

Associations of active
transportation between
childhood and adulthood
(CADET)

DANIEL WINSLOW

Master of Public Health (MPH) Thesis Defense

Thesis Committee:

Gina Besenyi MPH, Ph.D. (Major Professor)

Katie Heinrich Ph.D.

Emily Mailey Ph.D.

Funding for APE provided by Kansas Health Foundation

April 13th, 2020.



Why?

Physical inactivity is a public health issue (WHO, 2016)

27.5% of individuals are insufficiently active (WHO, 2016)

Possible solution: Active Transportation promotion during childhood

Active transportation is any self-propelled, human-powered mode of transportation, such as walking or bicycling. (CDC, n.d.)

Not enough children (age <18 years) use AT (Gordon-Larsen, Nelson & Beam, 2005)

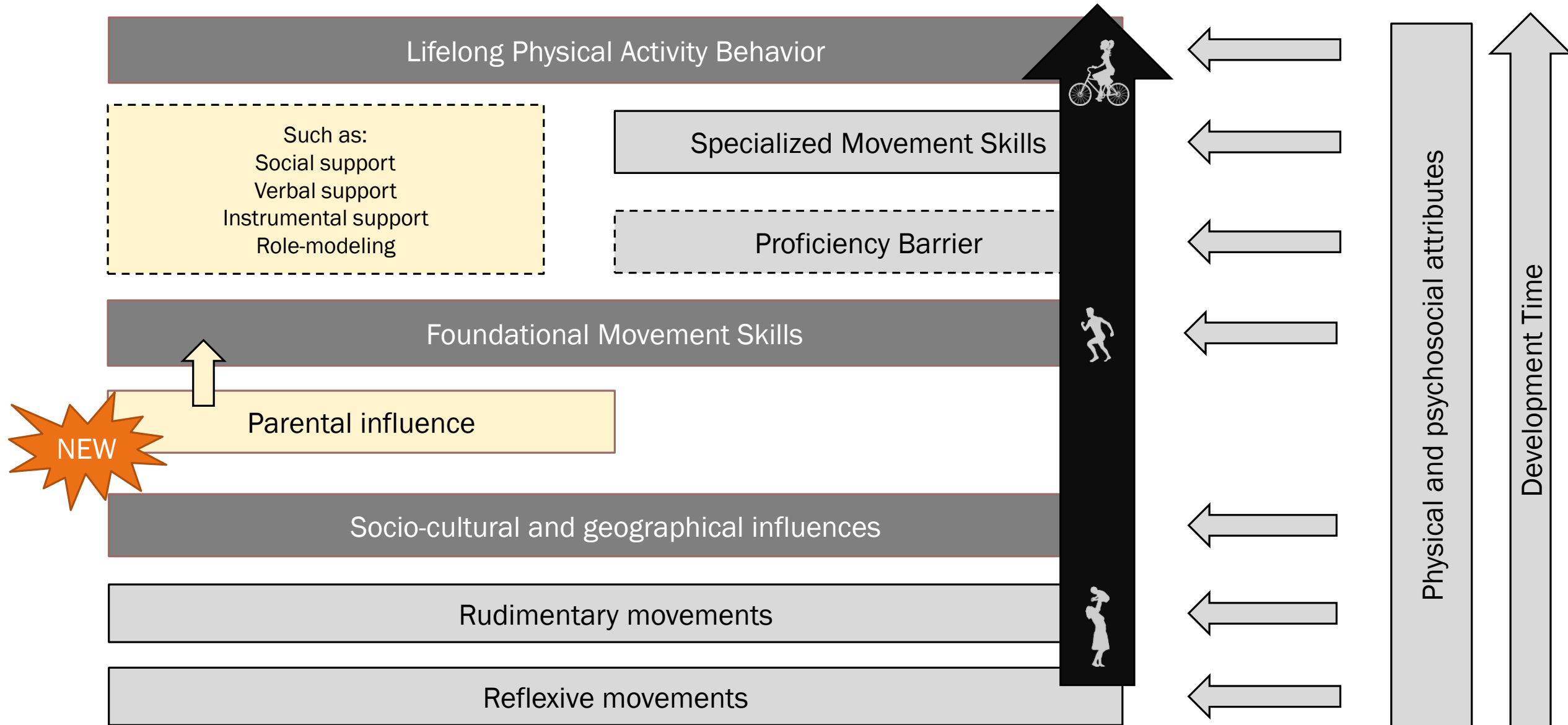
But does it work?

AT helps increase PA levels (Gordon-Larsen, Nelson & Beam, 2005, Heela, et al., 2005, Carver et al., 2011, Yang, et al., 2014, Bopp, Bopp & Schuchert, 2015)

Parents and neighborhood environment may affect child AT (Panter, Jones & van Sluijs, 2008, Giles-Corti, et al., 2009, Van Kann et al., 2016)

Child AT behavior persists over time (Carver et al., 2011, Yang, et al., 2014)

Lifelong Physical Activity Model



Parental influence

- Parental support influences child PA through increased self-efficacy (Wing, 2015)
- Self-efficacy to support and parent interaction associated with child PA (Adkins et al., 2004, Zerger et al., 2016)
- Parental support and role-modeling may increase AT competence and behavior (Welk, Wood & Morss, 2003, Van Kann et al., 2016)

Active Transportation

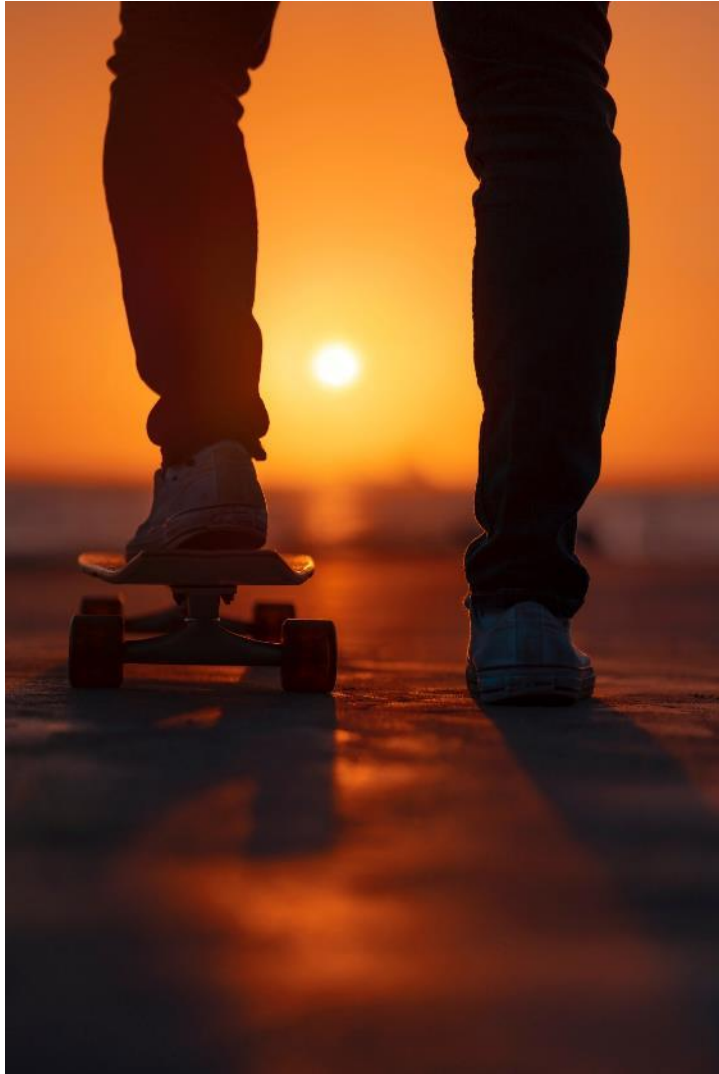
Child **and** parent perception of safety influences child AT (Fulton et al., 2005, Kerr et al., 2006, Forman et al., 2008, Giles-Corti, 2009, Carver et al., 2010, Van Loon, et al., 2014, Côté-Lussier, Mathieu, & Barnett, 2015)



Lifelong Physical Activity Behavior

Develop through practice, parental influence
(Telema, 2009, Trudeau, Laurencelle & Shephard, 2004,
Panter, Jones, & Van Sluijs, 2008, Yang et al., 2014)

Persist over time (Anderssen et al., 1996, Malina,
2001, Carver et al., 2011, Itoh et al., 2017, Hulteen et al.,
2018)



Gaps in the literature

Understand parental influence [on AT]
(Malina, 2001)

Study neighborhood environment role on AT (Panter, Jones, & Van Sluijs, 2008)

Investigate association between child and adult AT (Yang et al., 2014)

Purpose

INVESTIGATE FACTORS FOR
ACTIVE TRANSPORTATION
BEHAVIOR TRACKING
ACROSS THE LIFESPAN



Research Questions & Hypotheses

RQ 1: Does parental support influence child AT?

- Recalled parental support behavior for AT → Child AT more likely

RQ 2: Does parent role modeling influence child AT?

- Recalled parental role-modeling for AT → Child AT more likely

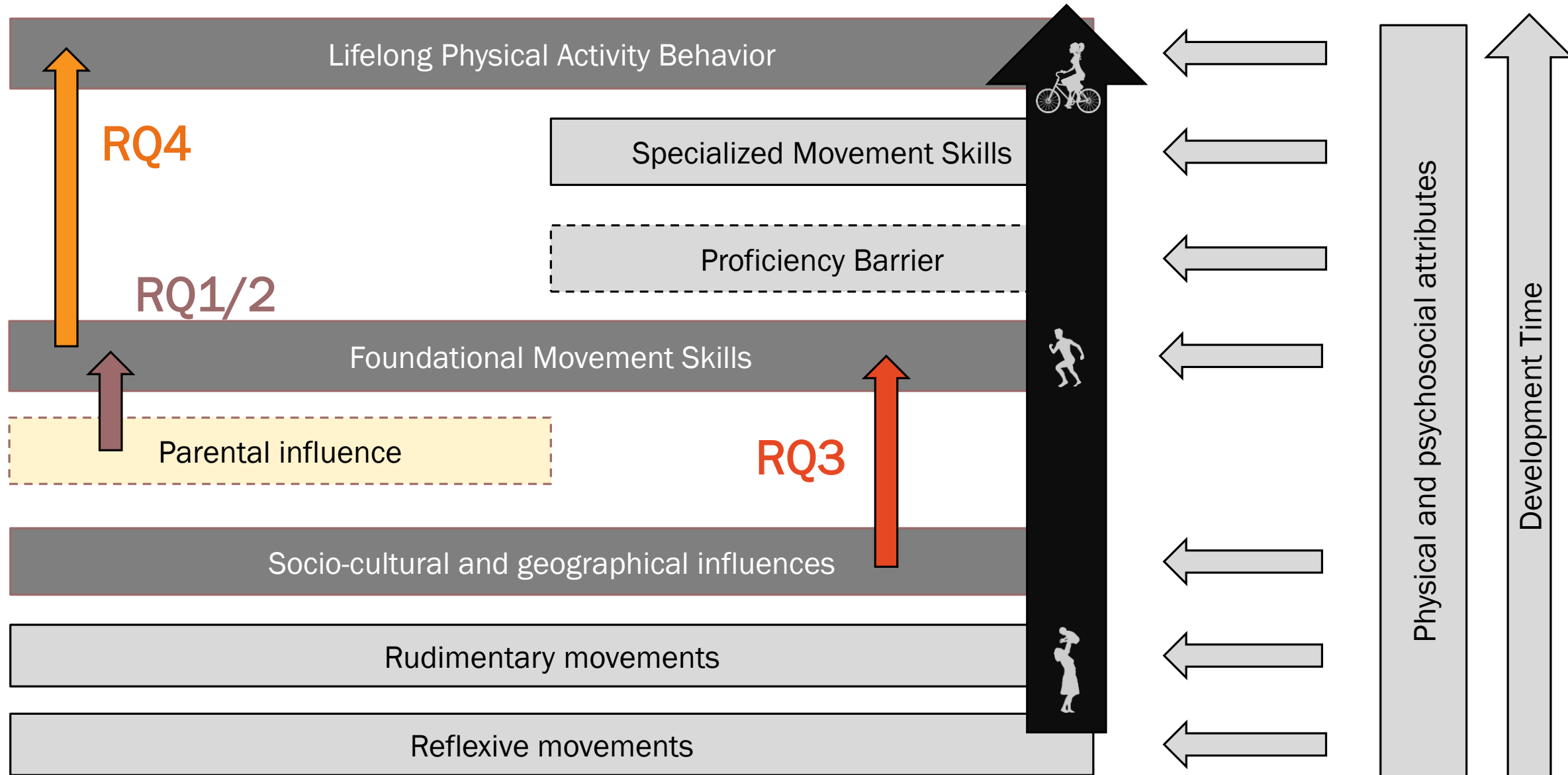
RQ 3: Does the child neighborhood environment influence child AT?

