

EXPLORING

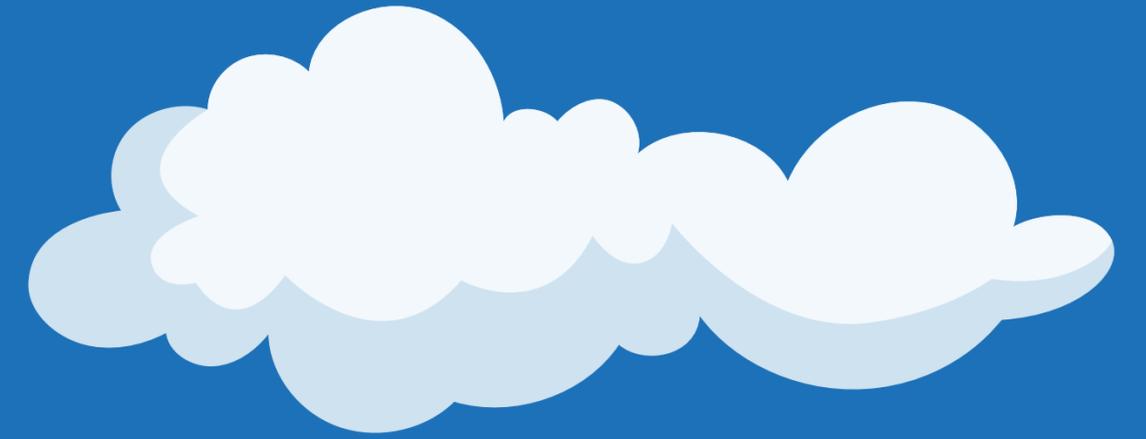
SLEEP AND RESTRICTIVE EATING

IN THE

GROWING UP IN IRELAND (GUI) COHORT

Dr Marie-Christine Opitz October 2024
Growing Up in Ireland Annual Conference

TODAY'S PRESENTATION



1. CONTEXT AND RATIONALE
2. DATA ANALYSIS
3. THE STUDY SAMPLE
4. CORRELATIONS
5. LONGITUDINAL FINDINGS
6. DISCUSSION AND NEXT STEPS

CONTEXT

- **High prevalence rates of sleep difficulties** among adolescents have recently been reported in Europe (20%) (Lewien, et al., 2021) and Asia (26%) (Liang et al., 2021), while the CDC identifies **constant increases** in the frequency of young people's self-reported insufficient sleep (77% in 2021) (CDC, 2024)



CONTEXT

- **High prevalence rates of sleep difficulties** among adolescents have recently been reported in Europe (20%) (Lewien, et al., 2021) and Asia (26%) (Liang et al., 2021), while the CDC identified **constant increases** in the frequency of young people's self-reported insufficient sleep (77% in 2021) (CDC, 2024)
- Compared to healthy controls, **higher insomnia rates** have been identified in individuals **utilising child and adolescent mental health services** (Hysing et al., 2022)



CONTEXT

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- Based on findings from 72 interventions, it can be concluded that **improving sleep quality has a medium-sized effect on mental health**, including clear evidence that improving sleep reduces depression, anxiety, and stress (Scott et al., 2021)
- **Disordered eating might distinctly affect sleep outcomes** via overstimulation (excessive exercise), delayed sleep timings (nighttime binge episodes), increased hunger and fatigue (dietary restriction), or excessive napping (meal avoidance) (cf. Christensen & Short, 2021)

CONTEXT

- **Depressive symptoms** are associated with both eating disorders and sleep difficulties (Driscoll et al., 2024; Uccella et al., 2023)



CONTEXT

- **Depressive symptoms** are associated with both eating disorders and sleep difficulties (Driscoll et al., 2024; Uccella et al., 2023)
- **Media and screen time exposure** have been associated with sleep and eating concerns (Chan et al., 2021; McNicholas et al., 2009)

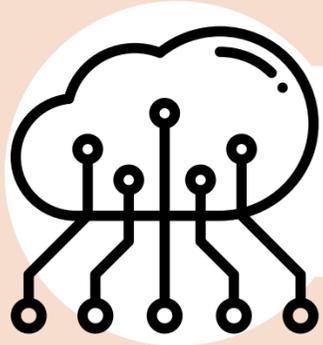


RESEARCH QUESTIONS

1. To what extent do **restrictive eating behaviours** (assessed at age 13) predict **sleep behaviours** (assessed at age 17/18), including self-reported time-in-bed and self-reported sleep duration?
2. To what extent do **restrictive eating behaviours** (assessed at age 13) predict self-reported **sleep difficulties** (assessed at age 17/18), including problems getting to sleep, waking up during the night, early morning awakening, difficulties with waking up in the morning, disrupted sleep, and falling asleep at inappropriate times?
3. Do **depressive symptoms** (assessed at age 13) mediate the association between restrictive eating and sleep behaviours as well as problems?
4. Do **excessive online behaviours** (assessed at age 17/18) mediate the association between restrictive eating and sleep behaviours as well as problems?



