

The Association between Unmet Dental Needs and Developmental Health at School Entry

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Introduction

- ❖ Dental problems are the most prevalent chronic disease worldwide; half of all children entering kindergarten have tooth decay (1).
- ❖ Recent literature suggests that several demographic risk factors of poor dental health may be associated to poor developmental outcomes.
- ❖ There is lacking evidence of whether dental health is associated with children's developmental health.

Purpose

To compare the developmental outcomes of kindergarten children with and without unmet dental needs (UDN).

Methods

Sample

Information was collected from 629,107 children between the 2009/2010 and 2014/2015 school years.

Inclusion Criteria

1. senior kindergarten (or provincial equivalent) level
2. has been in the classroom for > 1 month
3. has a valid EDI

Measures

The Early Development Instrument (EDI) is a teacher-completed questionnaire measuring children's developmental health in five domains (2):

1. Physical Health and Well-Being (PHWB)
2. Social Competence (SC)
3. Emotional Maturity (EM)
4. Language and Cognitive Development (LCD)
5. Communication Skills and General Knowledge (CSGK)

Analyses

Phase 1: ANOVAs & Chi-Square Analyses

Determine the associations between UDN and known risk factors (i.e. age, sex, province, Aboriginal status, E/FSL status, special needs, socio-economic status).

Phase 2: MANCOVAs

Determine the associations between UDN and the EDI domains. Observe differences between children with UDN based on the source of information (i.e. teacher-observed, parent information, both).

All tests were performed using IBM SPSS Statistics v.23.

Results

Phase 1

Table 1. Demographic characteristics of children with and without UDN

Variables	UDN	No UDN
Mean age (years)	5.8	5.7
Sex (% Male)	60.4	51.2
Aboriginal Status (%)	23.4	6.4
E/FSL Status (%)	19.4	12.3
Special Needs (%)	26.0	4.8
Mean SES (z-score)	- 0.344	0.072

All differences were statistically significant at $p < .001$.

Table 2. Prevalence of children with UDN by province

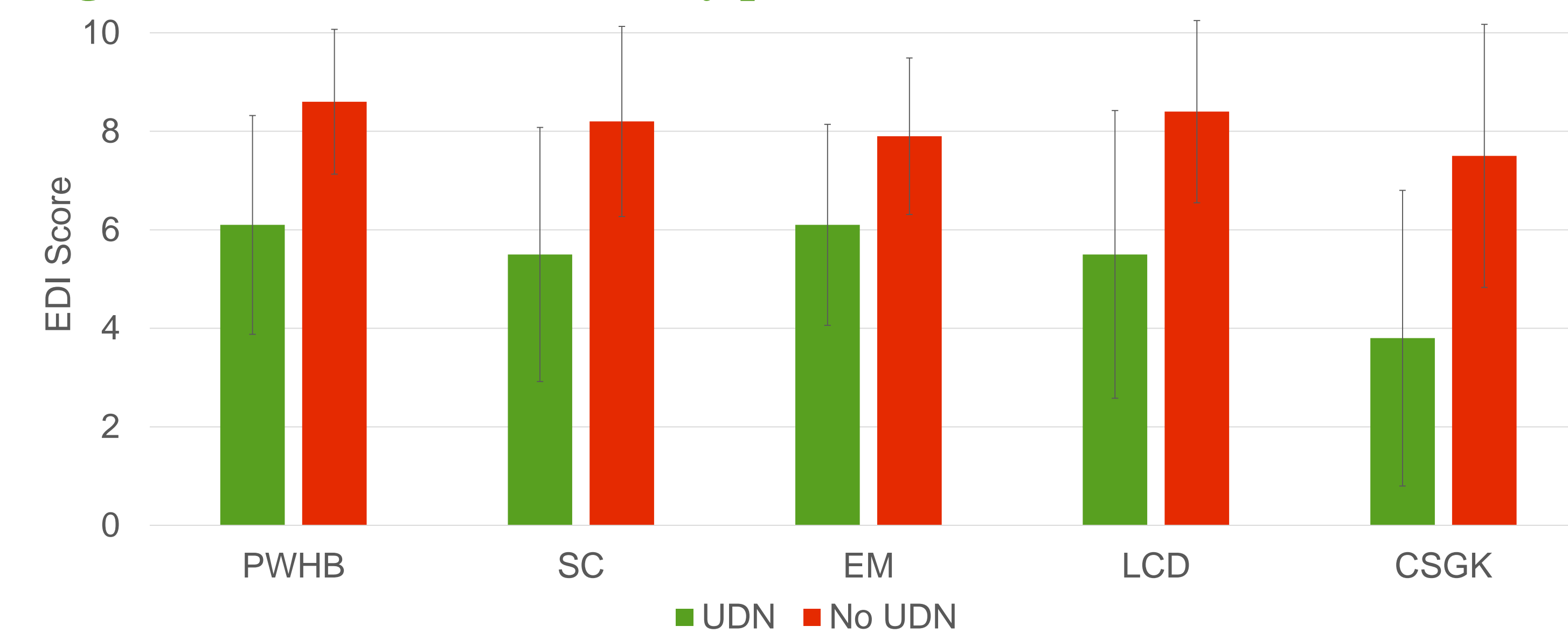
	ON	MB	AB	BC	SK	NT	NL	NS	YT	QC	Total
UDN (%)	0.4*	0.4	0.4	0.4	0.6 [†]	0.9 [†]	0.3*	0.4	0.0*	0.7 [†]	0.4

* significantly lower at adjusted residual < -1.96.