- Recalled supportive neighborhood for PA → Child AT more likely

RQ 4: Does child AT influence adult AT?

- Recalled child AT → Adult AT more likely

Lifelong Physical Activity Model



Method

Cross-sectional online survey (20 min)

○Data collected Spring 2020

○Adults (18yrs+) recruited via emails, flyers, snowball sampling

○Recalled childhood AT behavior and parental/environmental influences

○Captured adult AT, PA, and demographics

Parental Influence

Recall of perceived parental influence in childhood

Recall questions were led with:

Thinking about the time and place that had the most influence on your active transportation behavior as a child (<18 years):

Parent Questions:

Q3.2 Do you recall your parents talking with you about the **benefits of physical activity**?

Q3.3 Do you recall your parents **encouraging you to be more physically active**?

Q3.4 Do you recall your parents **asking if your friends were physically active**?

Q3.5 Do you recall your parents **talking about the health risks of NOT being physically active**?

Q3.6 Do you recall your parents **role-modeling active transportation** behavior to you?

Q3.7 Did your parents enable you to participate in active transportation by **providing equipment** (such as a bicycle, tennis shoes, skateboard, etc.)?

PANES

Modified Physical Activity Neighborhood Environment Survey (PANES) (Sallis et al., 2010)

Assesses environmental properties through a 5-point scale

Modified for recall

Basis for categories of environment quality for PA

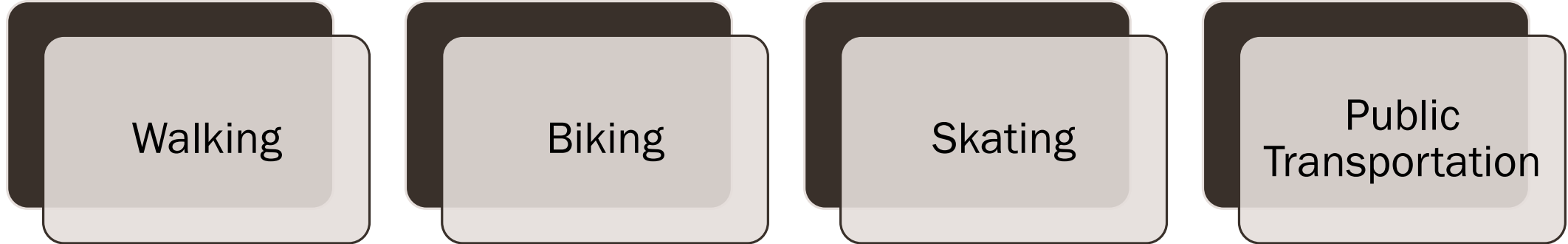
Categories made from ranges:

- <2 low PA environment
- 2-<3 moderate PA environment
- 3-<3.5 high PA environment
- 3.5-4 very high PA environment

Recalled child AT and adult AT

Measured in recall and current behavior

Asks about activity in four types:



Asks about behavior frequency and typical destinations
For analysis, dichotomized AT participation to yes/no



Analyses

Binomial logistic regression analyses, SPSS 26
(Armonk, NY)

RQ	Independent	Dependent
1	Parental Support (y/n)	Child AT* (y/n)
2	Parental Role-Modeling (y/n)	Child AT* (y/n)
3	Child Neighborhood (low medium, high, very high)	Child AT*
4	Child AT* (y/n)	Adult AT,* PA (y/n)

*Analyses included overall and mode-specific AT

Sample Characteristics

Excluded participants with
<10% survey completion

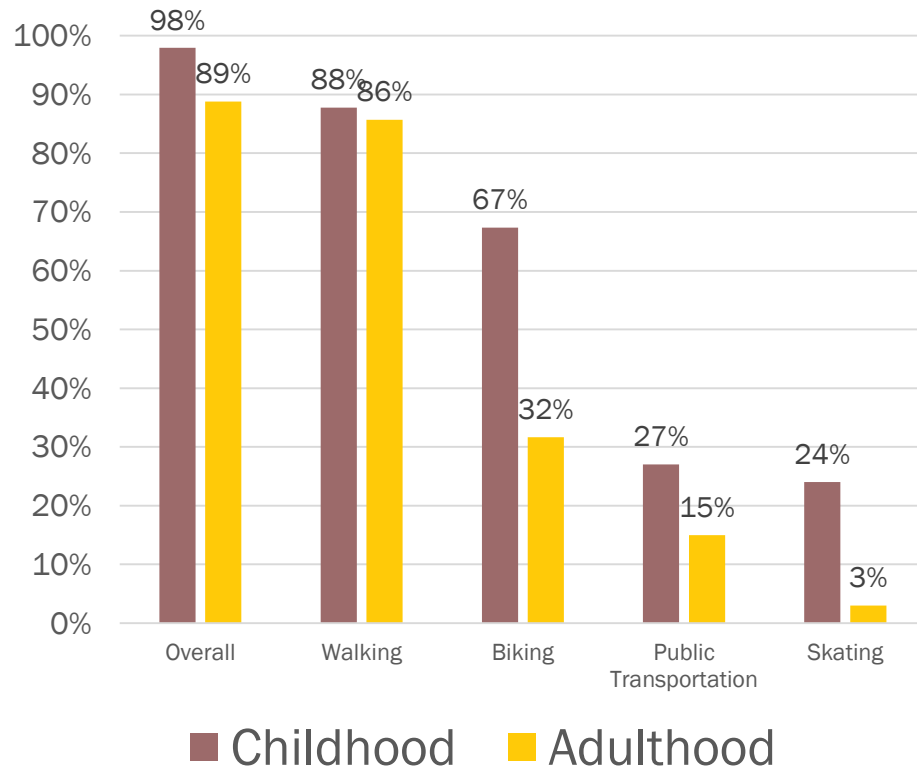
n = 98

Age range: 18-58

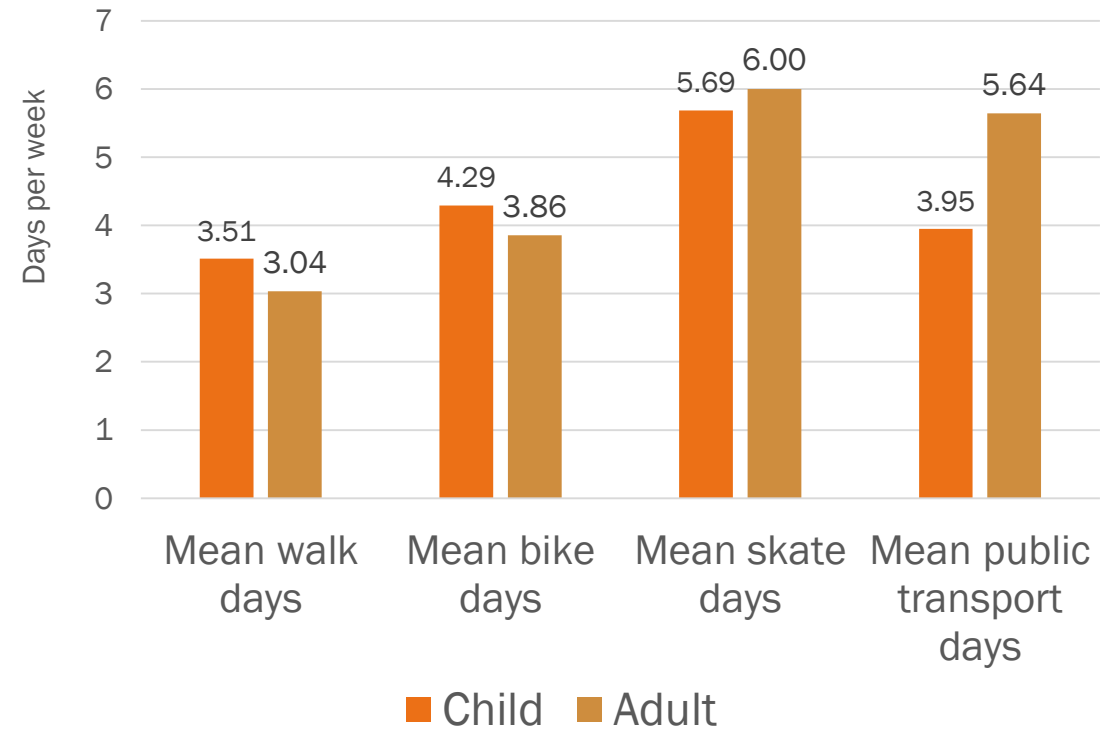
Gender	n	%	M	SD
Male	24	28.2	-	-
Female	61	70.9	-	-
Age	82	-	26	8.9
Education				
High school graduate	6	7.0	-	-
Some college	28	32.6	-	-
2-year degree	12	14.0	-	-
4-year degree	18	20.9	-	-
Graduate degree	22	25.6	-	-
Race				
Asian	8	9.4	-	-
Black/African American	6	7.1	-	-
White	71	83.5	-	-
Descriptive Statistics				
Height (in m)	82	-	1.7	0.24
Weight (in kg)	83	-	69.9	14.2
MVPA/wk (in min)	87	-	464	416
BMI	82	-	24.1	4.4

Characteristics

Active Transportation
Participation by Age

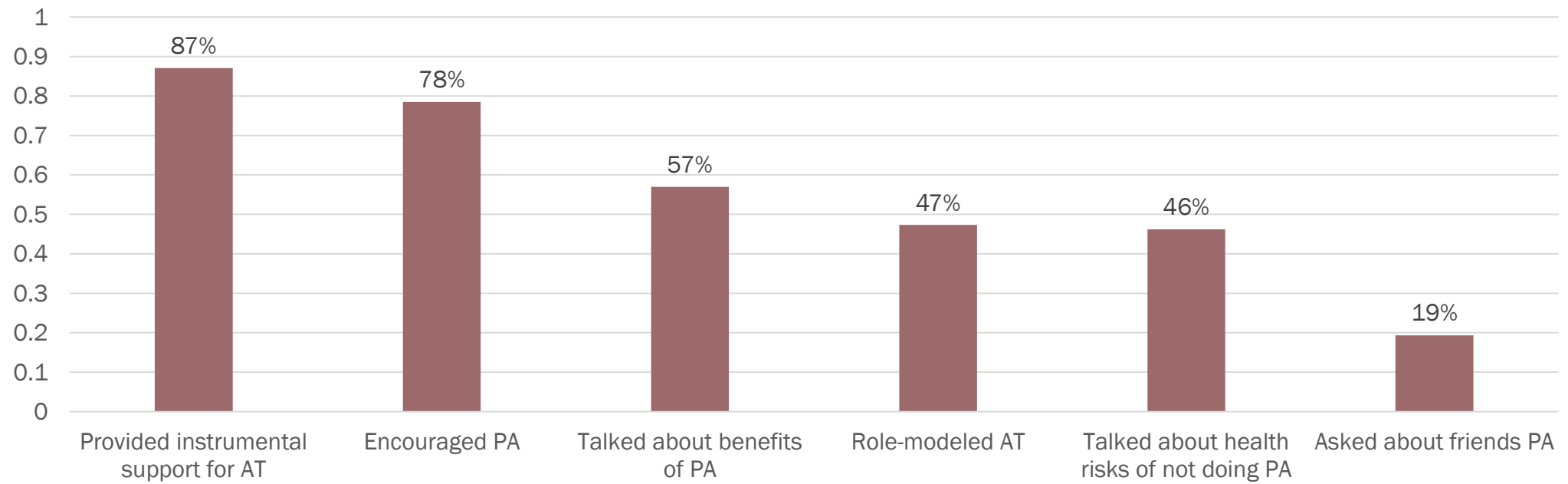


Mean days per week with AT



Age	AT Type	Home	School	Work	Park	Home of a friend	Gym	Shops	Library	Community center	Church	Playground
Child	Walking	48	57	3	40	47	5	32	16	5	8	44
	Biking	34	26	5	41	42	7	20	9	3	5	32
	Skating	10	1	0	13	14	0	1	0	0	0	10
	Public Transportation	10	17	2	2	6	1	6	4	1	0	0
Adult	Walking	47	63	29	18	14	20	25	22	1	4	11
	Biking	20	19	14	7	9	6	12	7	3	3	4
	Skating	3	1	1	0	1	1	1	0	0	0	0
	Public Transportation	7	7	4	1	2	1	6	2	1	0	0

Top destinations for
each mode of activity



Parental Influence

RQ 1: Does parental support influence child AT?