DATA ANALYSIS



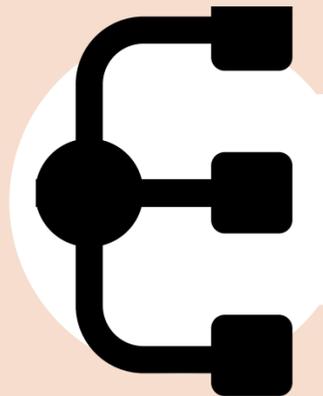
GUI WAVE 2 & 3



R VERSION 4.3.1

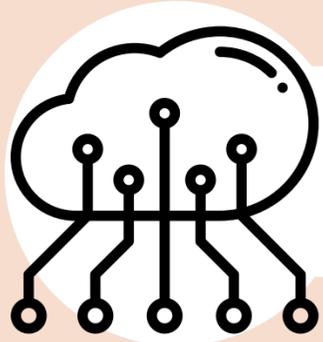


N=5,705 ADOLESCENTS

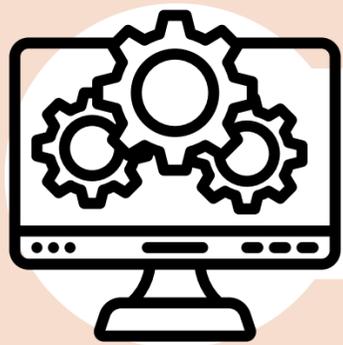


STRUCTURAL EQUATION MODEL
APPROACH (SEM)

DATA ANALYSIS



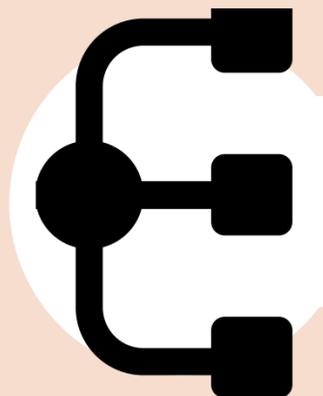
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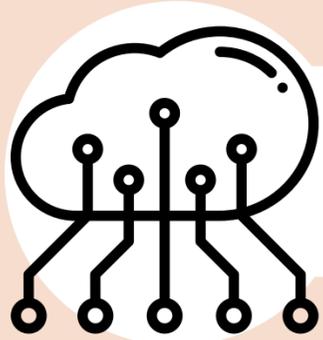


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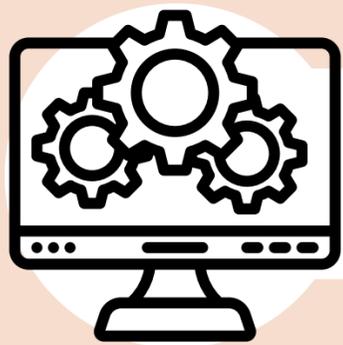
VARIABLES

- One latent “**Restrictive Eating**” Factor (intention to lose weight, dietary restriction and exercise for weight loss)
- **Sleep Behaviours:** time-in-bed (wake-and bed-times), sleep duration
- **Sleep Difficulties:** overall, problems getting to sleep, waking up during the night, early morning awakening, difficulties with waking up in the morning, disrupted sleep, and falling asleep at inappropriate times
- Mediators: **depressive symptoms** (SMFQ), **excessive online behaviour** (>3h spent online)

DATA ANALYSIS



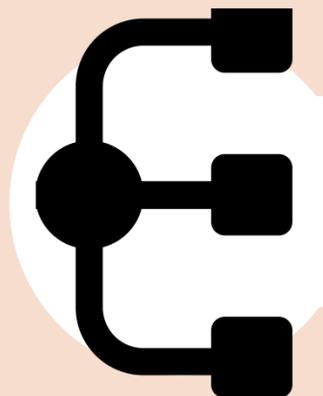
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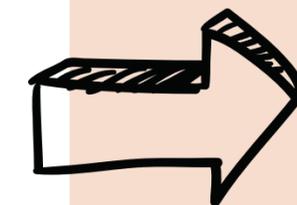
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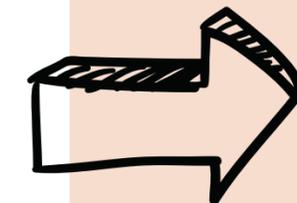
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ONLY AGE 13



