SWIHDR's Student Brown Bag Seminar:

Assessing the Effect of COVID-19 on the Physical Activity of Elementary School-Aged Children in Columbus, NM

JUAN CARLOS PADILLA

MASTER OF PUBLIC HEALTH STUDENT

NM STATE

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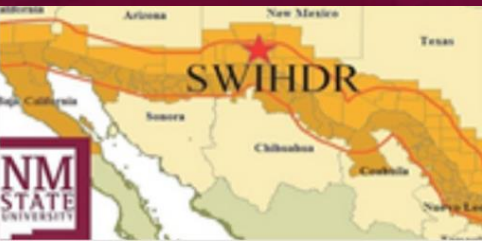


The Importance of Physical Activity

- Physical activity is one of the most important behaviors for good health[1]
- Physical activity is particularly important for children[2, 3]
- The Physical Activity Guidelines for Americans (2nd edition) **recommend that youth ages 6-17 engage in 60 minutes or more of moderate-to-vigorous physical activity every day.**[4]
- Many youth are not meeting the physical activity guidelines, especially Hispanic youth[5]

The Importance of Physical Activity (cont.)

- Approximately 25% of American youth ages 6-17 meet the guidelines[6, 7]
- In 2019, 23.9% of high school students in Luna County met the physical activity guidelines[8]
- Factors associated with child PA guideline adherence:[9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21]
  - Parental and child perceptions of the neighborhood environment
  - Neighborhood crime and safety
  - Parental factors, such as parental support
  - Seasonality (time of year)
  - Socioeconomic status
  - Rurality
  - **COVID-19?**

Purpose

- Determine the effect of COVID-19, if any, on the physical activity of elementary school-aged children in Columbus, NM.

- Determine which demographic factors, household characteristics, and household norms are associated with a change in PA among elementary school children in Columbus before and after the emergence of COVID-19.

Methods

Study Setting

- Columbus, New Mexico[22]
  - Located in Luna County
  - Population size in 2020: 1,599
  - Median age: 31.9, **44.1 in 2018**
  - Foreign-born residents: 40%
  - Non-U.S. citizens: 34.7%
    - All non-citizens originate from Latin America

Study Setting (cont.)

Study Setting (cont.)

Sample Population

- Sample population: Columbus Elementary School students **residing in Columbus.**
  - Population size: 121 children
- Survey respondents: parents/guardians of Columbus Elementary School students
- Online survey administered through Qualtrics

Collaborating Partners

- **Columbus Elementary School administrators and teachers assisted with survey distribution.**

- Permission provided by the Deming Public Schools District

- Received approval from NMSU's IRB on November 2020

Recruitment

- Teachers were tasked with sending an initial invitation to participate in the study to parents/guardians of their students residing in Columbus.

- Teachers sent a survey link to parents/guardians who gave them permission to do so.

Survey methodology

- Survey created using:
  - Godin-Leisure Time Exercise Questionnaire (GLTEQ)
  - Physical Activity Question in the National Survey on Children's Health (NSCH)

- GLTEQ:[23, 24, 25]
  - 3-item instrument measuring 15-minute sessions of vigorous, moderate, and light physical activity

