

Introduction

- School participation is associated with development of physical, cognitive, and social competencies, and behavioral and emotional well-being.^{1,2}
- Children with disabilities are restricted in school participation.¹⁻⁴
- Participation, defined as involvement in life situations, can be supported or hindered by personal and environmental factors.²
- It remains unclear how interdisciplinary services and programs address school participation in Taiwan.
- Study aims were to identify: a) identify school participation restrictions and b) environmental barriers experienced by Taiwanese children with disabilities, and c) predictors of their school participation.

Methods

Table 1. Demographics (n=18119)

Characteristics	n (%)
Age (years)	
6.0-8.9	4441 (25%)
9.0-11.9	4154 (23%)
12.0-14.9	4932 (27%)
15.0-17.9	4592 (25%)
Sex	
Male	11698 (65%)
Major disability type	
Intellectual disability	10310 (57%)
Autism spectrum disorders	4013 (22%)
Language delay	801 (4%)
Cerebral palsy	602 (3%)
Hearing impairments	448 (3%)
Visual impairments	377 (2%)
Chronic mental illness	222 (2%)
Residence region	
Metropolitan	3328 (18%)
General City	4376 (24%)
Boomtown	5426 (30%)
Traditional industry town	1824 (10%)
General town	2264 (13%)
Aging town	511 (3%)
Remote Rural area	385 (2%)

- **Design:** Cross-sectional study; part of a national survey conducted in Taiwan.

- **Participants:** Children with disabilities (M=12.1 year-old, SD=3.5) registered in the disability eligibility system assessed during July 2012 to January 2014.

- **Measure:** Chinese version of the Child and Family Follow-up Survey (CFFS-C)⁵ completed by family caregivers. It includes measures of participation (CASP-C: independence / frequency scales), environment barriers (CASE-C: selected items that might have direct or indirect impact at school) and child impairments (CAFI-C: Mental/speech; Physical/sensory composite scores).

- **Data analysis:** Descriptive statistics to identify participation restrictions and environmental barriers; and stepwise multiple linear regression analyses to identify significant predictors of school participation.

Results

Figure 1. Reported school participation restrictions (%)

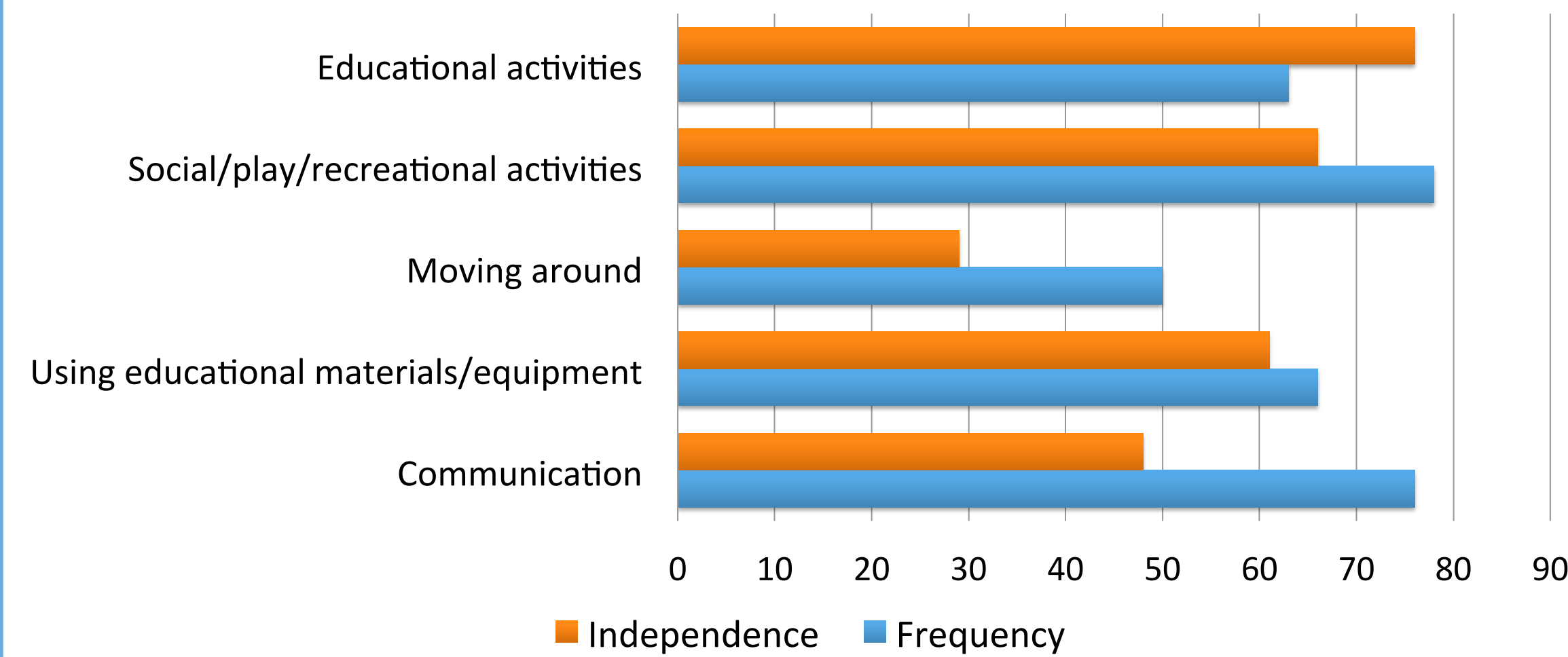


Table 2. Reported environmental barriers that might impact school participation (%)

