



Do Larks and Owls feel better at their optimal times of day? An exploratory study in primary school children.

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Introduction

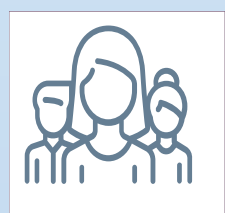
- There is a growing amount of research that found a significant association between chronotype and momentary emotional states (Biss & Hasher, 2012; Carciofo et al., 2014; Jankowski & Ciarkowska, 2008; Díaz-Morales et al., 2015).
- Diurnal fluctuations of momentary emotional states and its relationship with chronotype can only be fully understood by considering time-of-day effects (Escribano & Díaz-Morales, 2014).
- Little is known about the impact of chronotype and time-of-day on the diurnal fluctuations of children's momentary emotional states. The vast majority of research has been developed in adolescents and adults (Bettencourt et al., 2020).



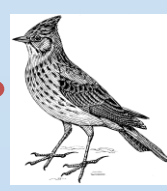
AIM

To identify potential time-of-day and chronotype interactive/synchrony effects on the overall momentary emotional states of primary school-aged children in a naturalistic school setting

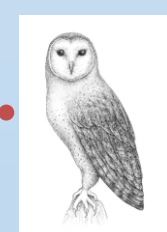
Materials and methods



N=298
3rd and 4th grades
Primary school
Children
8 to 11 years old



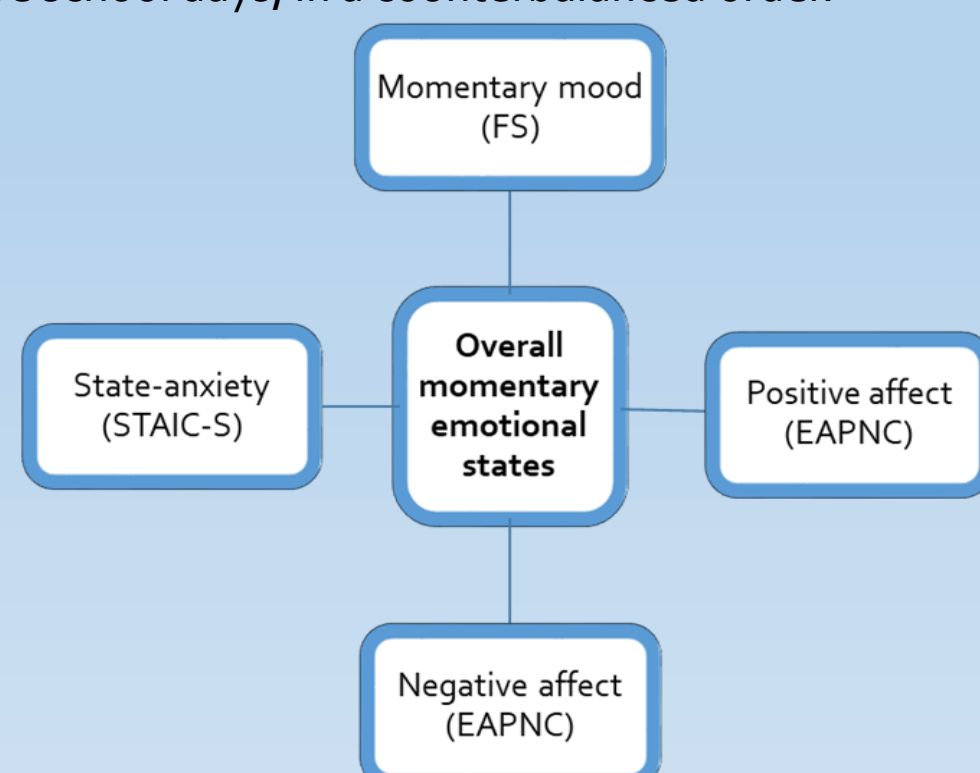
N=52 Morning-type (M-Type)
50% girls;
M age= 8.77, SD age=.81



N=82 Evening-type (E-Type)
55% girls;
M age= 8.89, SD age=.67

- M-type and E-type children were identified using the 20th and 80th percentiles from morningness/eveningness scale score of the Children ChronoType Questionnaire – CCTQ (Werner et al., 2009; Couto et al., 2004).
- Children were collectively assessed through Ecological Momentary Assessment (EMA) procedures (Shiffman et al., 2008). Their momentary emotional states were assessed with Faces Scale – FS (Andrews & Withey, 1976), State-Trait Anxiety Inventory for Children - STAIC-S (Matias, 2004; Spielberger, 1973), and Positive and Negative Affect Scale for Children – EAPNC (Ameixa, 2013; Giacomoni & Hutz, 2006) on the first and last lesson of the school day (9:00 vs. 16:00), either on the same day or in consecutive school days, in a counterbalanced order.

- A global assessment measure of overall momentary emotional states was determined, based on an average of the z-scores for the four scales on each moment of the school day.