[†] significantly higher at adjusted residual > 1.96.

Phase 2

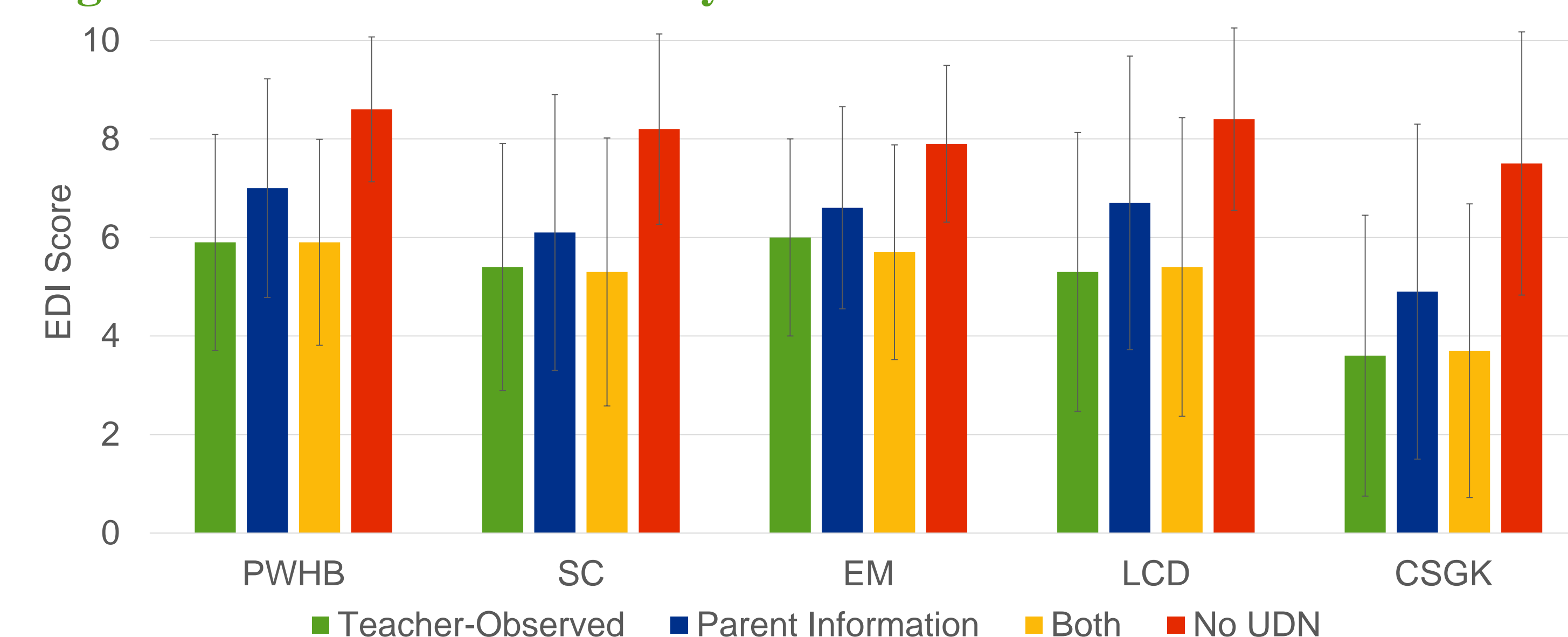
Figure 1. EDI domain scores by presence of UDN



Controlled for age, sex, Aboriginal status, E/FSL status, special needs, and SES.

All differences were statistically significant at $p < .001$, partial $\eta^2 = .003 - .008$.

Figure 2. EDI domain scores by source of UDN information



Controlled for age, sex, Aboriginal status, E/FSL status, special needs, and SES.

Post hoc (LSD): Teacher-Observed \approx Both < Parent Information < No UDN (in all domains).

Conclusion

- ❖ A greater prevalence of UDN was found in children who are: older, male, of Aboriginal status, E/FSL status, low socio-economic status, and have special needs.
- ❖ There are statistically significant associations between UDN and poorer outcomes in all aspects of developmental health.

Limitations

Small Effect Sizes

While results may show statistical significance, small partial η^2 values suggest that the differences observed between children with and without UDN may be trivial.

Teacher-Reported Data

Responses reflect teacher knowledge and awareness, which suggests that there may be potential under-representation of children with UDN.

Future Directions

- ❖ Investigate reasons of why dental health may affect development.
- ❖ Investigate factors that account for differences in prevalence of UDN between provinces.
- ❖ Investigate the types of special needs that are associated with UDN.
- ❖ Investigate reasons of why there are differences in outcomes based on source of UDN information.

References

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2. Janus M, Offord DR. Development and psychometric properties of the Early Development Instrument (EDI): A measure of children's school readiness. Canadian Journal of Behavioural Science / Revue canadienne des sciences du comportement. 2007;39(1):1-22.