Parental association with child walking	Odds Ratio	Sig.	C.I. (95% Exp(B))	
			Lower	Upper
Benefits of PA Talk	0.39	0.40	0.04	3.57
Promote PA Talk	7.42	0.14	0.53	104.05
Display Interest in child PA	4.71	0.28	0.28	79.08
Health Risks of no PA Talk	0.20	0.23	0.02	2.73
Instrumental Support	0.30	0.27	0.03	2.55
Gender	0.98	0.98	0.15	6.24

Parental association with child biking	Odds Ratio	Sig.	C.I. (95% Exp(B))	
			Lower	Upper
Benefits of PA Talk	0.44	0.37	0.07	2.68
Promote PA Talk	2.13	0.42	0.34	13.12
Display Interest in child PA	1.10	0.92	0.19	6.41
Health Risks of no PA Talk	1.62	0.59	0.28	9.19
Instrumental Support	0.13	0.02	0.02	0.75
Gender	0.89	0.86	0.23	3.43

RQ 1: Does parental support influence child AT?

Parental association with child skating	Odds Ratio	Sig.	C.I. (95% Exp(B))	
			Lower	Upper
Benefits of PA Talk	1.01	0.99	0.17	6.18
Promote PA Talk	0.82	0.84	0.13	5.25
Display Interest in child PA	0.34	0.23	0.06	2.03
Health Risks of no PA Talk	1.08	0.93	0.20	5.90
Instrumental Support	0.62	0.62	0.09	4.22
Gender	3.78	0.11	0.74	19.41

Parental association with child public transp.	Odds Ratio	Sig.	C.I. (95% Exp(B))	
			Lower	Upper
Benefits of PA Talk	0.22	0.16	0.03	1.79
Promote PA Talk	0.38	0.44	0.03	4.44
Display Interest in child PA	0.65	0.66	0.10	4.40
Health Risks of no PA Talk	4.23	0.15	0.58	30.80
Instrumental Support	0.64	0.73	0.05	8.32
Gender	8.47	0.06	0.89	80.74

RQ 2: Does parent role modeling influence child AT?

Parental Role-Modeling association with Child AT Behavior

	Odds Ratio	Sig.	C.I. (95% Exp(B))	
			Lower	Upper
Overall (any AT)	1.25	0.88	0.73	21.32
Walking	1.50	0.57	0.37	6.14
Biking	0.59	0.30	0.22	1.60
Skating	0.81	0.69	0.30	2.22
Public Transport	0.48	0.16	0.17	1.33

Sig.: $p < 0.05$

RQ 3: Does the child neighborhood environment influence child AT?

Child PANES association with Child Walking	Odds Ratio	Sig.	C.I. (95% Exp(B))	
			Lower	Upper
PANES Low PA Environment (Reference)		0.53	-	-
Moderate PA Environment	0.00	1.00	0.00	-
High PA Environment	0.00	1.00	0.00	-
Very High PA Environment	0.78	1.00	0.00	-
Gender	1.62128	0.53	0.36	7.34

Child PANES association with Child Biking	Odds Ratio	Sig.	C.I. (95% Exp(B))	
			Lower	Upper
PANES Low PA Environment (Reference)	-	0.71	-	-
Moderate PA Environment	1.03	0.98	0.08	13.03
High PA Environment	1.37	0.81	0.11	17.58
Very High PA Environment	2.72	0.50	0.15	48.97
Gender	0.84	0.75	0.30	2.39

RQ 3: Does the child neighborhood environment influence child AT?

Child PANES association with Child Skating	Odds Ratio	Sig.	C.I. (95% Exp(B))	
			Lower	Upper
PANES Low PA Environment (Reference)		0.43		
Moderate PA Environment	0.36	0.44	0.03	4.83
High PA Environment	0.63	0.73	0.05	8.36
Very High PA Environment	1.10	0.95	0.07	16.92
Gender	1.72	0.36	0.55	5.39

Child PANES association with Child Public Transportation	Odds Ratio	Sig.	C.I. (95% Exp(B))	
			Lower	Upper
PANES Low PA Environment (Reference)		0.60		
Moderate PA Environment	3.6E+08	1.00	0.00	-
High PA Environment	5.4E+08	1.00	0.00	-
Very High PA Environment	9.5E+08	1.00	0.00	-
Gender	1.49	0.49	0.48	4.64

RQ 4: Does child AT influence adult AT?

Child AT association with Adult Overall AT	Odds Ratio	Sig.	C.I. (95% Exp(B))	
			Lower	Upper
Walk	6.7E+15	0.99	0.00	-
Bike	2.1E+15	1.00	0.00	-
Skate	0.00	1.00	0.00	-
Public Transport	9.9E+14	1.00	0.00	-
Gender	1.62	1.00	0.00	-

Child AT association with Adult Meetings PA Guidelines	Odds Ratio	Sig.	C.I. (95% Exp(B))	
			Lower	Upper
Walk	0.00	1.00	0.00	-
Bike	1.94	0.29	0.57	6.58
Skate	5.96	0.10	0.70	50.77
Public Transport	3.09	0.18	0.59	16.24
Gender	0.72	0.59	0.21	2.39

RQ 4: Does child AT influence adult AT? (mode-specific)

Child AT association with Adult Walking	Odds Ratio	Sig.	C.I. (95% Exp(B))	
			Lower	Upper
Walk	17.61	0.01	2.01	154.05
Bike	2.86	0.33	0.34	23.81
Skate	0.33	0.34	0.03	3.31
Public Transport	2.52	0.48	0.19	32.84
Gender	0.08	0.11	0.00	1.83

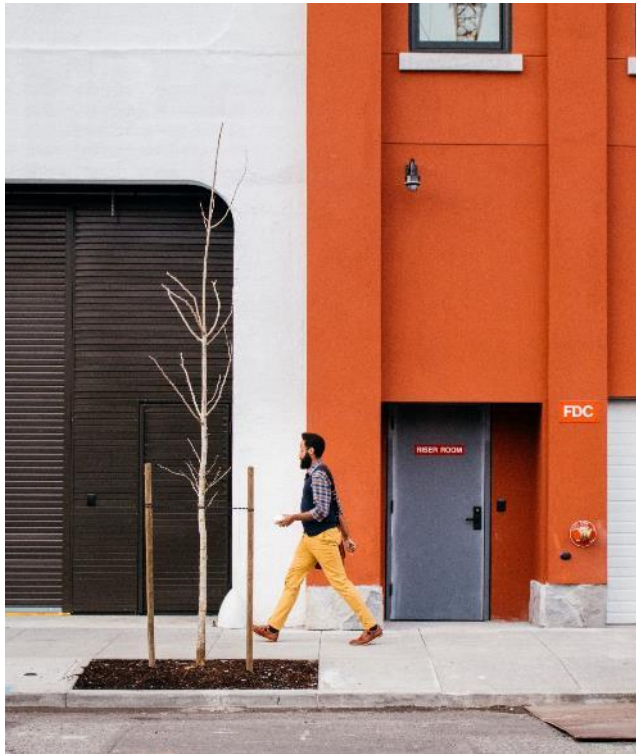
Child AT association with Adult Biking	Odds Ratio	Sig.	C.I. (95% Exp(B))	
			Lower	Upper
Walk	0.85	0.86	0.14	5.03
Bike	11.75	0.001	2.38	58.07
Skate	0.59	0.38	0.18	1.91
Public Transport	2.50	0.14	0.75	8.40
Gender	0.34	0.05	0.12	0.99

RQ 4: Does child AT influence adult AT? (mode-specific)

Child AT association with Adult Skating	Odds Ratio	Sig.	C.I. (95% Exp(B))	
			Lower	Upper
Walk	6.4E+07	1.00	0.00	-
Bike	0.49	0.63	0.03	8.84
Skate	2.42	0.55	0.13	44.06
Public Transport	1.6E-08	1.00	0.00	-
Gender	0.21	0.22	0.02	2.53

Child AT association with Adult Public Transportation	Odds Ratio	Sig.	C.I. (95% Exp(B))	
			Lower	Upper
Walk	5.6E+08	1.00	0.00	-
Bike	1.23	0.77	0.30	5.00
Skate	0.77	0.72	0.18	3.21
Public Transport	6.92	0.01	1.79	26.82
Gender	0.30	0.09	0.08	1.20

Discussion



RQ1:

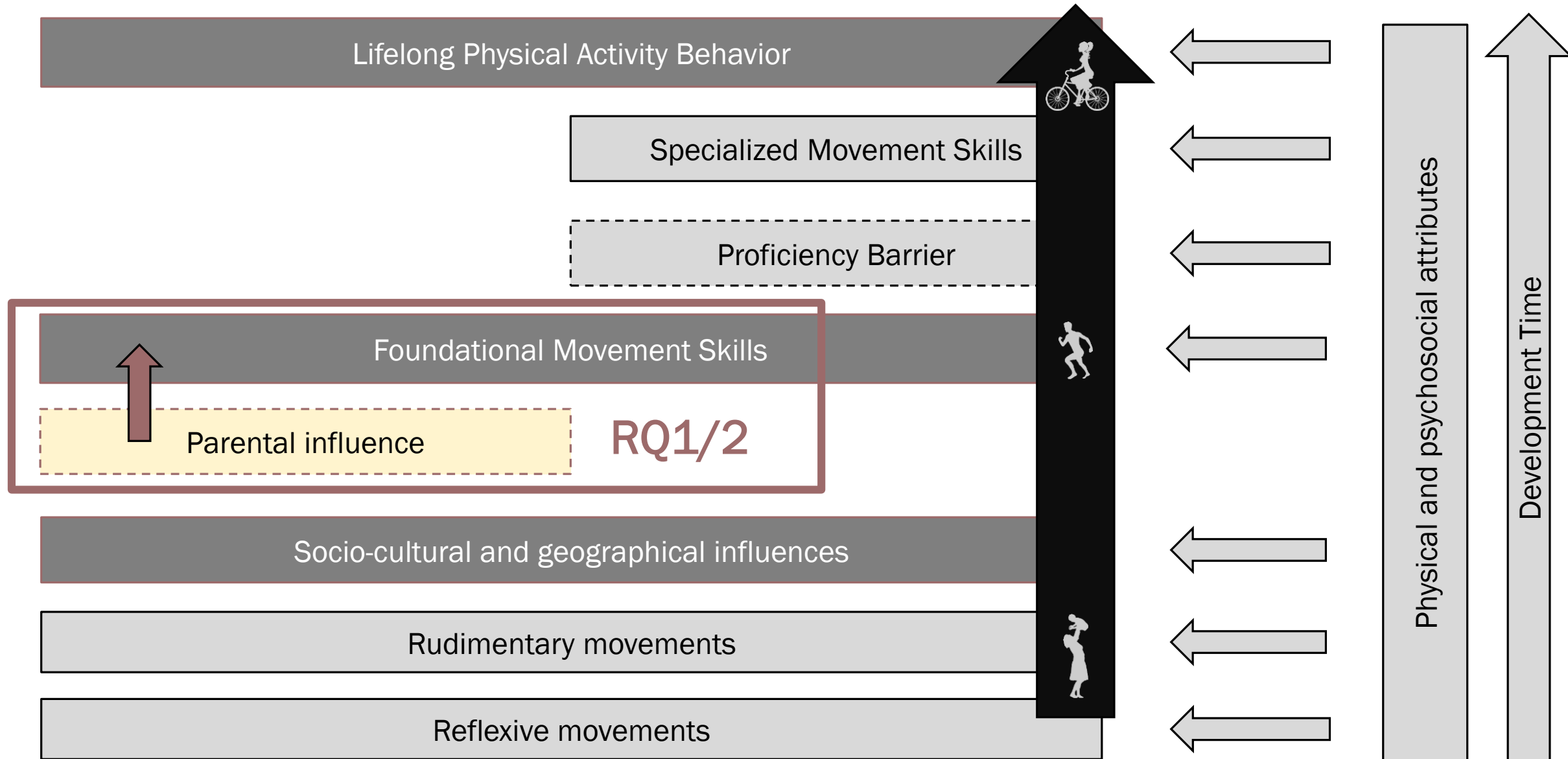
- Parental instrumental support during childhood makes children less likely to engage in biking behavior in childhood

RQ3 Mode-specific findings:

