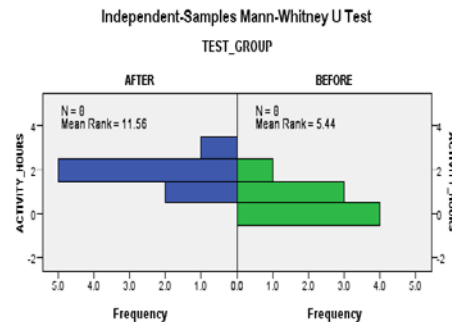
Data Analysis/Results

The Mann-Whitney U test - SPSS

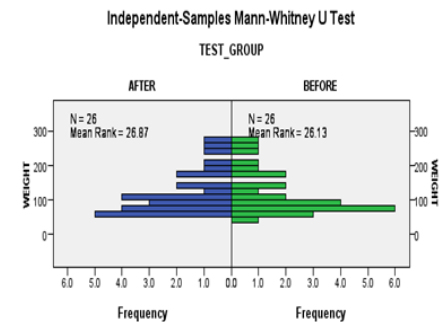
- The level of significance set at 95%
- Age : mean (F) 11.61 & (M) 11.63 , Gender: (M) 18 (F) 8; Race (H 38.5%; AA 38.5%; W23.1%)
- 5210: F&V -14; Physical Activity -8; Screen time-2; Zero sugary -2



Total N	28
Mann-Whitney U	185.000
Wilcoxon W	230.000
Test Statistic	185.000
Standard Error	21.218
Standardized Test Statistic	4.100
Asymptotic Sig. (2-sided test)	.000
Exact Sig. (2-sided test)	.000



Total N	16
Mann-Whitney U	56.500
Wilcoxon W	92.600
Test Statistic	56.500
Standard Error	9.055
Standardized Test Statistic	2.706
Asymptotic Sig. (2-sided test)	.007
Exact Sig. (2-sided test)	.007



Total N	52
Mann-Whitney U	347.500
Wilcoxon W	688.500
Test Statistic	347.500
Standard Error	54.638
Standardized Test Statistic	.174
Asymptotic Sig. (2-sided test)	.862

- No significant difference in zero sugary drinks and screen time



Discussion

- The results showed that giving an extra piece of education on SGA related weight gain is beneficial to clients.
- Parents and/or guardians were very appreciative of the extra education given outside the medication management visit.
- No significant differences in demographics
- Majority chose fruits/vegetables and physical activities vs screen time and zero sugary drinks
- Overall there was no significant weight difference between the pre and post-test groups.



Limitations

- Small sample size
- Missing appointments
- Unmedicated ADHD children
- SGA and stimulant therapy augmentation
- Lack of equal distribution of 5210 actions
- Different pre and post weight times



Implications

- Patients need knowledge and encouragement to take action in preventing weight gain.
- Children and adolescents enjoyed being involved in the decision making on 5210 action choices.
- Providers should spare time to teach their patients or offer them to watch a short video to bring awareness and promote action to prevent weight gain.
- Agencies should enforce providers to educate patients on weight gain prevention.
- 5210 video can be used for individuals or groups.
- It can be administered by MAs, Nurses, or Doctors.



Conclusion

- Healthcare providers need to educate and encourage patients to prevent SGA related weight gain.
- At least 2 of the *Let's go 5210* (Rogers & Motyka, 2009) healthy habits are effective ways of preventing weight gain.
- Physical activity and fruits/vegetables were more favorable to children than limited screen time and zero sugary drinks
- Involving children in decision making promote positive outcomes.



References

- Barlow, S. (2007). Expert Committee recommendations regarding the prevention, assessment, and treatment of child and adolescent overweight and obesity: summary report. *Pediatrics*, *120*(S164-92), 1p.
- Brown, M. T., & Bussell, J. K. (2011, April). Medication adherence: WHO cares?. In *Mayo Clinic Proceedings* (Vol. 86, No. 4, pp. 304-314). Elsevier.
- Centers of Disease Control and Prevention, (2018). Health effects of childhood obesity. Retrieved from: <http://www.cdc.gov/>
- Correll, C. U., Manu, P., Olshanskiy, V., Napolitano, B., Kane, J. M., & Malhotra, A. K. (2009). Cardiometabolic risk of second-generation antipsychotic medications during first-time use in children and adolescents. *Jama*, *302*(16), 1765-1773. doi:10.1001/jama.2009.1549.
- Crane, J. A. (1997). Patient comprehension of doctor-patient communication on discharge from the emergency department. *The Journal of emergency medicine*, *15*(1), 1-7.
- Engel, K. G., Heisler, M., Smith, D. M., Robinson, C. H., Forman, J. H., & Ubel, P. A. (2009). Patient comprehension of emergency department care and instructions: are patients aware of when they do not understand?. *Annals of emergency medicine*, *53*(4), 454-461.
- Hochbaum, G., Rosenstock, I., & Kegels, S. (1952). Health belief model. *United States Public Health Service*.
- Kessels, R. P. (2003). Patients' memory for medical information. *Journal of the Royal Society of Medicine*, *96*(5), 219-222.
- McIntyre, R. S., & Jerrell, J. M. (2008). Metabolic and cardiovascular adverse events associated with antipsychotic treatment in children and adolescents. *Archives of pediatrics & adolescent medicine*, *162*(10), 929-935. doi:10.1001/jama.297.24.2697.
- National Institute of Health, (2015). Aim for a health weight: Key recommendations. Retrieved from: <http://www.nhlbi.nih.gov/>
- Polacsek, M., Orr, J., O'Brien, L. M., Rogers, V. W., Fanburg, J., & Gortmaker, S. L. (2014). Sustainability of Key Maine Youth Overweight Collaborative Improvements: A Follow-Up Study. *Childhood Obesity*, *10*(4), 326-333. doi:10.1089/chi.2014.0036.
- Reekie, J., Hosking, S. P. M., Prakash, C., Kao, K. -, Juonala, M., & Sabin, M. A. (2015). The effect of antidepressants and antipsychotics on weight gain in children and adolescents. *Obesity Reviews*, *16*(7), 566-580. doi:10.1111/obr.12284
- Rogers, V. W., & Motyka, E. (2009). 5-2-1-0 goes to school: A pilot project testing the feasibility of schools adopting and delivering healthy messages during the school day. *Pediatrics*, *123*(Supplement), S272-S276. doi:10.1542/peds.2008-2780E
- Roter, D. L. (2000). The outpatient medical encounter and elderly patients. *Clinics in geriatric medicine*, *16*(1), 95-107.
- Uçok, A., & Gaebel, W. (2008). Side effects of atypical antipsychotics: A brief overview. *World Psychiatry : Official Journal of the World Psychiatric Association (WPA)*, *7*(1), 58-62. doi:10.1002/j.2051-5545.2008.tb00154.x
- Vitiello, B., Correll, C., van Zwieten-Boot, B., Zuddas, A., Parellada, M., & Arango, C. (2009). Antipsychotics in children and adolescents: increasing use, evidence for efficacy and safety concerns. *European Neuropsychopharmacology*, *19*(9), 629-635. doi:10.1016/j.euroneuro.2009.04.008
- Weiss, C. H. (1972). *Evaluation research: Methods for assessing program effectiveness*. Englewood Cliffs, N.J: Prentice-Hall.