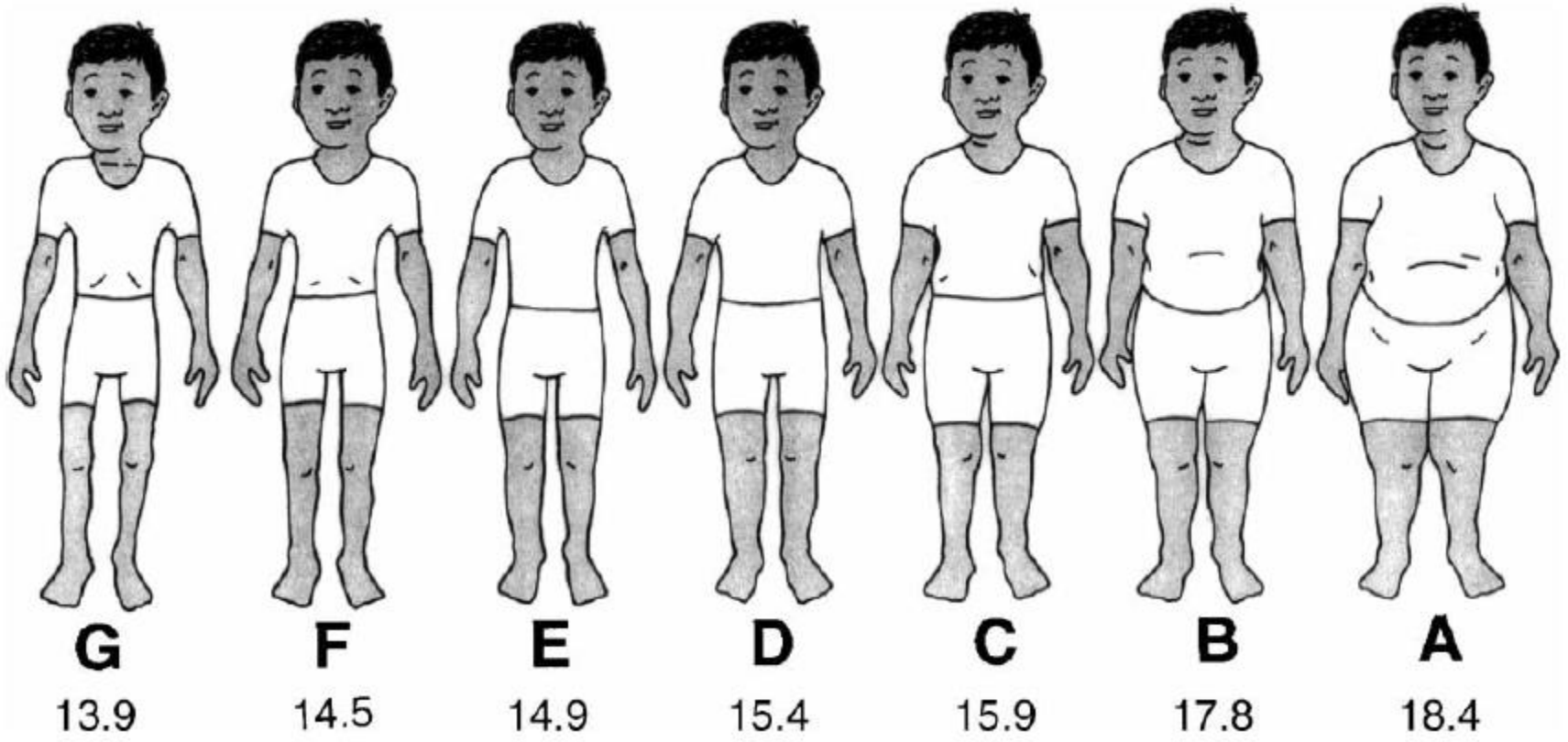
- NSCH Question:[26]
  - Directly measures adherence to the PA guidelines: number of days per week that children are active for at least 60 minutes

Study variables

- PA variables:
  - GLTEQ items
  - NSCH Question
  - Daily screen time use*
  - **Provided as a set of questions for summer 2019 and summer 2020**
  - Additional PA questions: respondent perception of change in their children's PA from summer 2019 to summer 2020 AND the perceived reason for the change

- Household norms and demographic variables
  - Adapted from the Salud Para Usted Y Su Familia (SPUSF study)[27]

Study variables (cont.)



Study analysis (cont.)