ONLY AGE 17/18



ONLY AGE 13

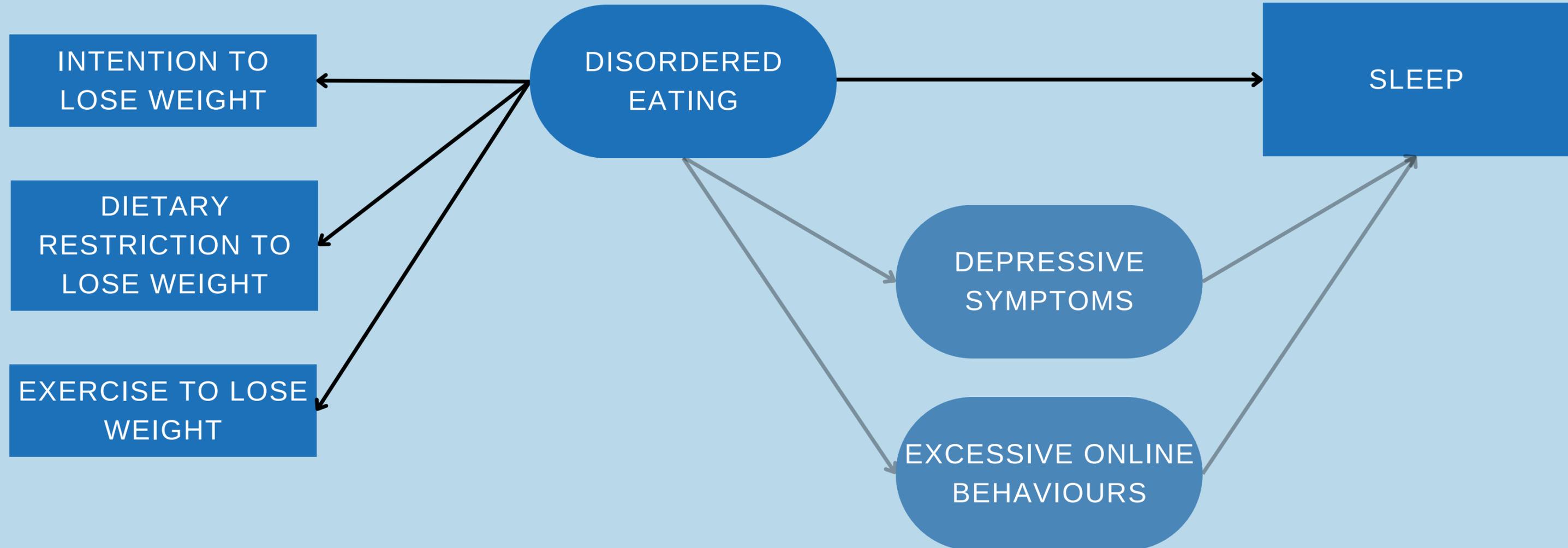


ONLY AGE 17/18

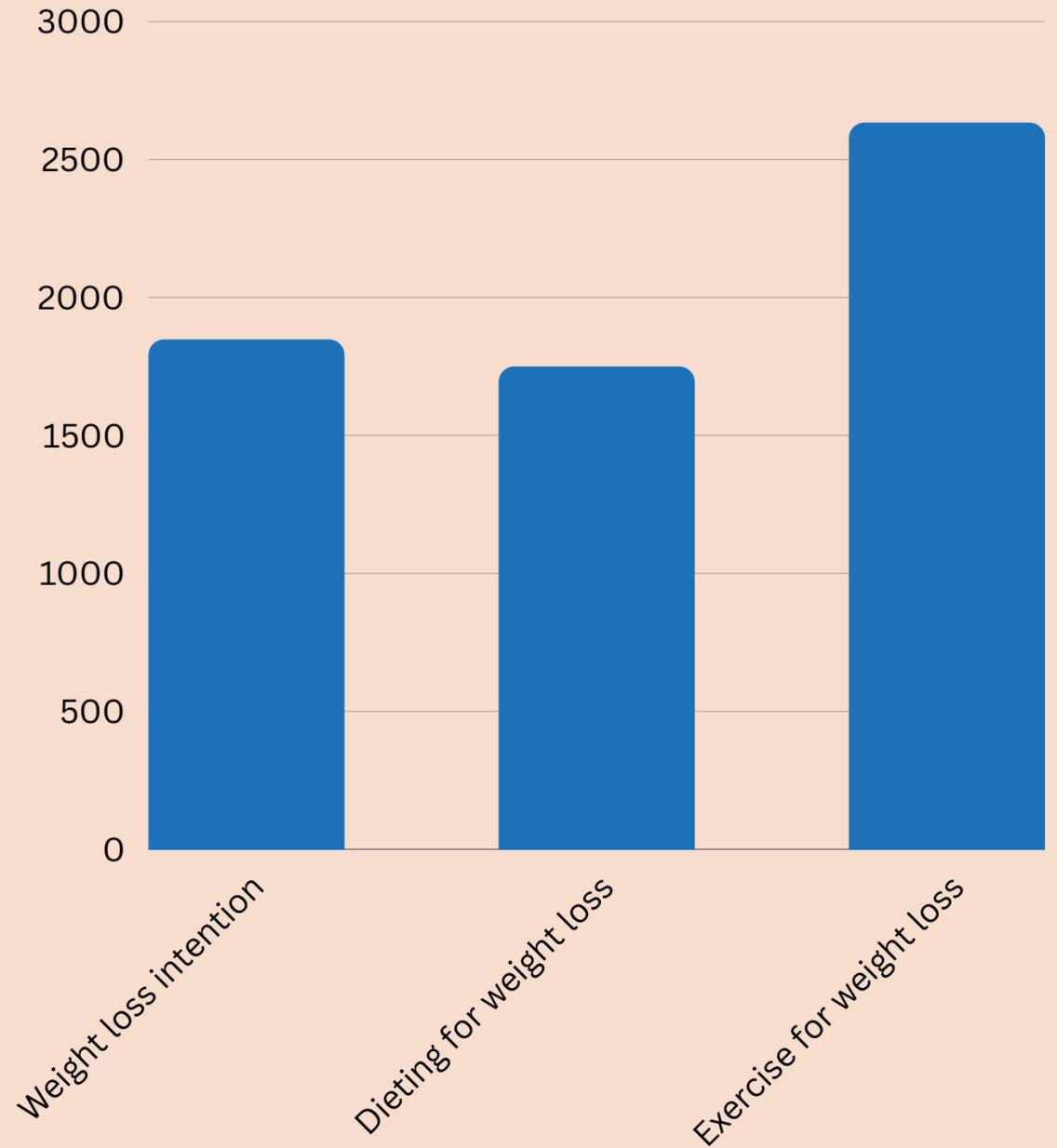