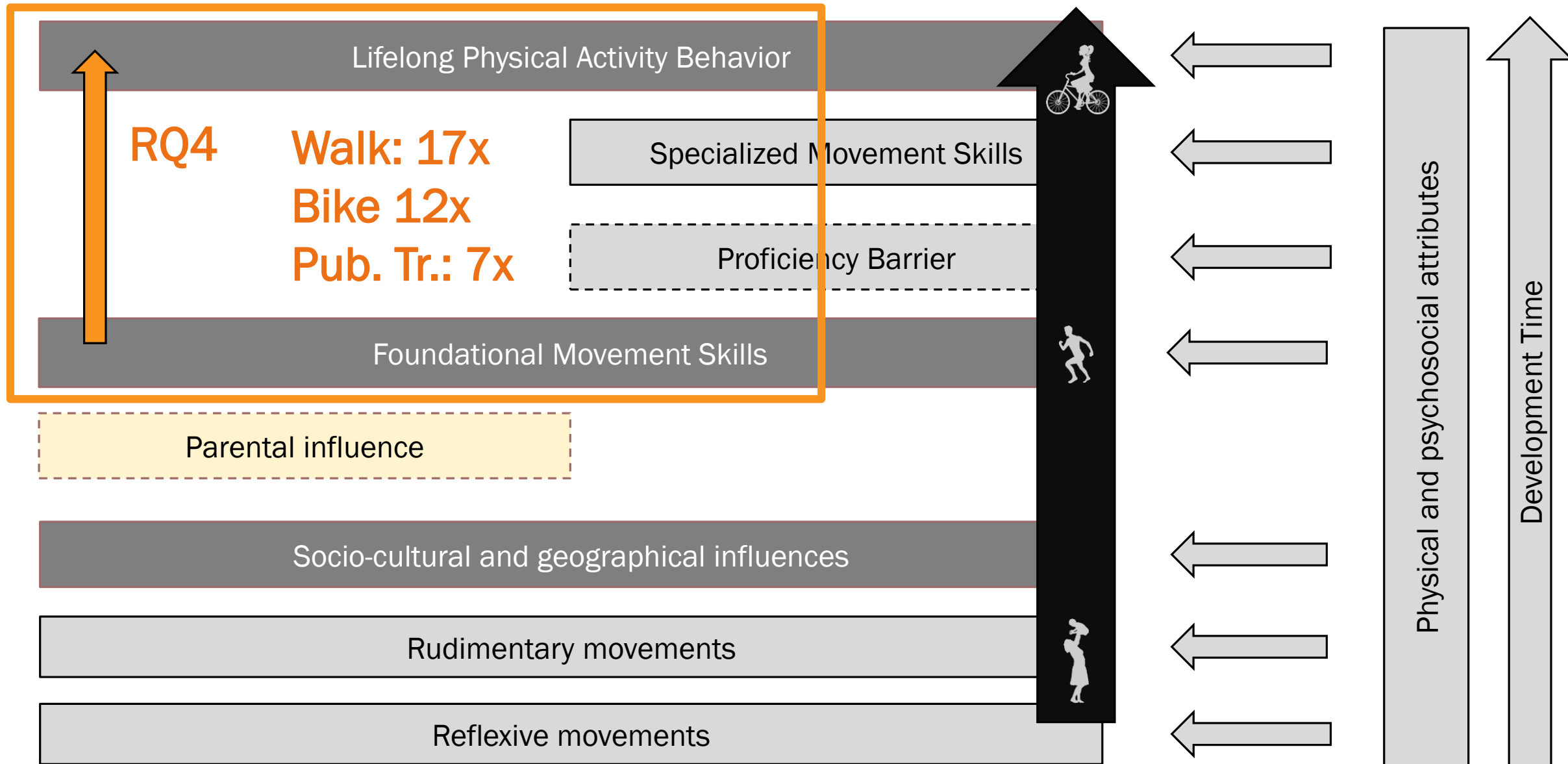
- child AT associated with greater likelihood of AT same mode of AT in adulthood (except for skating)

RQ2 & 4: No significant findings

Lifelong Physical Activity Model



Lifelong Physical Activity Model



Limitations

- Small sample size
- Recall measures need further development
- Under-sampling inactive individuals at child and adult timepoints
- No distinction between recalled ages
- Did not ask about differences between child and adult environments that influence AT access



A person with long dark hair, wearing a black tank top and blue jeans, is walking away from the camera down a paved road. The road has a yellow double line in the center. The sky is a vibrant orange and red, indicating a sunset or sunrise. The sun is low on the horizon, creating a strong silhouette effect. The overall mood is contemplative and forward-looking.

Future Directions

Research:

Identify factors in skill development relevant to AT

Study types of parental support and its effects

Practice:

Include AT promotion in PA interventions for children

Focus on AT exposure and skill acquisition



APE Report

Saline Co. Health Dept

Salina, KS

47,000 residents

Social services plentiful, but centrally located

Strategies to create unified approach have been unsuccessful

Challenges in Kansas

County health departments have limited funding

Public/private partnerships crucial to meet community needs

Identifying possible community partners a challenge

Problem: Who is there to help? Who do they want to help? Where are they?

Solution: Compile resources into database.

Product 1: Community Health Resource Database

- Rationale

- Services often co-exist without much coordination outside of regional United Way efforts

- Tasks

- Surveyed existing providers
- Conduct google/database searches
- Categorized providers by the population they serve

- Goals

- Starting point for future contact/collaboration
- Assessment of existing social services

Populations	Community Services	Education	Relief Services	Health Care	Physical Activity
Children	Resource Directory	Child Care	Food Bank	Generalist Care	Park
Youth	Farmer's Market	Youth Education	Community Kitchen	Specialist Care	Gym
Women	Social Groups	Job Training	Housing Services	Behavioral Care	Pool
Pregnant Women	Financial Counseling	Health Education	Shelters	Urgent Care	Group PA
Homeless/Unemployed	Family Counseling			Nursing Services	
Elderly	Employment Counseling				
Drug Users	Thrift Store				
Mental Distress	Adoption Services				
Disability					

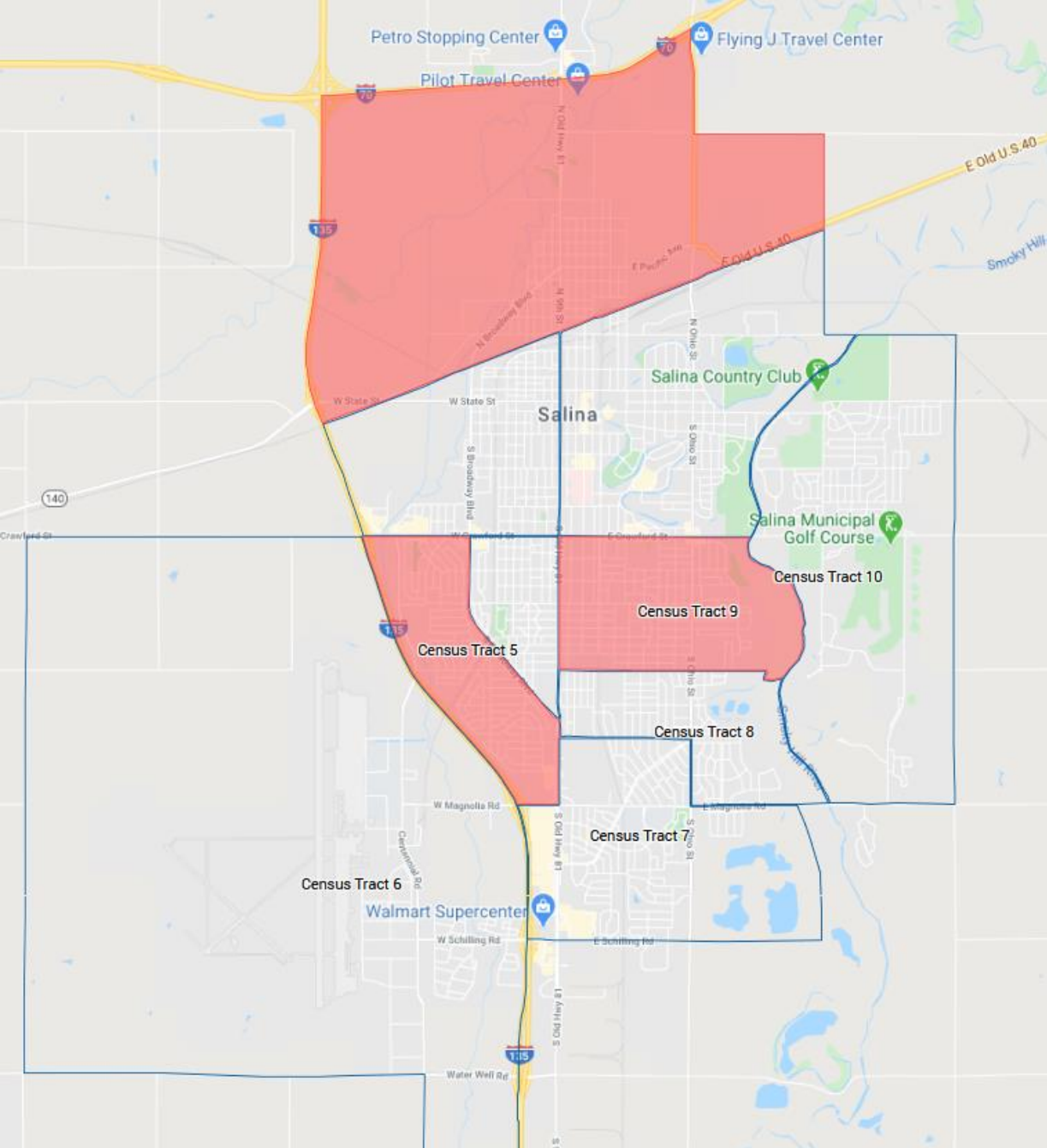
Database

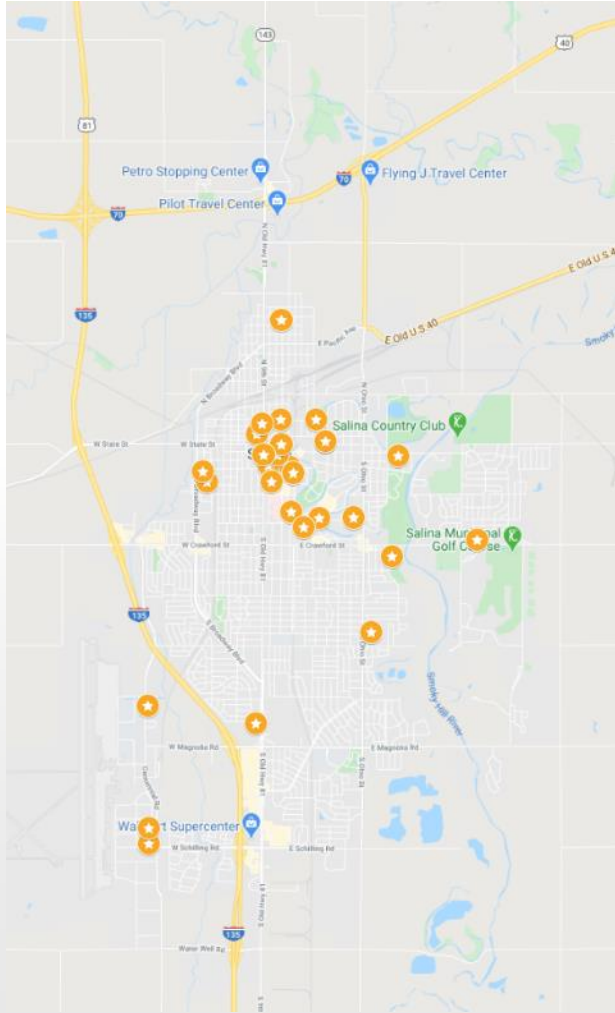
Product 2: Health Resource Map

- Rationale
 - Health resources may not be visible to community
 - A graphical interface for resource distribution and availability is needed
- Tasks
 - From Health database, add longitude/latitude data to providers
 - Overlay census tract information on map
- Goals
 - Create filters on to database from provider categories
 - Public can identify services quickly
 - Administrators can easily identify coverage gaps for services

