

PROSPECTIVE LINK BETWEEN FAMILY ADVERSITY AND DEPRESSIVE SYMPTOMS IN EARLY ADOLESCENCE: MODERATING ROLE OF PHYSICAL ACTIVITY

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BACKGROUND/ THEORY TESTED

Context

Depression is prevalent in adolescents and is associated with social, family and school difficulties (Bhatia & Bhatia, 2007). A well-established predictor of youth depressive symptoms is family adversity (Lansford et al., 2017), which is a set of stressful experiences lived in families including insufficient income (Lansford et al., 2017), maternal depression, single parenthood and family dysfunction (Poole, Dobson, & Pusch, 2017). Relatively few prospective studies have examined modifiable protective factors that can support resilience in children and adolescents exposed to family adversity and that are amenable to intervention.

Objective

To test whether organized and non-organized physical activity can reduce the risk of depressive symptoms in adolescents exposed to family adversity.

METHOD

Participants

- This prospective study used data from the Quebec Longitudinal Study of Child Development (QLSCD).
- Participants came from a representative sample of infants born in Quebec who were followed from 5 months to 20 years old (n=2837).
- In this study, we focused on a subset of participants followed from age 10 (n= 1332) to age 12 (n= 844) (attrition of 36.64%).

Measures

Family adversity

Family adversity reported by mothers was investigated when children were 10 years old with a scale composed of the following indicators:

- Maternal depression:** Center for Epidemiologic Studies-Depression (CES-D) questionnaire.
- Family dysfunction:** Family Assessment Device (FAD) from the McMaster Family Assessment Device.
- Single parenthood:** single item (0= no, 1= yes).
- Insufficient income :** two items (0= no, 1=yes).

Organized physical activity and non-organized physical activity: Mothers answered items on child participation in organized and non-organized physical activity at age 10.

- Organized physical activity:** three items (0= no, 1= yes).
- Non-organized physical activity:** single item (1= no to 7=yes).

Depressive symptoms

Children self-reported depressive symptoms at age 12: Children's Depression Inventory (CDI).

Multiple regressions were used to test the association between family adversity when children were ten years old and depressive symptoms two years after.

RESULTS

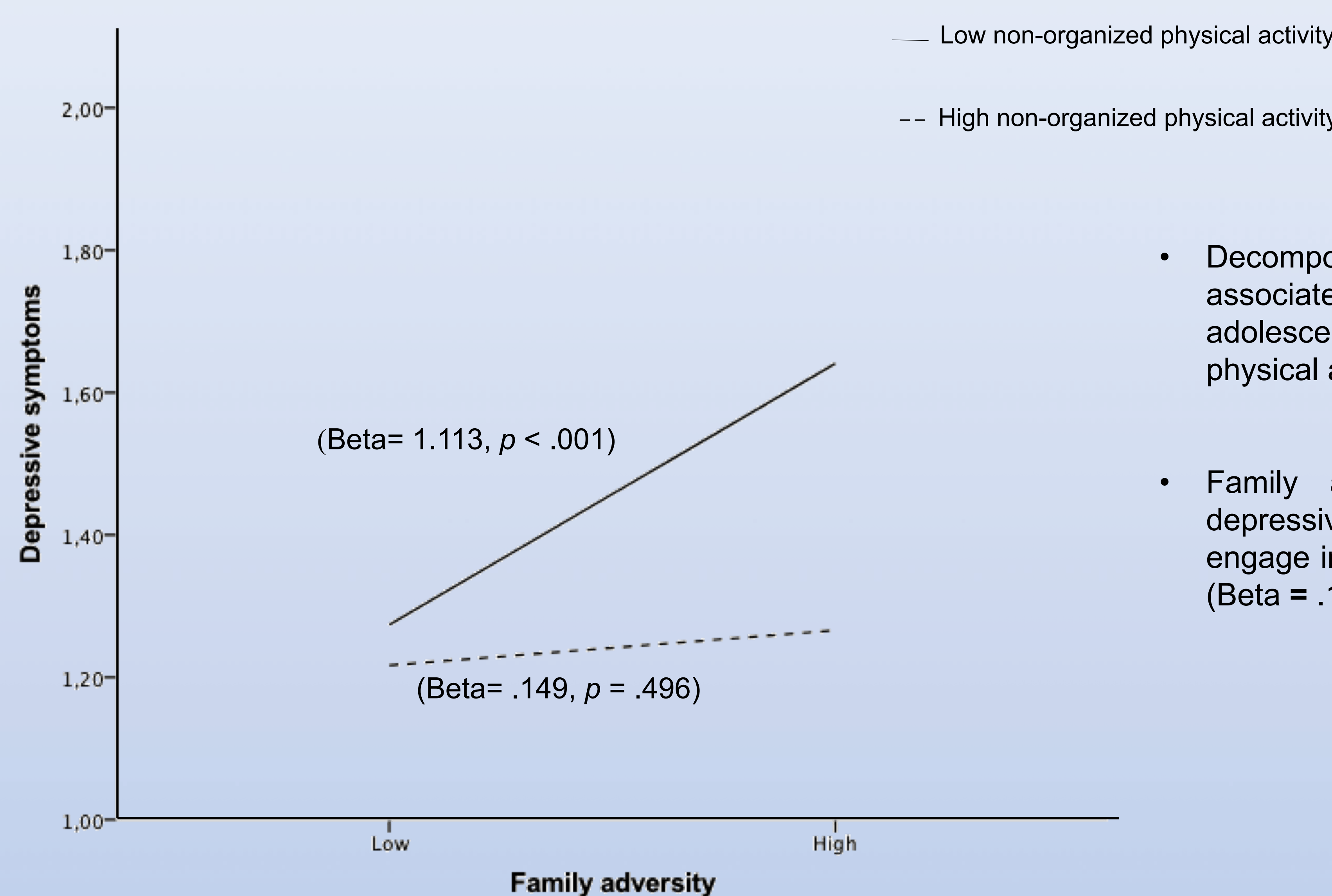
Table 1. Family adversity and depressive symptoms : direct effects and interactions with organized physical activity and non-organized physical activity.