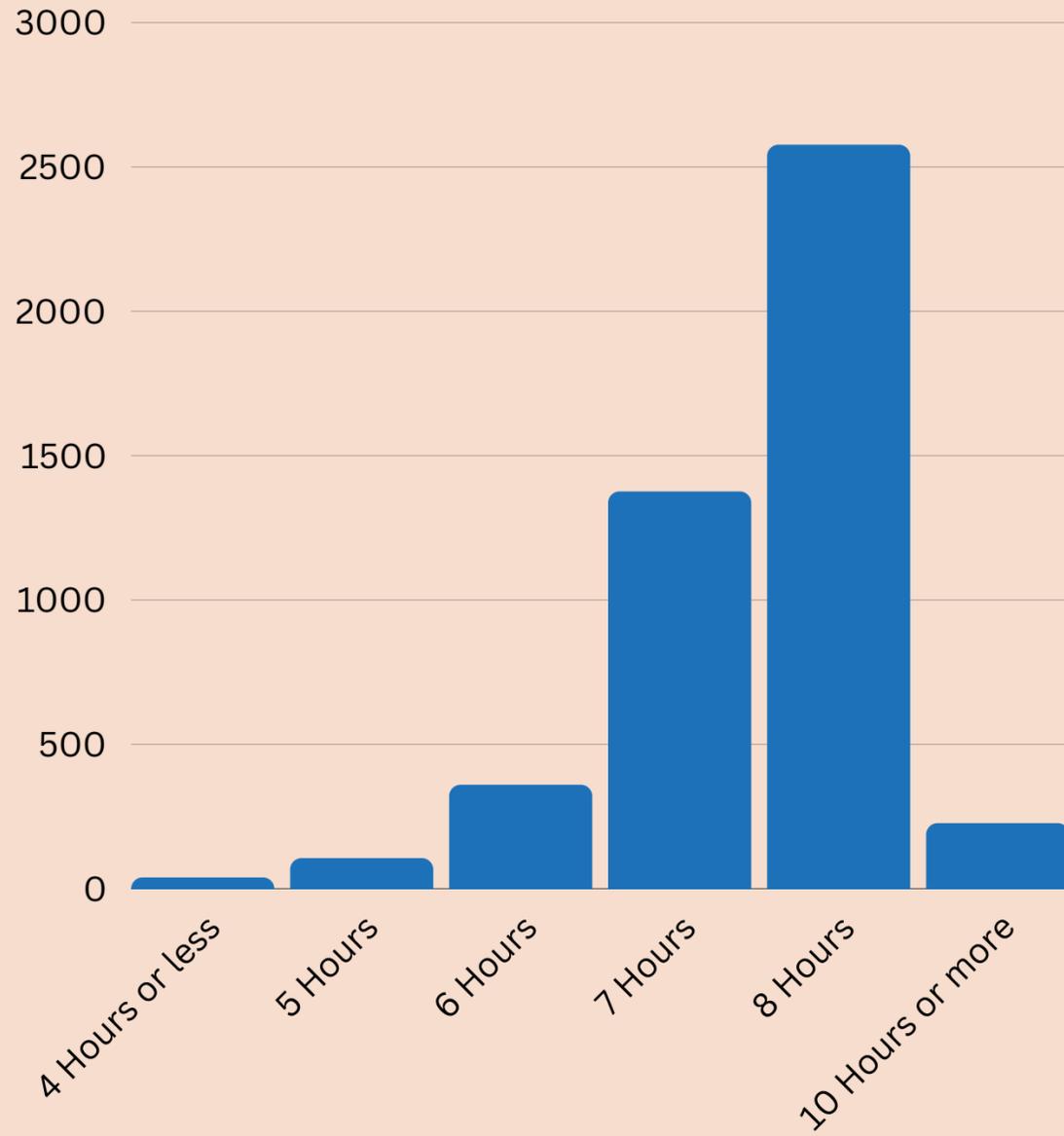
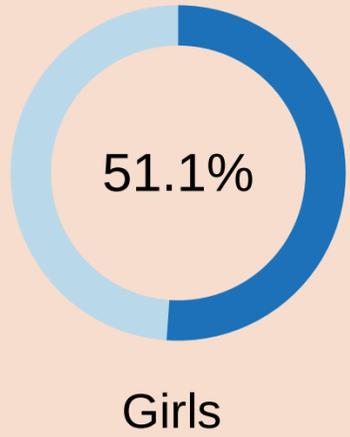
DATA ANALYSIS