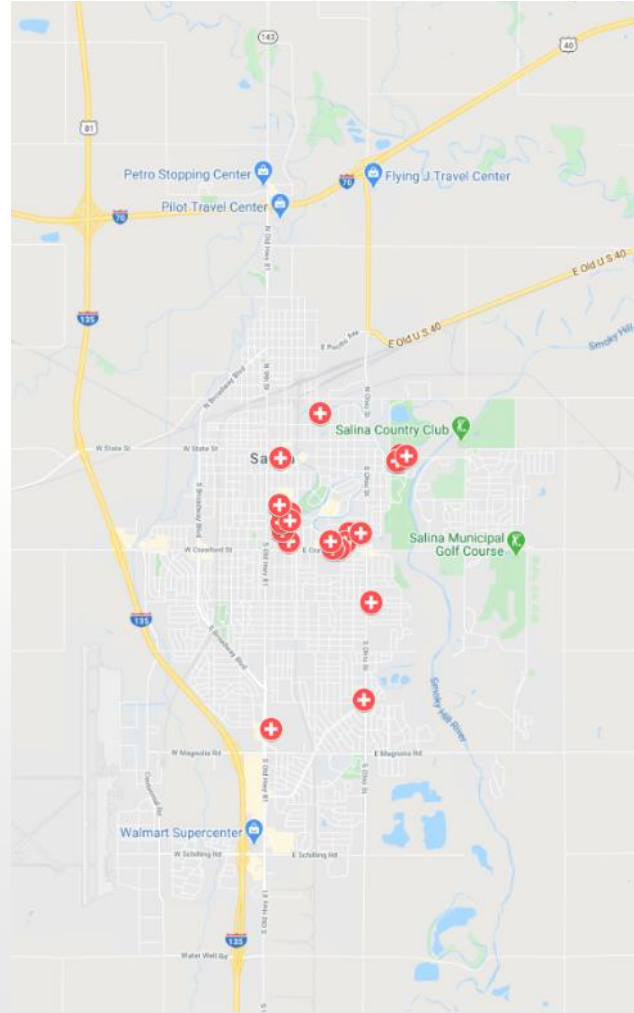


Food desert

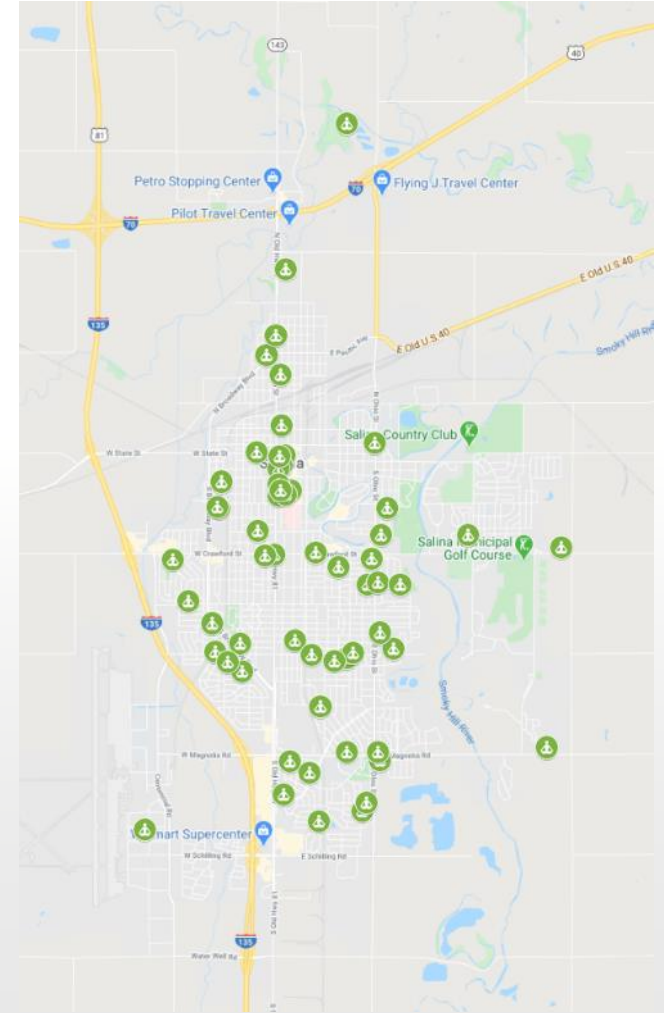




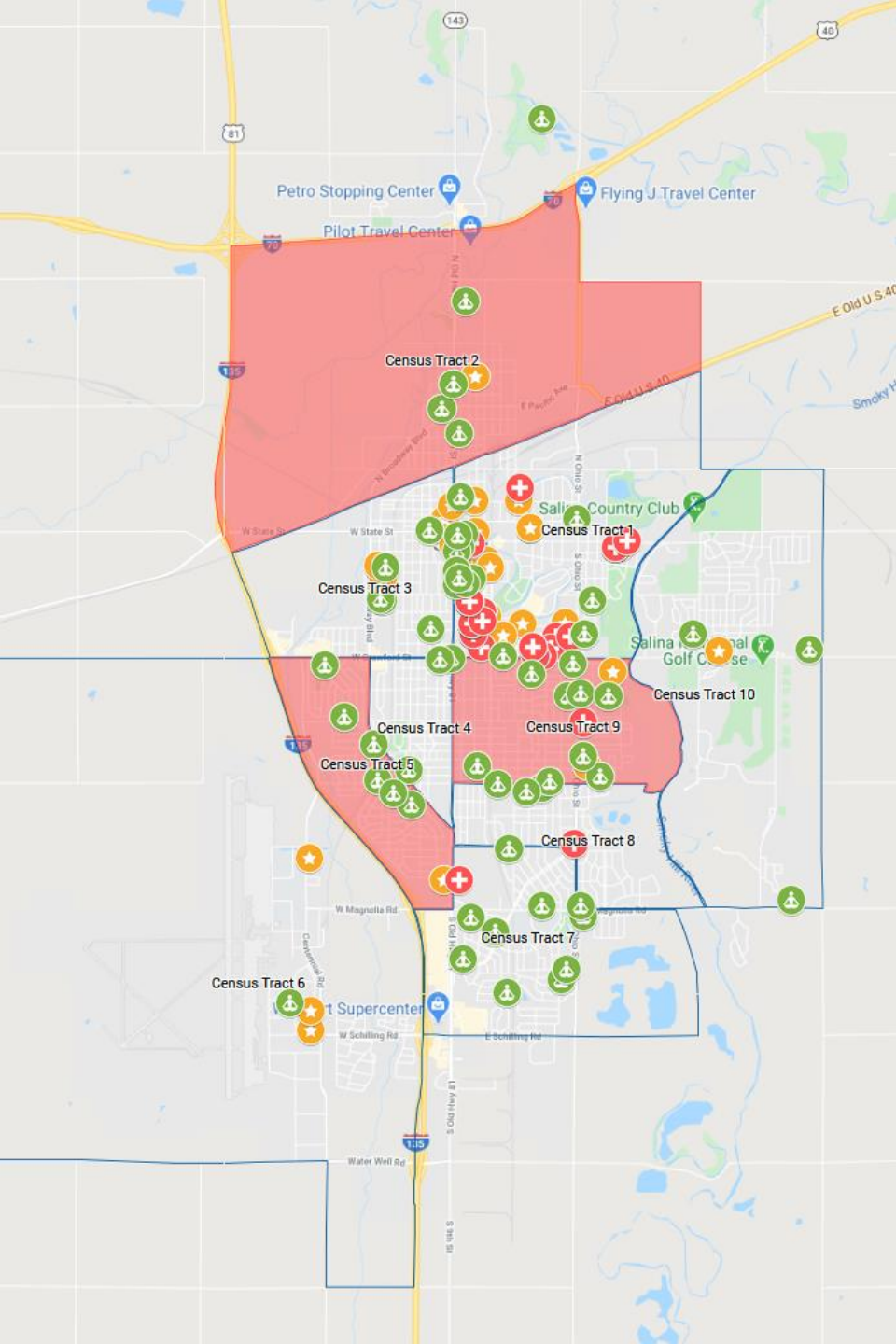
Social services



Medical Services



Places of Worship



Product 2: Resource Map

Compiled map of resources in Salina

Reveals structural challenges

Inequitable dispersion of resources

Abundance of potential partners throughout the city



Social services



Medical services



Food desert



Places of worship

Number and Competency Addressed		Portfolio Product		Courses & Projects
2	Select quantitative and qualitative data collection methods appropriate for a given public health context	1	Community Health Resource List	MPH 701 MPH 754 KIN 899 CADET OS P&MH APE HS3
3	Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	2	Community Health Resource Map	MPH 701 MPH 720 MPH 754 CADET OS P&MH APE
6	Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels	2	Community Health Resource Map	MPH 818
7	Assess population needs, assets and capacities that affect communities' health	2	Community Health Resource Map	MPH 720 MPH 802 CADET OS P&MH APE HS3
21	Perform effectively on interprofessional teams	1	Community Health Resource List	MPH 720 MC 750 MPH 818 AAI 801 APE

MPH Emphasis Area: Public Health Physical Activity			
Number and Competency		Description	Courses, Products and Projects
1	Population health	Investigate the impact of physical activity on population health and disease outcomes.	KIN 612, P&MH project
2	Social, behavioral and environmental influences	Investigate social, behavioral and environmental factors that contribute to participation in physical activity.	KIN 610 & 805, CADET project, HS3 project, OS project
3	Theory application	Examine and select social and behavioral theories and frameworks for physical activity programs in community settings.	KIN 610 & 805, CADET project
4	Developing and evaluating physical activities interventions	Develop and evaluate physical activity interventions in diverse community settings.	KIN 610 & 805
5	Support evidence-based practice	Create evidence-based strategies to promote physical activity and communicate them to community stakeholders.	KIN 612, APE

Acknowledgements

Gina Besenyi	MPH, Ph.D.	Major Professor	Kansas State University
Katie Heinrich	Ph.D.	Committee Member	Kansas State University
Emily Mailey	Ph.D.	Committee Member	Kansas State University
Ellyn Mulcahy	Ph.D.	MPH Director	Kansas State University
Jason Tiller	M.S.	APE Preceptor	Saline County Health Department

Thanks to Dr. Jolley and Dr. Cosgrove for their insights and assistance

References

Adkins, S., Sherwood, N. E., Story, M., & Davis, M. (2004). Physical activity among African-American girls: the role of parents and the home environment. *Obesity Research*, 12 Suppl(September). <https://doi.org/10.1038/oby.2004.267>

Anderssen, N., Jacobs, D. R., Sidney, S., Bild, D. E., Sternfeld, B., Slattery, M. L., & Hannan, P. (1996). Change and secular trends in physical activity patterns in young adults: A seven-year longitudinal follow-up in the Coronary Artery Risk Development in Young Adults study (CARDIA). *American Journal of Epidemiology*, 143(4), 351–362. <https://doi.org/10.1093/oxfordjournals.aje.a008749>

Beets, M. W., Vogel, R., Chapman, S., Pitetti, K. H., & Cardinal, B. J. (2007). Parent's social support for children's outdoor physical activity: Do weekdays and weekends matter? *Sex Roles*, 56(1–2), 125–131. <https://doi.org/10.1007/s11199-006-9154-4>

Bopp, M., Bopp, C., & Schuchert, M. (2015). Active transportation to and on campus is associated with objectively measured fitness outcomes among college students. *Journal of Physical Activity and Health*, 12(3), 418–423. <https://doi.org/10.1123/jpah.2013-0332>

Carver, A., Timperio, A. F., Hesketh, K. D., Ridgers, N. D., Salmon, J. L., & Crawford, D. A. (2011). How is active transport associated with children's and adolescents' physical activity over time? *International Journal of Behavioral Nutrition and Physical Activity*, 8(1), 126. <https://doi.org/10.1186/1479-5868-8-126>

Carver, A., Timperio, A., Hesketh, K., & Crawford, D. (2010). Are children and adolescents less active if parents restrict their physical activity and active transport due to perceived risk? *Social Science and Medicine*, 70(11), 1799–1805. <https://doi.org/10.1016/j.socscimed.2010.02.010>

Centers for Disease Control (CDC). (n.d.). Transportation Health Impact Assessment Toolkit. Web. Retrieved from https://www.cdc.gov/healthyplaces/transportation/promote_strategy.htm. Accessed on 2020-03-31.

Côté-Lussier, C., Mathieu, M.-È., & Barnett, T. A. (2015). Independent associations between child and parent perceived neighborhood safety, child screen time, physical activity and BMI: a structural equation modeling approach. *International Journal of Obesity*, 39(10), 1475–1481. <https://doi.org/10.1038/ijo.2015.98>

References

- Forman, H., Kerr, J., Norman, G. J., Saelens, B. E., Durant, N. H., Harris, S. K., & Sallis, J. F. (2008). Reliability and validity of destination-specific barriers to walking and cycling for youth. *Preventive Medicine*, 46(4), 311–316. <https://doi.org/10.1016/j.ypmed.2007.12.006>
- Fulton, J. E., Shisler, J. L., Yore, M. M., & Caspersen, C. J. (2005). Active transportation to school: Findings from a national survey. *Research Quarterly for Exercise and Sport*, 76(3), 352–357. <https://doi.org/10.1080/02701367.2005.10599306>
- Giles-Corti, B., Kelty, S. F., Zubrick, S. R., & Villanueva, K. P. (2009). Encouraging walking for transport and physical activity in children and adolescents: How important is the built environment? *Sports Medicine*, 39(12), 995–1009. <https://doi.org/10.2165/11319620-000000000-00000>
- Goldberg, J. H., & King, A. C. (2007). Physical Activity and Weight Management Across the Lifespan. *Annual Review of Public Health*, 28(1), 145–170. <https://doi.org/10.1146/annurev.publhealth.28.021406.144105>
- Gordon-Larsen, P., Nelson, M. C., & Beam, K. (2005). Associations among active transportation, physical activity, and weight status in young adults. *Obesity Research*, 13(5), 868–875. <https://doi.org/10.1038/oby.2005.100>
- Heelan, K. A., Donnelly, J. E., Jacobsen, D. J., Mayo, M. S., Washburn, R., & Greene, L. (2005). Active commuting to and from school and BMI in elementary school children - Preliminary data. *Child: Care, Health and Development*, 31(3), 341–349. <https://doi.org/10.1111/j.1365-2214.2005.00513.x>
- Hulteen, R. M., Morgan, P. J., Barnett, L. M., Stodden, D. F., & Lubans, D. R. (2018). Development of foundational movement skills: A conceptual model for physical activity across the lifespan. *Sports Medicine*, 48(7), 1533-1540.