Direct impact (at school)	Problem	Indirect impact (in general)	Problem
Design and layout	8.2%	Lack of assistive devices or equipment	12.1%
Lack of support	19.1%	Lack of family finance	49.4%
Problems with attitudes	23.7%	Family stress	60.4%
Lack of assistance from others	21.2%	Problems with government agencies/policies	35.7%
Lack of programs & services	21.9%	Lack of information about child's diagnosis and/or intervention approaches	32.4%

Table 3. Predictors of school participation (stepwise multiple linear regression)

Disability type (n)	Dimension	Model R ²	Positive predictor (ΔR)	Negative predictor (ΔR)
Intellectual disability (n=9252)	Indep.	.633*	Age (.005*); General city (.001*); Remote rural area (.001**)	Mental/speech imp. (.337*); Physical/sensory imp. (.015*); Direct CASE-C (.002*)
	Freq.	.480*	Remote rural area (.002*)	Mental/speech imp. (.213*); Physical/sensory imp. (.007*); Age (.004*); Direct CASE-C (.004*); Traditional industry town (.001**); Indirect CASE-C (.001*)
Autism spectrum disorders (n=3331)	Indep.	.382*	Age (.001*)	Mental/speech imp. (.376*); Indirect CASE-C (.004*); Boomtown (.002**)
	Freq.	.226*	-	Mental/speech imp. (.207*); Age (.012*); Indirect CASE-C (.004*); Boomtown (.003**)
Language delay (n=497)	Indep.	.434*	-	Mental/speech imp. (.383*); Physical/sensory imp. (.046*); Direct CASE-C (.006**)
	Freq.	.283*	-	Mental/speech imp. (.228*); Age (.031*); Physical/sensory imp. (.023*)
Cerebral palsy (n=413)	Indep.	.574*	-	Mental/speech imp. (.535*); Physical/sensory imp. (.039*)
	Freq.	.519*	-	Mental/speech imp. (.491*); Physical/sensory imp. (.027*)
Hearing impairments (n=413)	Indep.	.500*	-	Mental/speech imp. (.477*); Physical/sensory imp. (.023*)
	Freq.	.298*	-	Mental/speech imp. (.279*); Age (.019*)

Abbreviations: Indep.= independence; Freq.= frequency; imp.= impairment. *p<.001; **p<.01

Summary

- Child participation was most restricted for educational activities (independence) and social and recreational activities (frequency).
- Attitudes of others at school and family stress were the most frequently reported directly and indirectly environmental barriers.
- 44.3% variance explained for school participation independence (mainly by Mental/speech and Physical/sensory impairment scores and age).
- 29.9% variance explained for school participation frequency (mainly by Mental/speech and Physical/sensory impairment scores, age, and direct environmental barrier composite scores).

Discussion & Future Directions

- Results provide insights that might inform school personnel and policy makers about where services, resources and changes are needed to reduce environmental barriers and promote school participation.
- Further research is needed to
 - ✓ Determine what specific supports and resources are available and what service delivery methods are possible to implement change effectively at the national and regional level.
 - ✓ Add variables in the prediction models, e.g. school type, school size, ratio of inclusion of children, ratio of teacher/student at school.
 - ✓ Examine perspectives from teachers and children.

References

1. Simeonsson, R. J., Carlson, D., Huntington, G. S., McMillen, J. S., & Brent J. L. (2001). Students with disabilities: a national survey of participation in school activities. *Disability and Rehabilitation*, 23(2), 49-63.
2. WHO (2007). *International Classification of Functioning, Disability and Health: Children & Youth Version (ICF-CY)*. Geneva: World Health Organization.
3. Bedell, G., & Dumas, H. M. (2004). Social participation of children and youth with acquired brain injuries discharged from inpatient rehabilitation: A follow-up study. *Brain Injury*, 18(2), 65-82.
4. Egilson, S. T., & Traustadottir, R. (2009). Participation of students with physical disabilities in the school environment. *American Journal of Occupational Therapy*, 63(3), 264-272.
5. Liao, H.-F., Yen, C.-F., Hwang, A.-W., Liou, T.-H. & Chang, B. S. (2013). Introduction to the application of the functioning scale of the disability evaluation system. *Formosa Journal of Medicine*, 17, 317-331. (in Chinese with English abstract).

Acknowledgement: Funding for larger study from Ministry of Health and Welfare in Taiwan, M05F4145 & M06F5054