COVARIATES:

- GENDER (AGE 9)
- BMI (CATEGORIES, AGE 13)
- HOUSEHOLD INCOME (AGE 13)



THE STUDY SAMPLE



N=5,705

CORRELATIONS

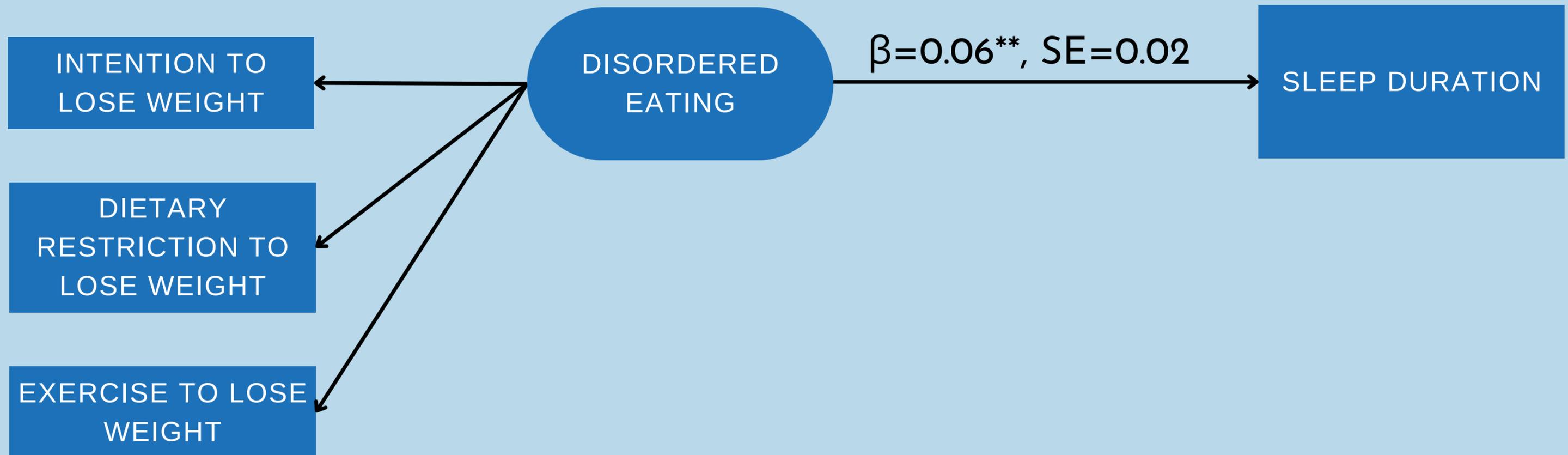
	Sleep Difficulties	Depressive Symptoms	Excessive Online Behaviour (week)	Excessive Online Behaviour (weekend)
Weight Loss Intention	0.04*** [0.02; 0.07]	-0.17*** [-0.19; -0.14]	0.09*** [0.06; 0.11]	0.04** [0.01; 0.06]
Dietary Restriction	0.04** [0.02; 0.07]	-0.21*** [-0.23; -0.18]	0.05*** [0.03; 0.08]	0.02 [-0.006; 0.05]
Excessive Exercise	0.03* [0.001; 0.05]	-0.15*** [-0.18; -0.13]	0.05*** [0.02; 0.08]	0.01 [-0.02; 0.04]