Results

- There was a statistically significant small to moderate interaction between chronotype and time-of-day on overall momentary emotional states [$F(1,127) = 4.83, p < .05, \eta_p^2 = .05$]. This effect indicates that there are differences between M-types and E-types' overall momentary emotional states according to time-of-day.

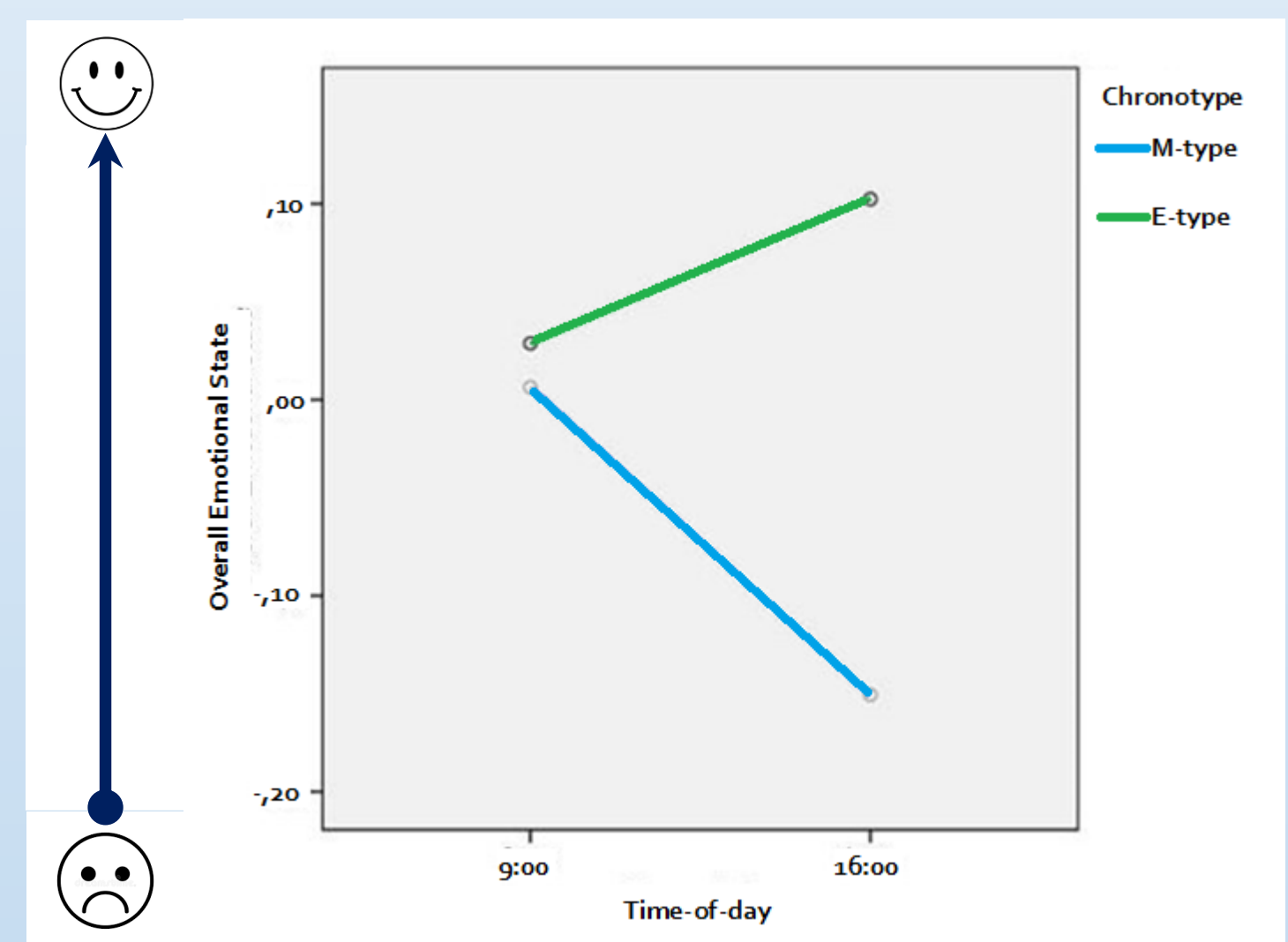


Figure 1. Interaction plot for Overall Emotional State.

- The main effects of chronotype [$F(1,127) = 1.35, p > .05$] and time-of-day [$F(1,127) = .633, p > .05$] were non-significant, suggesting that these variables alone cannot account for the observed differences in children's overall emotional experience.

Conclusions

- Our findings suggest that both chronotype and time-of-day combined have a significant influence on children's emotional experience and that momentary emotional states fluctuation might be an important difference between M- and E-type children that can impact their daily functioning and emotional well-being while engaging in school activities (Díaz-Morales et al., 2015).
- Also, the effects of chronotype on momentary emotional states fluctuations were only observable in conjunction with time-of-day. Both variables should be accounted for in future studies regarding momentary emotional states fluctuations in children.

References

- Please scan the QR code to get access to the References list.



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