- GLTEQ items:
  - Session of strenuous exercise = 9
  - Session of moderate exercise = 5
  - Session of light/mild exercise = 3
  - **Total weekly leisure activity score is calculated by adding the total for each type of exercise**
  - Example: 1 strenuous session, 2 moderate sessions, 3 mild sessions (1 x 9, 2 x 5, 3 x 3 = 9 + 10 + 9 = 28)

- Total weekly leisure activity scores are classified under the Godin Scale Score:
  - Score of >24: **Active**
  - Score of 14-23: **Moderately Active**
  - Score of <13: **Insufficiently Active/Sedentary**

Study analysis

- Descriptive statistics calculated for all variables
- Paired t-tests: **mean Godin Scale Score, mean days per week being active for at least 60 minutes, mean daily screen time use.**
- Mcnemar tests: **% classified as “active” in the Godin Scale Score, % classified as “insufficiently active” in the Godin Scale Score, % of children who met the PA guidelines**
- Currently in progress: Mixed Effect Model
- Analyses were conducted using IBM SPSS Statistics Gradpack 27.0

Results

Survey Information/Demographics

- 59 respondents completed the survey
  - **Provided information for 87 children**

	N	%
Survey Language		
English	24	40.7
Spanish	**35**	**59.3**
Consent		
I agree to participate	55	93.2
Relationship to Children		
Mother	**53**	**96.4**

- 96.4% (53) respondents were mothers
- 55.4% of children were boys
- Primary language was Spanish for more than 80% of respondents and children
- 96% of children were born in the United States; 60% of respondents were born in Mexico

Demographics

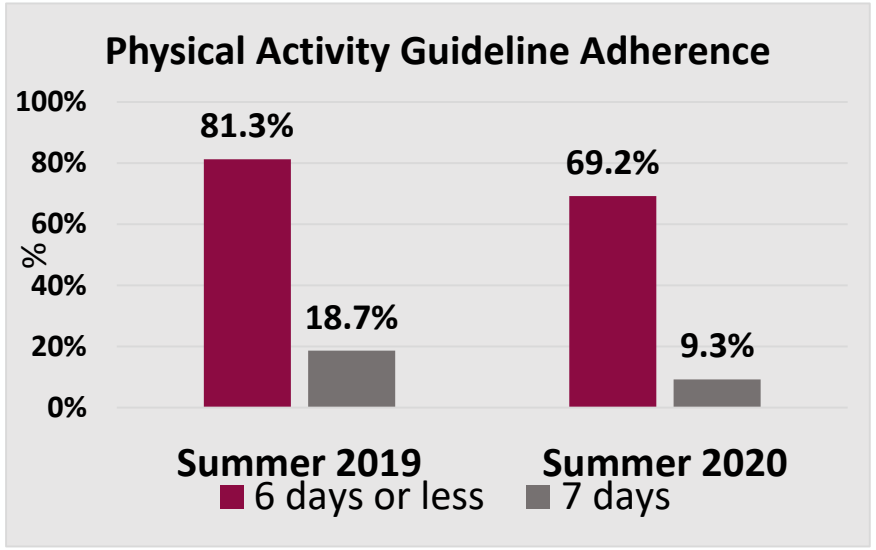
- 61% of respondents were overweight or obese
- 67.9% of respondents had a high school education or less
- 76% of respondents had a household income of $30,000 or less
- Respondent mean age: 32.7 (6.1)
- Child mean age: 7.7 (2.0)
- Mean household size: 4.5 (1.3)