*p<0.05, **p<0.01,, ***p<0.001

LONGITUDINAL FINDINGS

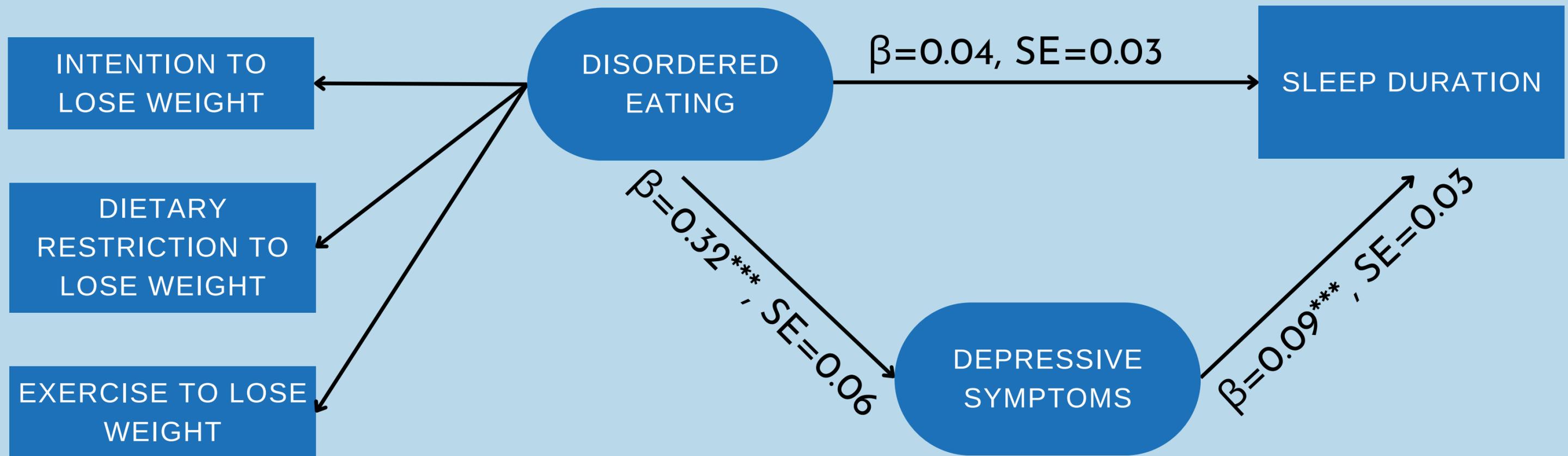
LONGITUDINAL FINDINGS

Shorter sleep duration (reported at age 17/18) is significantly predicted by restrictive eating behaviours (as reported at age 13)



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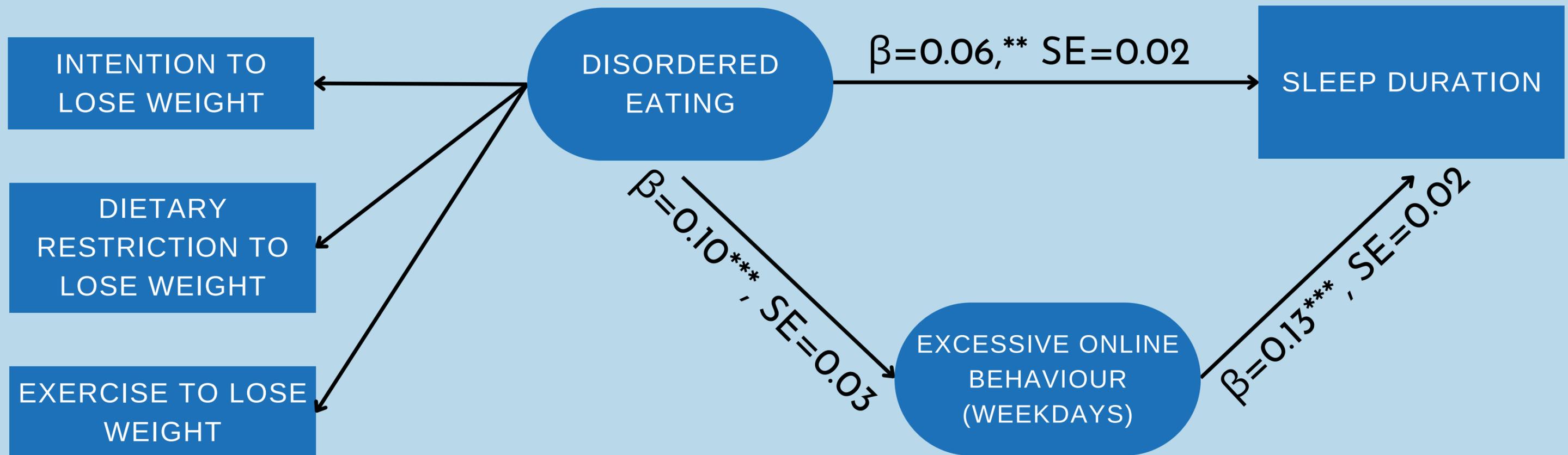