References

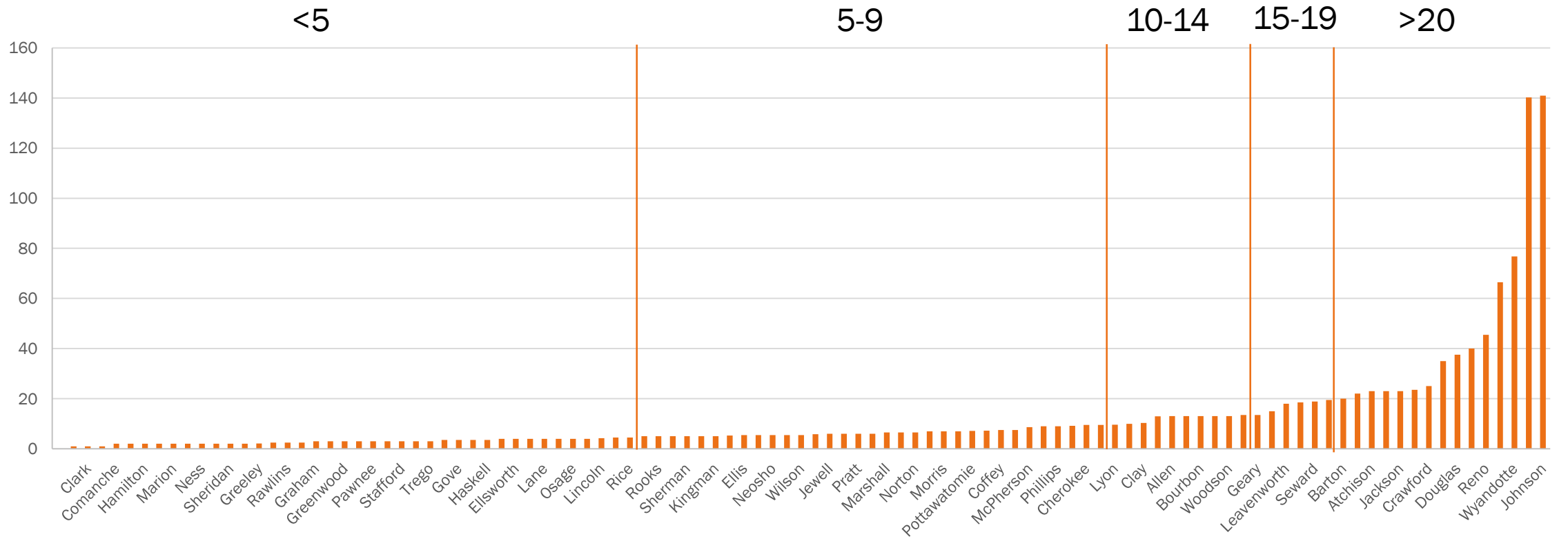
- Itoh, H., Kitamura, F., Hagi, N., Mashiko, T., Matsukawa, T., & Yokoyama, K. (2017). Leisure-time physical activity in youth as a predictor of adult leisure physical activity among Japanese workers: A cross-sectional study. *Environmental Health and Preventive Medicine*, 22(1), 4–11. <https://doi.org/10.1186/s12199-017-0648-1>
- Kerr, J., Rosenberg, D., Sallis, J. F., Saelens, B. E., Frank, L. D., & Conway, T. L. (2006). Active commuting to school: associations with environment and parental concerns. *Medicine & Science in Sports & Exercise*, 38(4), 787-793.
- Malina, R. (2001). Tracking of Physical Activity Across the Lifespan. President's Council on Physical Fitness and Sports. Research Digest, 3(14), 1–8. Retrieved from <http://sk.sagepub.com/reference/obesity/n389.xml>
- Panther, J. R., Jones, A. P., & van Sluijs, E. M. F. (2008). Environmental determinants of active travel in youth: A review and framework for future research. *International Journal of Behavioral Nutrition and Physical Activity*, 5, 1–14. <https://doi.org/10.1186/1479-5868-5-34>
- Van Kann, D. H. H., Kremers, S. P. J., de Vries, S. I., de Vries, N. K., & Jansen, M. W. J. (2016). Parental Active Transportation Routines (PATRns) as a Moderator of the Association Between Neighborhood Characteristics and Parental Influences and Active School Transportation. *Environment and Behavior*, 48(7), 946–965. <https://doi.org/10.1177/0013916515574548>
- Van Kann, D. H. H., Kremers, S. P. J., de Vries, S. I., de Vries, N. K., & Jansen, M. W. J. (2016). Parental Active Transportation Routines (PATRns) as a Moderator of the Association Between Neighborhood Characteristics and Parental Influences and Active School Transportation. *Environment and Behavior*, 48(7), 946–965. <https://doi.org/10.1177/0013916515574548>

References

- Van Loon, J., Frank, L. D., Nettlefold, L., & Naylor, P. J. (2014). Youth physical activity and the neighbourhood environment: Examining correlates and the role of neighbourhood definition. *Social Science and Medicine*, 104, 107–115. <https://doi.org/10.1016/j.socscimed.2013.12.013>
- Welk, G. J., Wood, K., & Morss, G. (2003). Parental influences on physical activity in children: An exploration of potential mechanisms. *Pediatric Exercise Science*, 15(1), 19–33. <https://doi.org/10.1123/pes.15.1.19>
- Wing, E. K. (2015). Linking parental support and parental control to physical activity participation in youth: The mediating role of self-efficacy and enjoyment. *The Effects of Brief Mindfulness Intervention on Acute Pain Experience: An Examination of Individual Difference*, 1(July). <https://doi.org/10.1017/CB09781107415324.004>
- World Health Organization (WHO). (2016). Global Health Observatory (GHO) data. Web. Retrieved from https://www.who.int/gho/ncd/risk_factors/physical_activity_text/en/. Accessed on 2020-04-03.
- Yang, X., Telama, R., Hirvensalo, M., Tammelin, T., Viikari, J. S. A., & Raitakari, O. T. (2014). Active commuting from youth to adulthood and as a predictor of physical activity in early midlife: The Young Finns Study. *Preventive Medicine*, 59(1), 5–11. <https://doi.org/10.1016/j.ypmed.2013.10.019>
- Zerger, H. M., Normand, M. P., Boga, V., & Patel, R. R. (2016). Adult attention and interaction can increase moderate-to-vigorous physical activity in young children. *Journal of Applied Behavior Analysis*, 49(3), 449–459. <https://doi.org/10.1002/jaba.317>

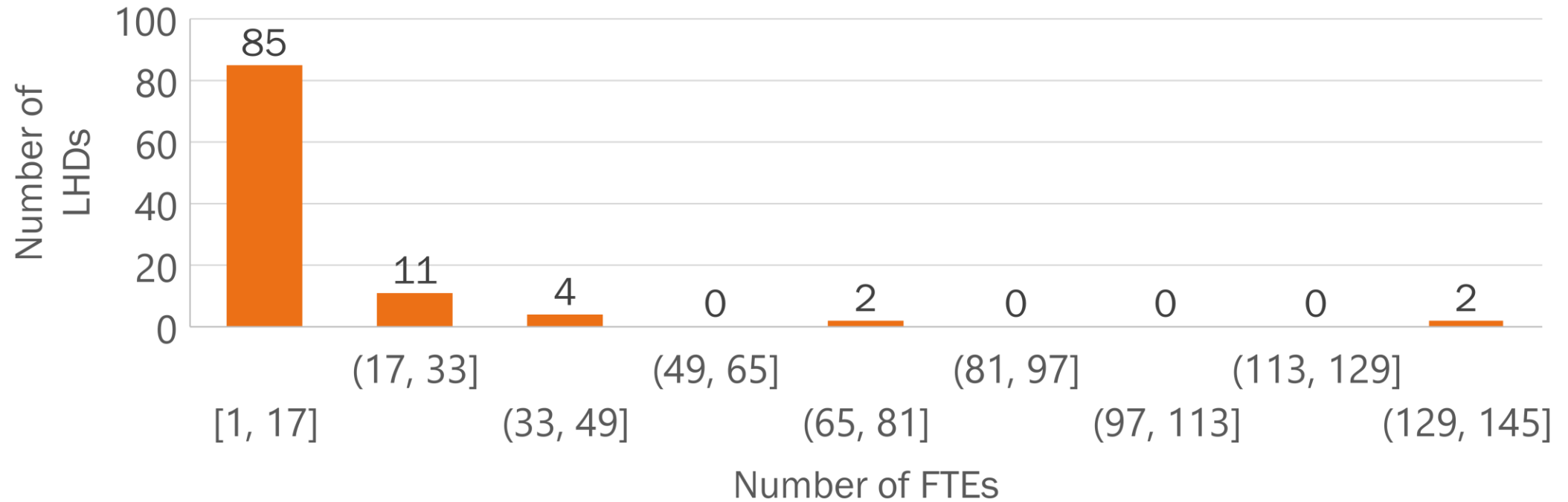


Questions?



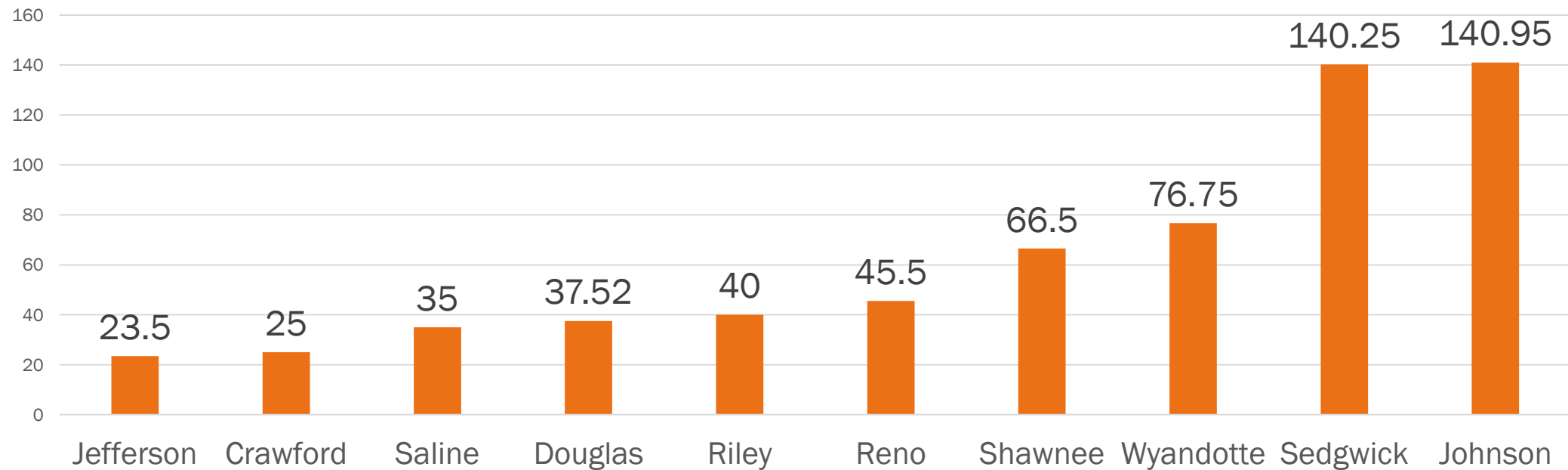
Kansas Local Health Department Employee Numbers

Number of Local Health Departments by FTEs



Kansas Local Health Department Employee Numbers (Top 10)