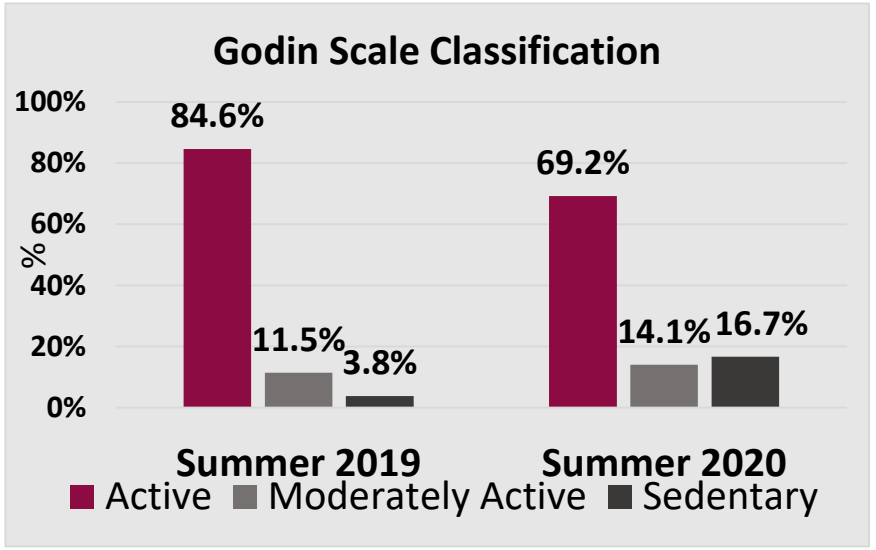
Household Norms

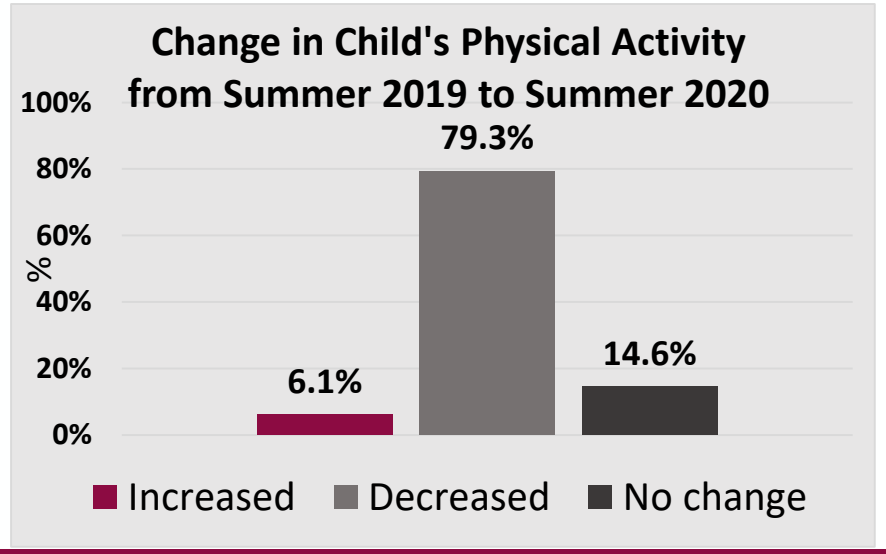
	Household Norms									
%	H1	H2	H3	H5	H6	H7	H8	H9	H10	H12
Yes	14.8	94.4	47.2	43.6	68.5	68.5	92.5	50	29.1	25.5
No	85.2	5.6	52.8	56.4	31.5	31.5	7.5	50	70.9	74.5

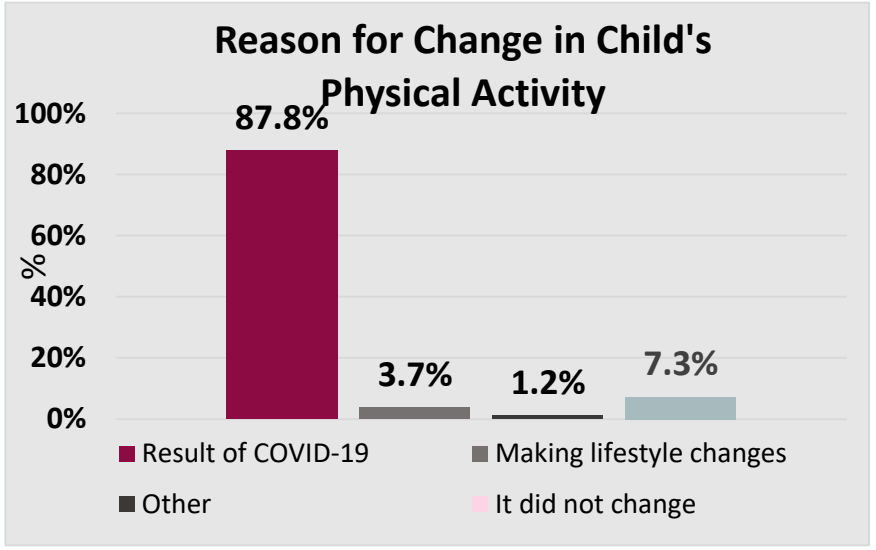
	Household Norms	
%	H4	H11
Never	7.3	0
1-2	27.3	0
2-3	50.9	18.2
>3	14.5	81.8