Indirect effect: $\beta=0.03^{***}, SE=0.04$

Total effect: $\beta=0.10^{**}, SE=0.02$

LONGITUDINAL FINDINGS

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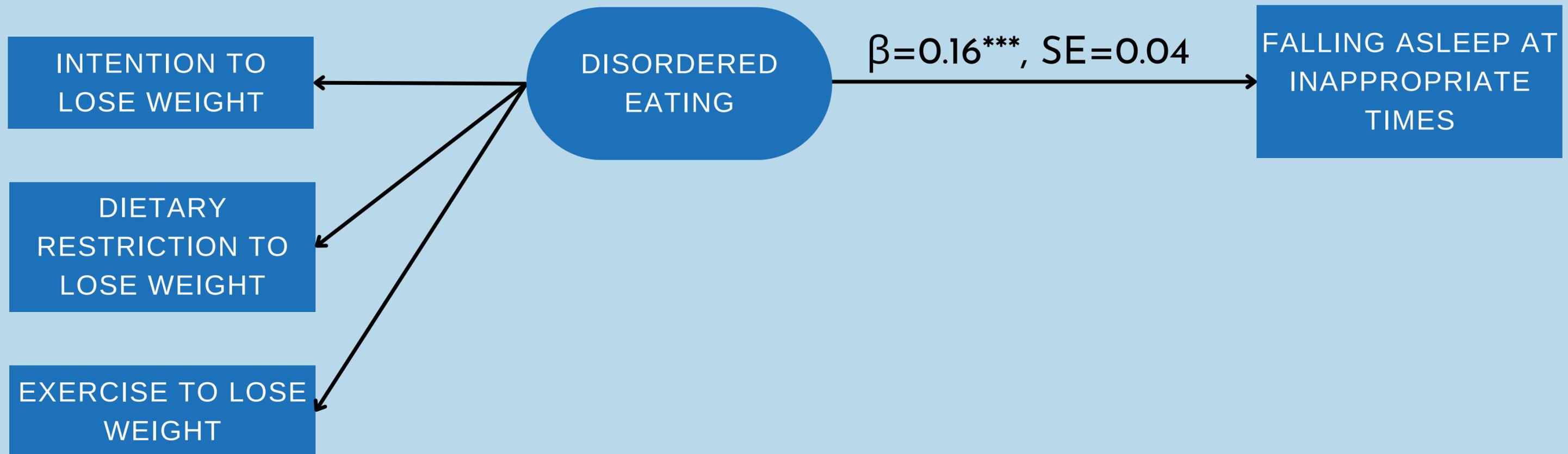


Indirect effect: $\beta=0.01**$, $SE=0.04$

Total effect: $\beta=0.07**$, $SE=0.02$

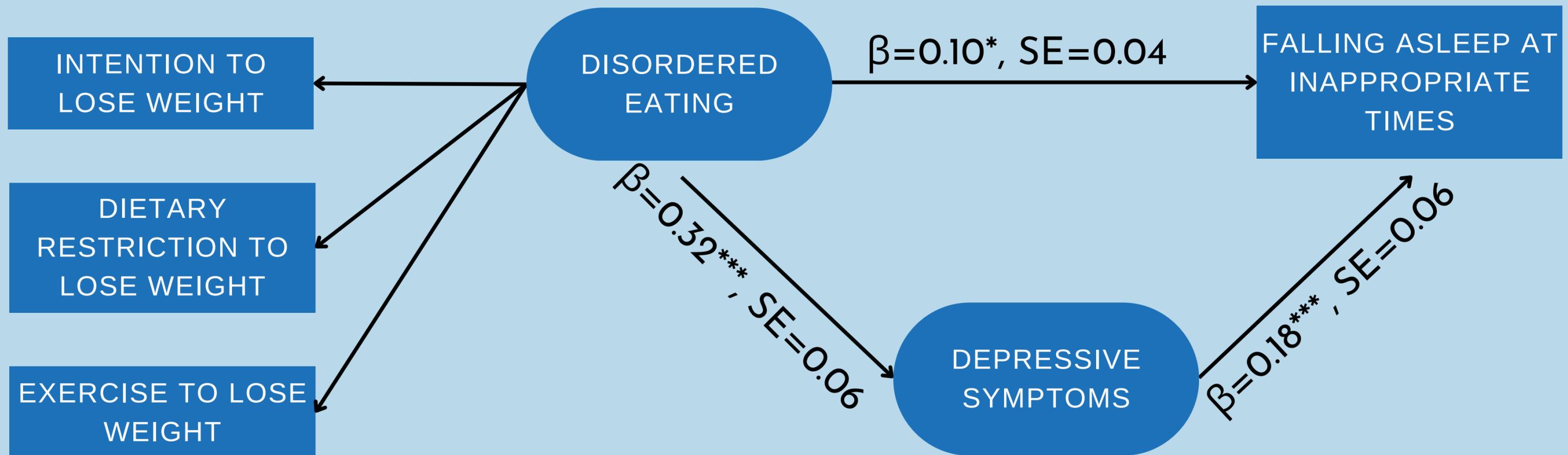
LONGITUDINAL FINDINGS

Falling asleep at inappropriate times (reported at age 17/18) is significantly predicted by restrictive eating behaviours (as reported at age 13)