Predictors	Bloc 1	Bloc 2	Bloc 3	Bloc 4	Bloc 5	Bloc 6
	β	β	β	β	β	β
Age	.039	.042	.041	.040	.039	.036
Sex	-.072*	-.068	-.067	-.064	-.064	-.059
Ethnicity	.057	.055	.055	.055	.057	.056
Emotional disorders	.189***	.176***	.169***	.170***	.168***	.160***
Family adversity		.072*	.065	.061	.007	.515**
Organized physical activity			-.068*	-.070*	.090*	-.090*
Non-organized physical activity				-.089**	-.087*	-.028
Family adversity X Organized physical activity					.065	.043
Family adversity X Non-organized physical activity						-.501**

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

- Results showed a relationship between family adversity and depressive symptoms, even after adjusting for control variables ($\beta = .515, p < .01$).
- Organized physical activity was associated with lower depressive symptoms ($\beta = -.090, p < .05$), with no interaction by family adversity ($\beta = .043, p = .531$).
- Results also showed a statistically significant interaction between family adversity and non-organized physical activity ($\beta = -.501, p < .01$).

Figure 1. Level of depressive symptoms of adolescents with low and high non-organized physical activity as a function of family adversity.



- Decomposition showed that family adversity is associated with depressive symptoms when adolescents engage in low non-organized physical activity (Beta = 1.113, $p < .001$).
- Family adversity is not associated with depressive symptoms of adolescents who engage in high non-organized physical activity (Beta = .149, $p = .496$).

DISCUSSION

Summary of findings

While organized physical activity appears beneficial in all children, involvement in non-organized physical activity appears to represent a protective factor with regards to depressive symptoms in children exposed to family adversity.

Potential interpretations

Involvement in non-organized physical activity may represent a strategy to enhance resilience and coping capacity in these children, possibly via distraction mechanism, self-determination mechanism and stress-mitigating neurobiological effects of physical activity (Silverman & Deuster, 2014).

Limits

- The results can not be generalized to other age groups.
- Attrition was present in the second measurement time.

Implications

General physical activity may represent a simple, cost-effective and healthy way to reduce the risk of depressive symptoms in vulnerable children facing the multiple transitions of adolescence.

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