- See appendix for more information on household norms


Physical Activity Guideline Adherence
100%
80%
60%
40%
20%
0%
%
81.3%
18.7%
69.2%
9.3%
Summer 2019
Summer 2020
6 days or less
7 days


Godin Scale Classification
100%
80%
60%
40%
20%
0%
%
84.6%
11.5%
3.8%
69.2%
14.1%
16.7%
Summer 2019
Summer 2020
Active
Moderately Active
Sedentary


Change in Child's Physical Activity from Summer 2019 to Summer 2020
100%
80%
60%
40%
20%
0%
%
6.1%
79.3%
14.6%
Increased
Decreased
No change


Reason for Change in Child's Physical Activity
100%
80%
60%
40%
20%
0%
%
87.8%
3.7%
1.2%
7.3%
Result of COVID-19
Making lifestyle changes
Other
It did not change

Changes in Outcome Variables (cont.)

Measure	**Summer 2019 COVID-19 Mean (sd)**	**Summer 2020 COVID-19 Mean (sd)**	**Mean change**	***T***	***p***	***Cohen's D***
Godin Scale Score	66.86 (32.42)	46.52 (47.33)	-20.34	-3.57	**<.001**	**-.41**
Active 60 min./day	4.00 (2.26)	2.89 (2.32)	-1.11	-3.58	**<.001**	**-.42**
Daily Screen Time Use	3.22 (2.79)	4.92 (2.58)	1.71	6.36	**<.001**	**.72**
	%	**%**	**Mean change**		***p***	
Classified as "Active" in Godin Scale	84.6	69.2	-15.4		**.017**	
Classified as "Inactive" in Godin Scale	3.8	16.7	12.9		**.006**	
Met physical activity guidelines (60>min./day/week)	18.7	9.3	-9.4		.070	

Discussion

Early Conclusions

- **Statistically significant decrease in the parent-reported PA of elementary school-aged children living in Columbus from summer 2019 to summer 2020.**

- Factors associated with a change in PA? Stay tuned!

Early Conclusions

- Strengths?
- Weaknesses?
- Next steps beyond the thesis:
  - Exploring the impact that a reduction in physical activity among children may have on youth risk factors
  - Exploring PA patterns as COVID-19 pandemic becomes more manageable
  - Comparing rural and urban communities on the effect that COVID-19 has caused on children's PA levels

Thank you!

For a more thorough discussion of the thesis' results, attend the thesis defense later this semester! Date to be announced…

Contact Information

Juan Carlos Padilla

jc26pm@nmsu.edu

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Appendix

Household Norms	Question #
When your child misbehaves, do you ever take away his/her outdoor play time? (n=54)	1
When your child misbehaves, do you ever take away his/her electronics? (n=54)	2
Does it ever seem the only way to keep your child entertained is to encourage his/her use of TV, tablet, video games, or other electronics? (n=53)	3
How many times a week does your family do active things together? (n=55)	4
Is it hard for you to find time to play outside with your child? (n=55)	5
Are there places close by for your child to be physically active? (n=54)	6
Is it safe for your child to be physically active outdoors? (n=54)	7
If you're physically active, is it more likely for your child to also be active? (n=53)	8
Is the TV on when your child eats? (n=54)	9
When eating together as a family, is there anyone who uses electronics? (n=55)	10
During a normal week, how often does your family eat a meal together? (n=55)	11
Since March, is there anyone in your family who has shown COVID-19 symptoms? (n=55)	12

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