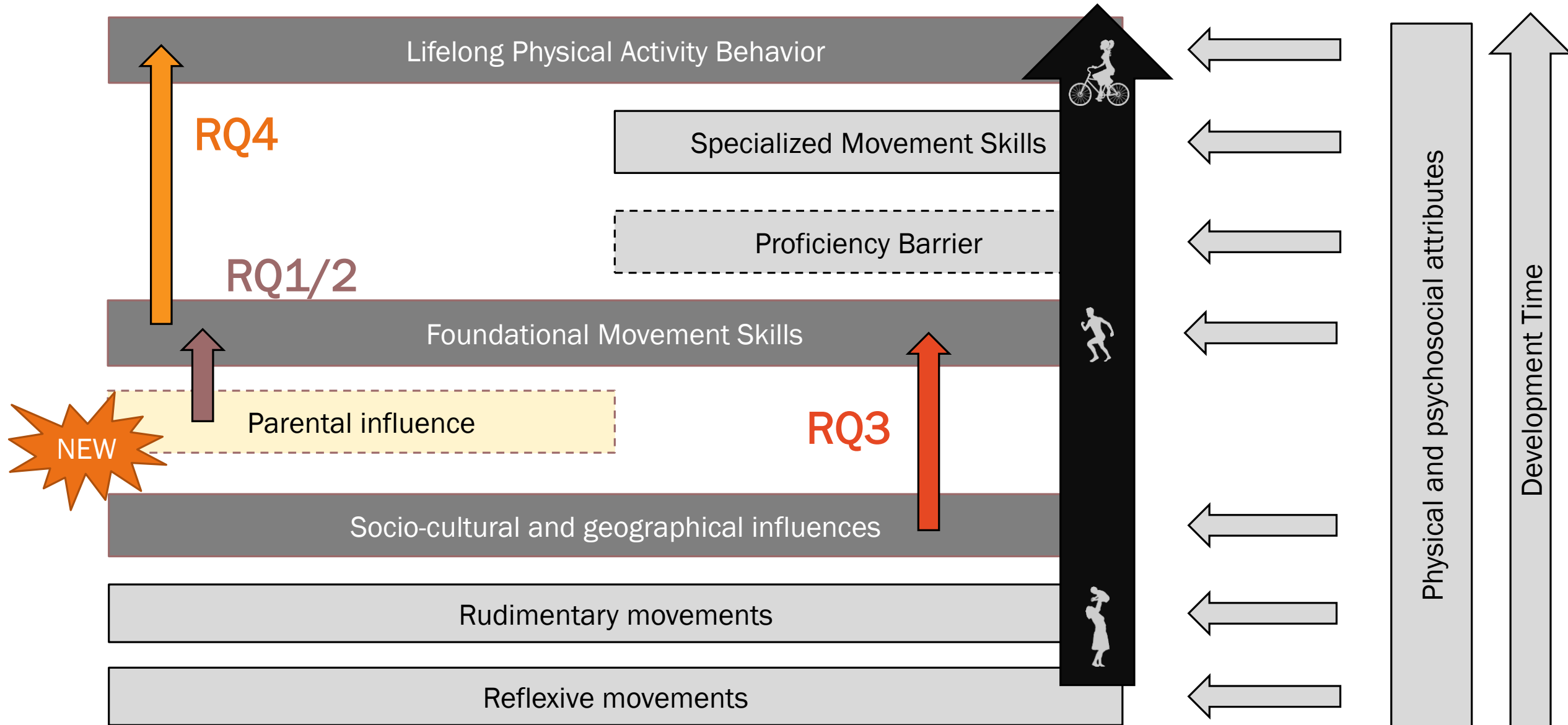
Number of Employees Kansas Local Health Depts.
State Fiscal Year 2020



	Walk days		Bike days		Skate days		Public transportation	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Child	3.51	1.72	4.29	1.65	5.69	0.95	3.95	1.85
Adult	3.04	1.88	3.86	1.99	6.00	1.00	5.64	1.45

Child AT Days

Lifelong Physical Activity Model



Research Hypotheses

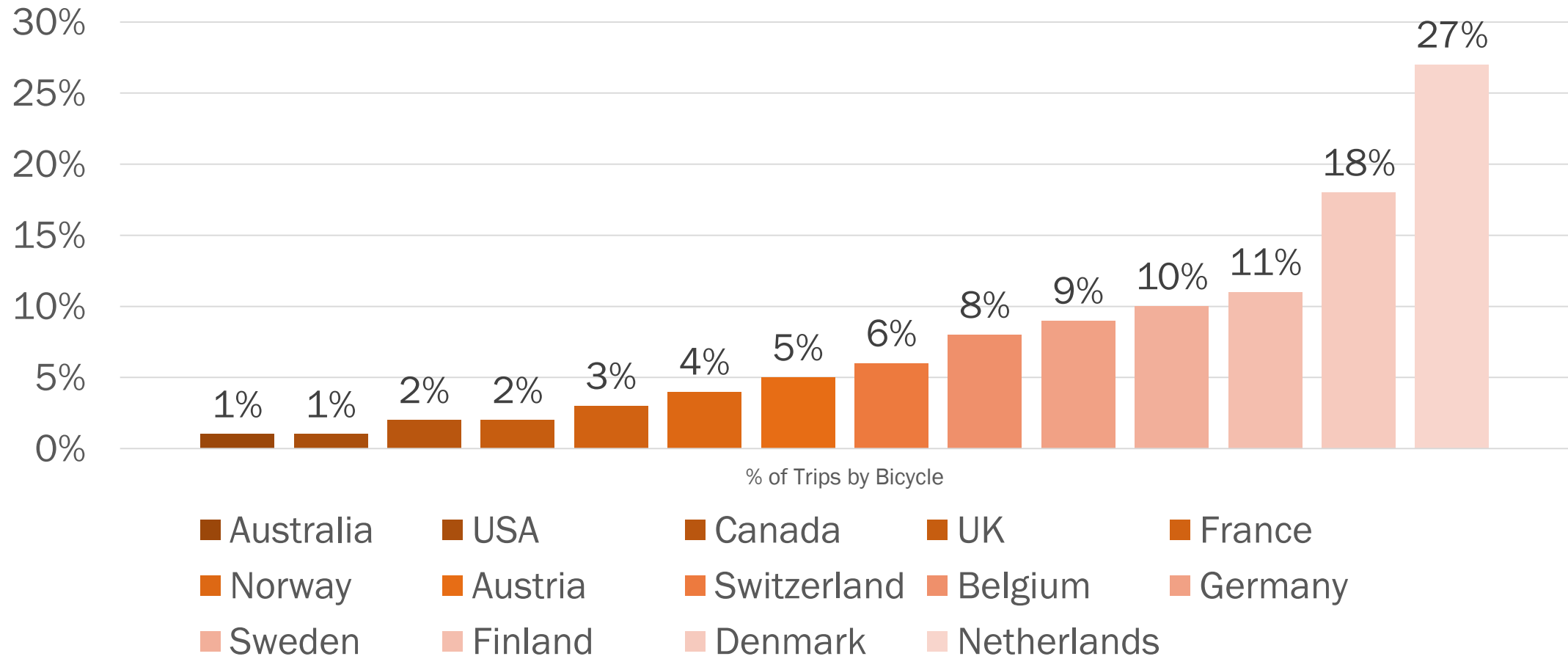
RH 1: Respondents who reported parental support for AT behaviors would be more likely to report child AT behavior.

RH 2: Respondents whose parents engaged in role-modeling behavior would be more likely to report child AT behavior.

RH 3: Respondents who recalled a childhood neighborhood environment that supported PA would be more likely to report child AT behavior.

RH 4: Respondents who report child AT behavior would be more likely to engage in AT in the present.

Percentage of Trips by Bicycle by Country



Pucher & Buehler, 2008

THE ROLE OF Communities IN PROMOTING PHYSICAL ACTIVITY

WALKABLE COMMUNITIES

People who live in walkable neighborhoods are

2 times

as likely to get enough physical activity as those who don't.

JOINT USE

The number of children who are physically active outside is

84%

higher when schoolyards are kept open for public play.

TRAILS

People who live near trails are

50%

more likely to meet physical activity guidelines.

RECREATIONAL FACILITIES

Teens who live in poor or mostly minority neighborhoods are

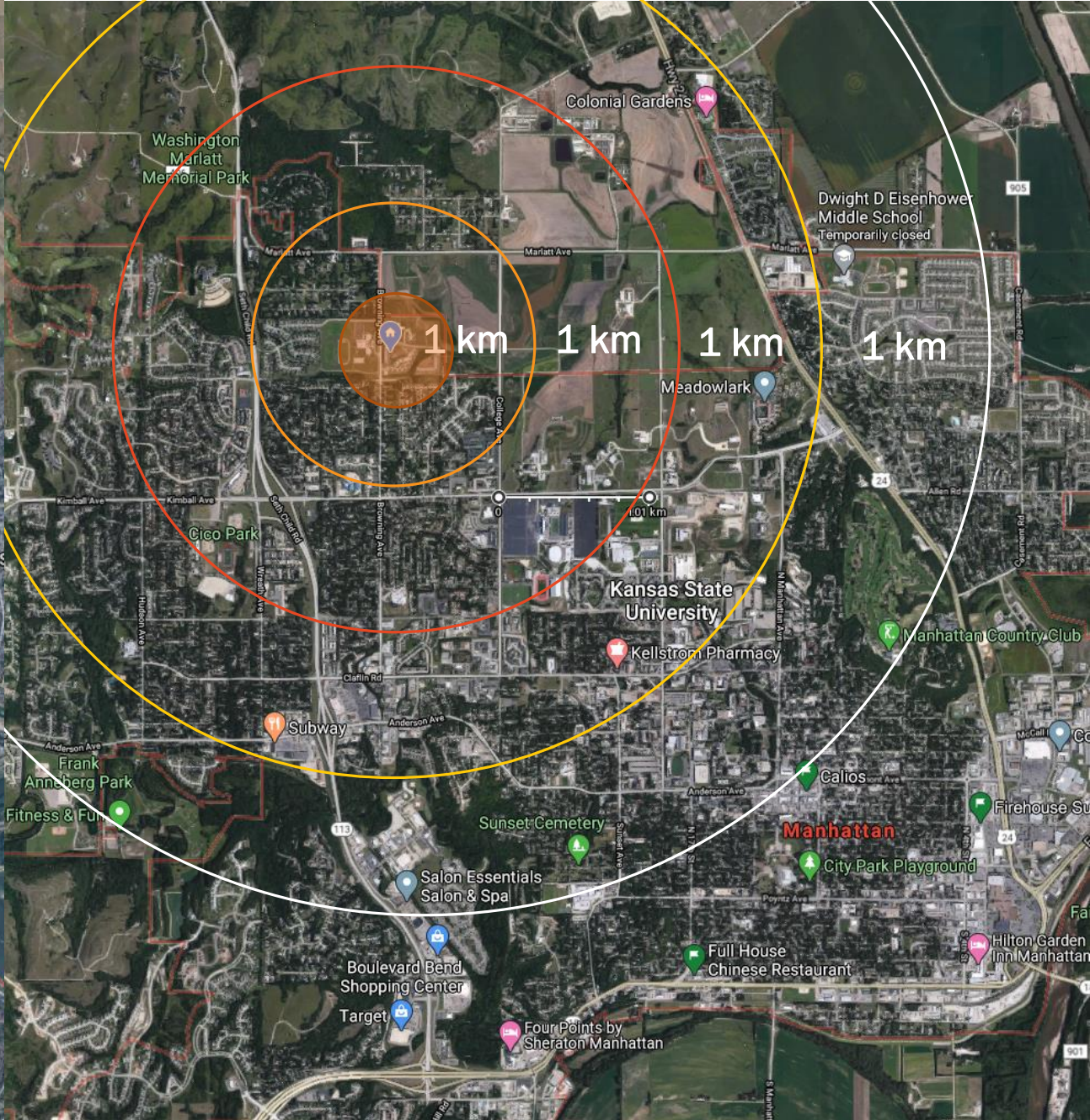
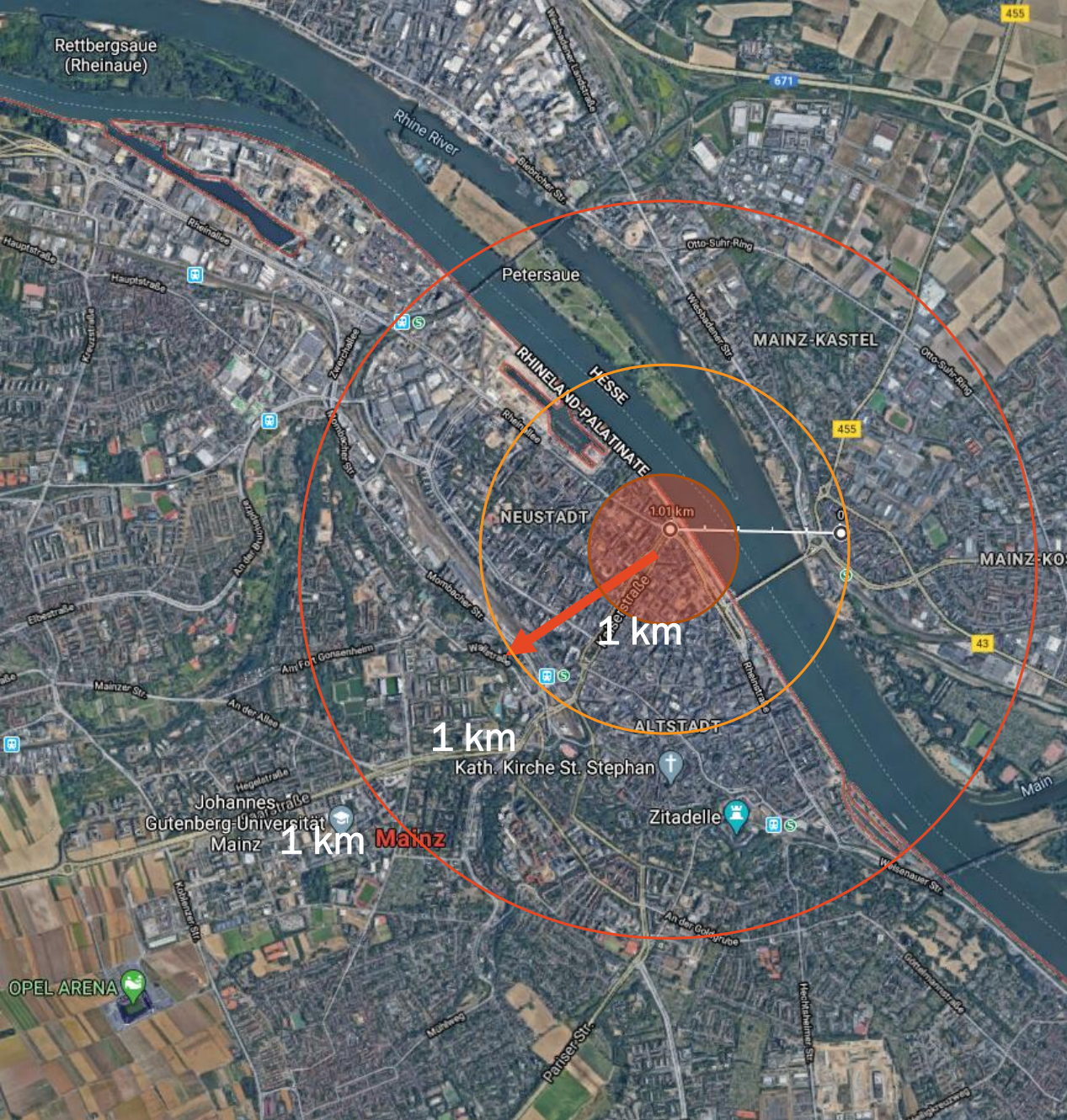
50%

