



Child and family factors that predict participation attendance in daily activities of toddlers with global developmental delay

Pei-Jung Wang¹, Hua-Fang Liao^{2,3}, Ling-Ju Kang^{4,5}, Li-Chiou Chen⁶;
Ai-Wen Hwang^{4,5}, Lu Lu⁷, Yu-Kang Tu⁸, George A. Morgan⁹

1. Department of Physical Therapy, College of Medical and Health Science, Asia University, Taichung, Taiwan
2. School and Graduate Institute of Physical Therapy, College of Medicine, National Taiwan University, Taipei, Taiwan
3. Taiwan Society of ICF, Taipei, Taiwan.
4. Graduate Institute of Early Intervention, College of Medicine, Chang Gung University, Tao-Yuan, Taiwan
5. Physical Medicine and Rehabilitation, Chang Gung Memorial Hospital, Linkou, Tao-Yuan, Taiwan
6. Department of Physical Therapy, Fooyin University, Kaohsiung, Taiwan
7. Department of Physical Medicine and Rehabilitation, National Taiwan University Hospital, Taipei, Taiwan
8. Education and Human Development, Colorado State University, Fort Collins, Colorado, USA

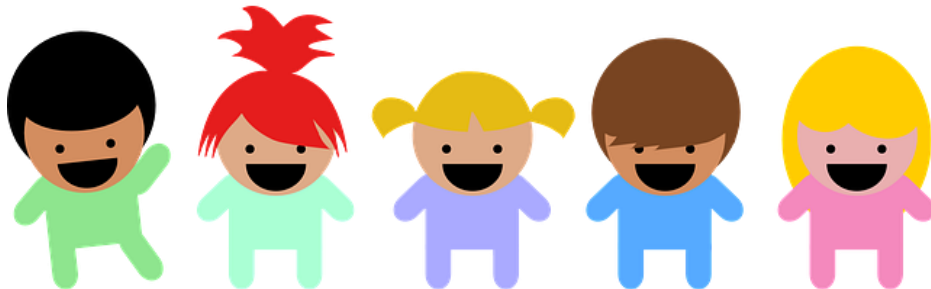
Wang, P. J., Liao, H. F., Kang, L. J., Chen, L. C., Hwang, A. W., Lu, L., Tu, Y. K. & Morgan, G. A. (2021). Child and family factors that predict participation attendance in daily activities of toddlers with global developmental delay. *Disability and Rehabilitation*, 43(13), 1849-1860.

Participation in early childhood

69

- Participation is the optimal goal of early childhood intervention
- Defined as “involvement in a life situation” (WHO, 2001)
- Attendance is one of essential elements for participation construct
 - Diversity
 - Frequency

(Imms, Granlund, Wilson et al., 2017; Hwang, Liu, Liao, 2013)



Children with global developmental delay (GDD)

70

- Definition:
 - ▣ Significant delays in two or more developmental domains: cognition, language, motor, social, activities of daily living
 - ▣ Significant delay: child's performance below than 2 SD of mean on the norm-referenced tests (Petersen et al., 1998; Shevell et al., 2003)
- Prevalence: 1 to 3% in pediatric practice
 - ▣ Common disorder for referral to a pediatric practice
(Srouf et al, 2003 & 2006)
- Preschoolers with disabilities participated in fewer play, physical, social and learning activities than their peers with typical development

Purposes of This Study

71

- Early factors predicted participation diversity and intensity 6 months later in different activities for young children with GDD
 - ▣ Child : age, gender, severity of delay, and withdrawn behaviors
 - ▣ Family: SES, family income, maternal education, maternal stress, and quality of maternal teaching behavior

Study design and participants

72

- Prospective study: Time one (T1, 24-42 mo)→ Time two (T2, 30-48 mo)
- Participants: **59 children with GDD in greater Taipei area**
 - Inclusion criteria
 - Chronological age: 24 -42 months
 - Delay in at least 2 domains using the Comprehensive Developmental Inventory for Infants and Children diagnostic test (CDIIT) (DQ \leq 70)
 - Average cognitive and FM DA : \geq 15 months
 - Mothers took care of the child: \geq 4 hr / day
 - Maternal educational level: \geq junior high school
 - Exclusion criteria
 - Neuromotor disorders
 - Progressive disease
 - Psychological disorders (ASD or ADHD)
 - Unstable medical condition
 - Frequent hospitalization
 - Receiving a surgical operation in the past 6 months
 - Visual or auditory impairment even with assistive devices

Assessment of Preschool Children's Participation (APCP)