LONGITUDINAL FINDINGS

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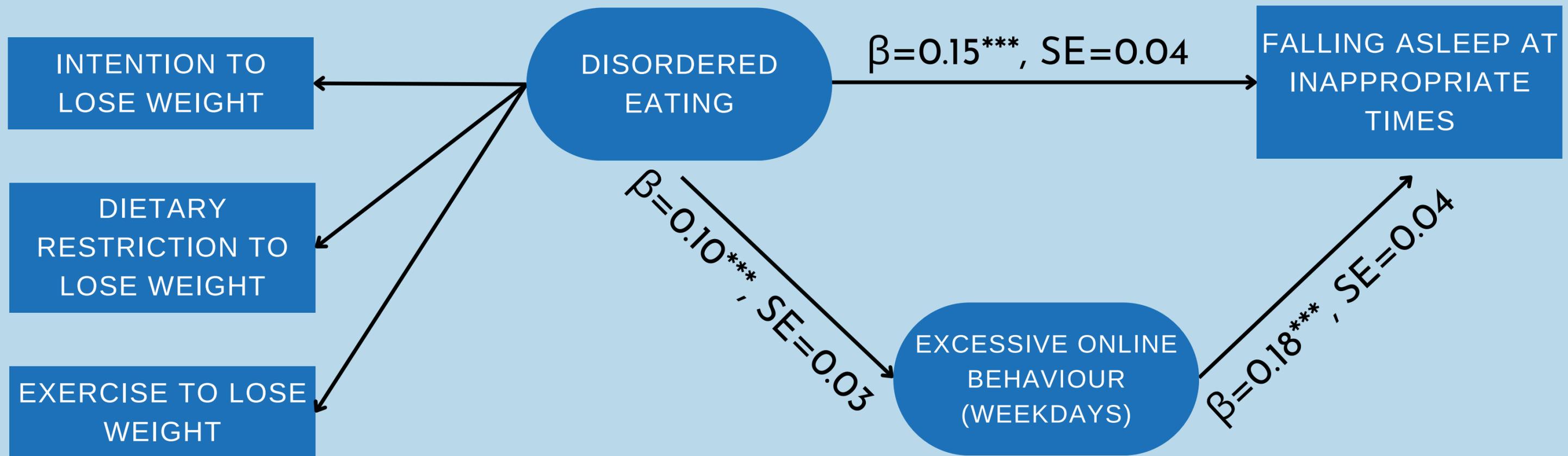


Indirect effect: $\beta=0.06^{***}$, $SE=0.008$

Total effect: $\beta=0.16^{***}$, $SE=0.04$

LONGITUDINAL FINDINGS

Shorter sleep duration (reported at age 17/18) is significantly predicted by restrictive eating behaviours (as reported at age 13)



Indirect effect: $\beta=0.02^{***}, SE=0.005$

Total effect: $\beta=0.16^{***}, SE=0.04$

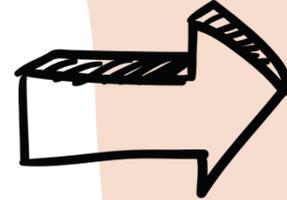
DISCUSSION AND NEXT STEPS

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- Restrictive eating at age 13 predicted shorter sleep duration and falling asleep at inappropriate times at age 17/18
- Depressive symptoms and excessive online behaviours were meaningful mediators
 - For sleep duration, depressive symptoms fully mediated the association

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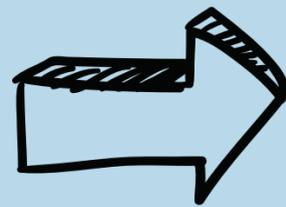
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- Depressive symptoms and excessive online behaviours were meaningful mediators
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- Mood is a promising target to limit negative sleep impacts as a consequence of restrictive eating
- Further research is needed to explore the role of screentime and media content exposure on sleep and disordered eating
- Further research is needed to investigate how restrictive eating could be associated with different sleep timings and exhaustion

DISCUSSION AND NEXT STEPS

Systematic
Review



K=89 STUDIES ASSESSING
SLEEP AND DISORDERED
EATING

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THANK
YOU



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