less likely to have a recreational facility near home.

Active Living Research

www.activelivingresearch.org

Sources: TRAILS: Huston S, Evenson K, Bors P, et al. "Neighborhood Environment, Access to Places for Activity, and Leisure-Time Physical Activity in a Diverse North Carolina Population." *American Journal of Health Promotion*, 18(1): 58-69, September/October, 2003. WALKABLE COMMUNITIES: Frank LD, Schmid TL, Sallis JF, Chapman J, Saelens BE. Linking objectively measured physical activity with objectively measured urban form. Findings from SMARTRAQ. *American Journal of Preventive Medicine* 2005; 28(2S2):117-125. JOINT USE: Farley T, Meriwether R, Baker E, Watkins L, Johnson C, Webber L. Safe play spaces to promote physical activity in inner-city children: Results from a pilot study of an environmental intervention. *Am J Pub Health*. 2007;97:1625-1631. RECREATIONAL FACILITIES: Gordon-Larsen P, Nelson MC, Page P, Popkin BM. "Inequality in the Built Environment Underlies Key Health Disparities in Physical Activity and Obesity." *Pediatrics*, 117(2): 417-424, 2006.



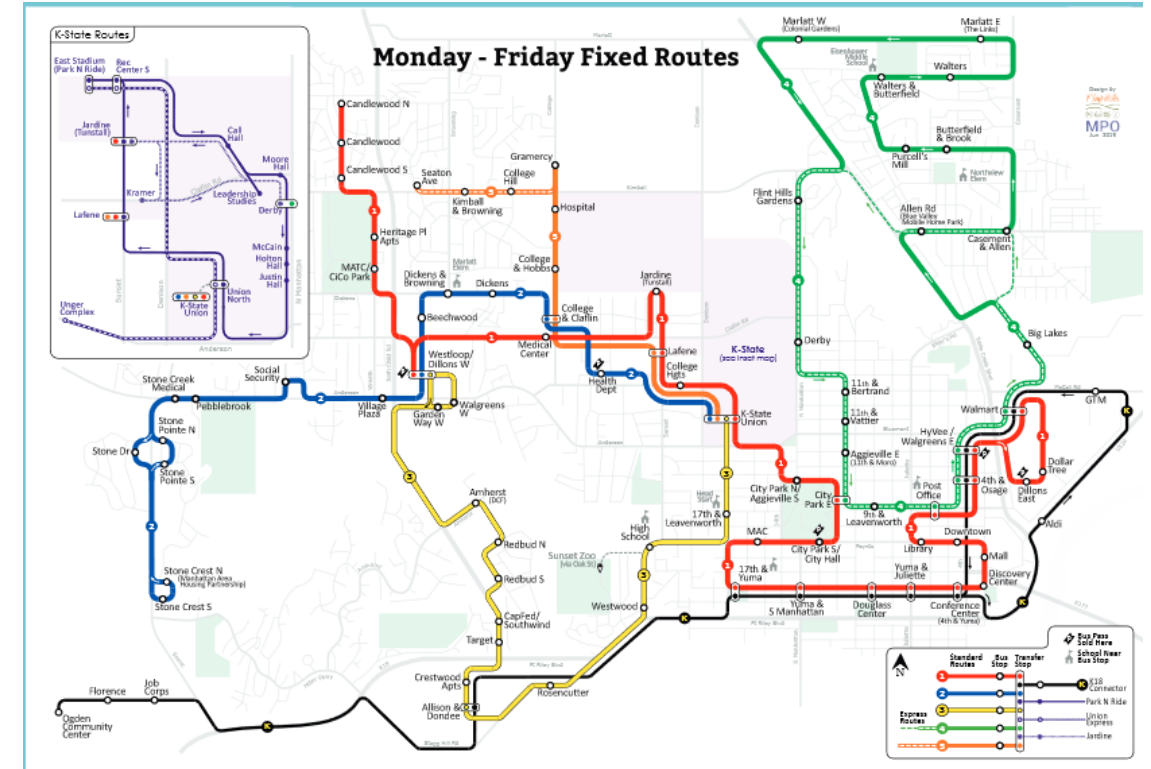
LINIENPLAN 2020/2021 TAG

Geplante Linien

Linie	Strecke	Strecke	Strecke	Strecke
ca. 4 bis ca. 7.30 Uhr	ca. 4 bis ca. 7.30 Uhr	ca. 4 bis ca. 7.30 Uhr	ca. 4 bis ca. 7.30 Uhr	ca. 4 bis ca. 7.30 Uhr
ca. 8 bis ca. 1.30 Uhr	ca. 8 bis ca. 1.30 Uhr	ca. 8 bis ca. 1.30 Uhr	ca. 8 bis ca. 1.30 Uhr	ca. 8 bis ca. 1.30 Uhr

24 Std. Rufnum. 0 61 31 10 7777 www.mosener-mobilfunk.de Gültig ab 12.12.2019
Leitung © Mosener Comsat AG, www.mosener.com

The map displays a complex network of lines and stations. The legend indicates different line types: 'Linie' (Line), 'Strecke' (Route), and 'Strecke' (Route). The table lists planned lines with their respective routes and operating hours. The map is titled 'LINIENPLAN 2020/2021 TAG' and includes contact information for Mosener Comsat AG.

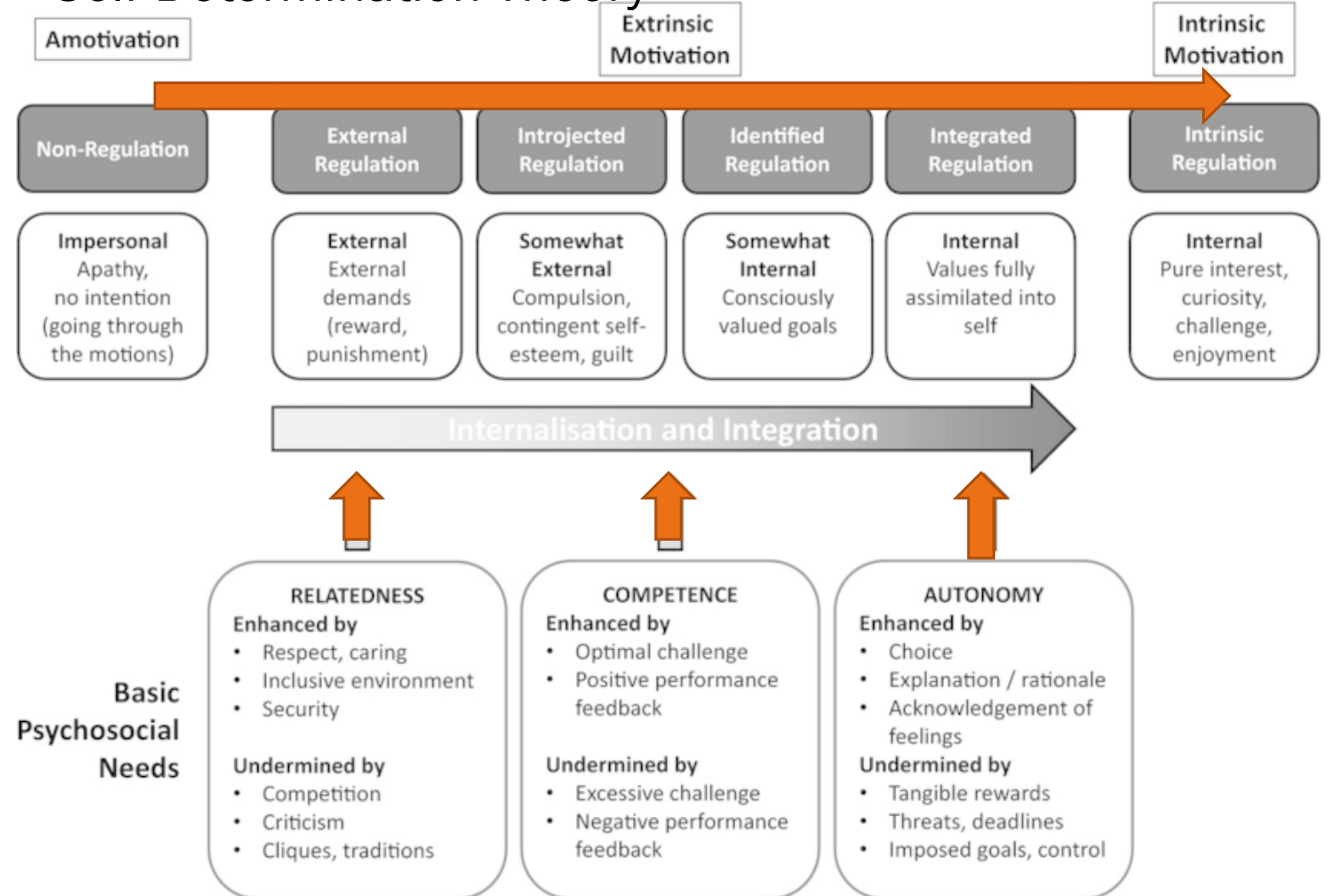


Self-Determination Theory

Psychosocial needs may explain behavior acquisition, habit development

Autonomy, Relatedness and Competency drive behavioral independence

Established behaviors are persistent across time



Ryan & Deci, 2000

ORs and effect sizes

Odds ratios are unstandardized effect sizes (they are odds of case given a treatment)

They can be converted to other effect size reporting modes

Useful for meta-analysis – where standardization and comparison are important

Examples: RQ4 – Child Walking → Adult Walking OR: 17.61

Equivalent effect sizes:	d	r	R ²	f
	1.581	0.620	0.385	0.791