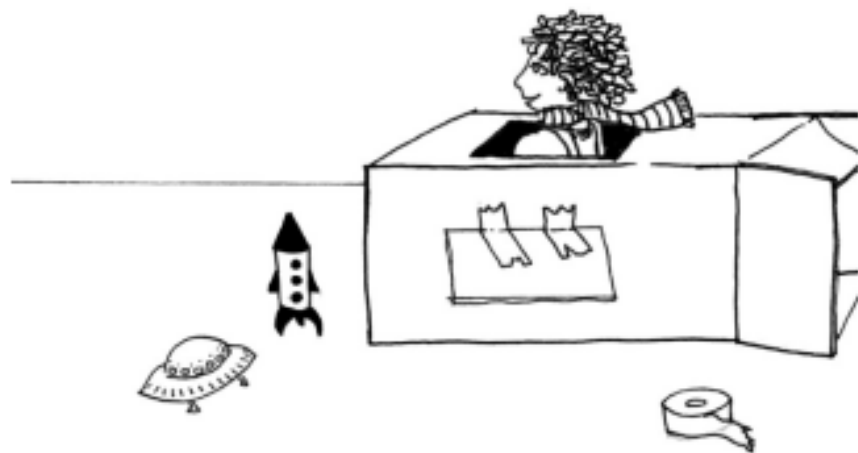
73

- Rating by caregivers of children aged 2 to 5 years and 11 months
- **45 items; 4 types of activities** over past 4 months
 - ▣ **Play** (9 items; e.g., playing with toys)
 - ▣ **Skill development** (15 items; e.g., taking music lessons)
 - ▣ **Active physical recreation** (10 items; e.g., going for walk)
 - ▣ **Social activity** (11 items; e.g., going on an outing)
- Scoring methods (for each activity)
 - ▣ **Diversity (0-100%):** number of participated items / total items of that activity*100.
 - ▣ **Intensity (0-7):** average frequency of each activity
 - ▣ **Total diversity and intensity:** average score of all items of the whole scale.
- Adequate reliability and construct validity (Kang et al., 2016; Chen et al.,2013)

Play Activities

1. Doing pretend or imaginary play

Includes creating plays, acting out stories or role-playing.



Has your child done this activity in the past 4 months?

Yes

No →

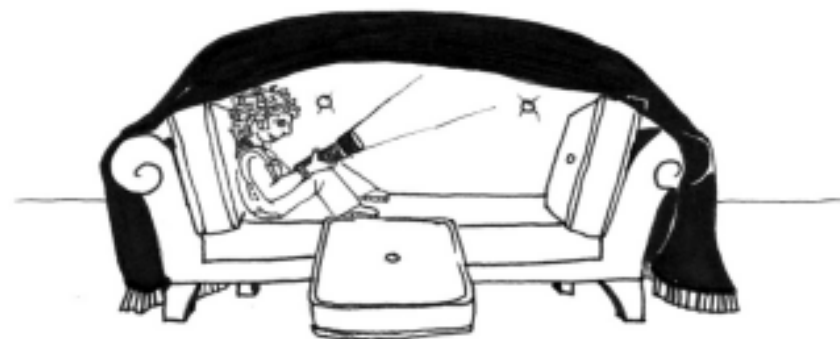


If yes, how often? (circle your answer)



2. Building forts or tents

Includes building forts, tents, castles, cars, or homes out of boxes, blankets or other household items.



Has your child done this activity in the past 4 months?

Yes

No →



If yes, how often? (circle your answer)



Main Results: Hierarchical multiple regression for predicting T2 participation dimensions

75

Outcome variables n=59	Participation Diversity										Participation Intensity									
	Total		Play		Skill dev		Phys rec		Social		Total		Play		Skill dev		Phys rec		Social	
	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>
Step 1	$R^2=.09^{**}$		$R^2=.07^*$		$R^2=.21^{**}$		$R^2=.06^*$		$R^2=.05^*$		$R^2=.13^{**}$		$R^2=.06^*$		$R^2=.15^{**}$		—		$R^2=.08^*$	
Age	.33	<.01	.29	.03	.40	.001	—	—	.25	.04	.38	.003	.28	.03	.40	.002	—	—	.30	.02
Severity of delay	—	—	—	—	-.30	.01	-.27*	.04	—	—	—	—	—	—	—	—	—	—	—	—
Step 2	$R^2=.37^{***}$ $\Delta F=13.32^{***}$		$R^2=.50^{***}$ $\Delta F=25.21^{***}$		$R^2=.34^{***}$ $\Delta F=6.61^{**}$		$R^2=.20^{**}$ $\Delta F=6.17^{**}$		$R^2=.15^{**}$ $\Delta F=7.86^{**}$		$R^2=.32^{***}$ $\Delta F=9.08^{***}$		$R^2=.49^{***}$ $\Delta F=25.03^{***}$		$R^2=.28^{***}$ $\Delta F=6.06^{**}$		$R^2=.21^{***}$		$R^2=.10^*$ $\Delta F=2.60$	
Age	.25	.02	.21	.03	.29	.01	—	—	.19	.14	.31	.007	.21	.04	.30	.01	—	—	.26	.04
Severity of delay	—	—	—	—	-.22	.04	-.24	.04	—	—	—	—	—	—	—	—	—	—	—	—
Perceived persistence	.43	<.001	.44	<.001	.33	.003	.32	.02	.35	.007	.34	.005	.39	<.001	.28	.02	.41	.002	.20	.11
Task persistence	—	—	—	—	.23	.04	—	—	—	—	—	—	—	—	.28	.02	—	—	—	—
Withdrawn behavior	-.21	.06	-.38	<.001	—	—	-.18	.16	—	—	-.22	.07	-.43	<.001	—	—	-.16	.20	—	—
Step 3	$R^2=.36^{***}$ $\Delta F=0.83$		$R^2=.49^{***}$ $\Delta F=0.55$		$R^2=.40^{***}$ $\Delta F=4.02^*$		—		$R^2=.17^{**}$ $\Delta F=2.49$		$R^2=.31^{***}$ $\Delta F=0.01$		$R^2=.48^{***}$ $\Delta F=0.25$		$R^2=.32^{***}$ $\Delta F=4.24^*$		—		$R^2=.10^*$ $\Delta F=1.08$	
Age	.22	.04	.19	.07	.27	.02	—	—	.14	.29	.31	.01	.19	.06	.28	.02	—	—	.23	.09
Severity of delay	—	—	—	—	-.24	.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Perceived persistence	.42	.001	.43	<.001	.30	.008	—	—	.30	.02	.34	.006	.38	.001	.25	.03	—	—	.17	.19
Task persistence	—	—	—	—	.22	.04	—	—	—	—	—	—	—	—	.28	.01	—	—	—	—
Withdrawn behavior	-.19	.10	-.36	.001	—	—	—	—	—	—	-.22	.08	-.42	<.001	—	—	—	—	—	—
Maternal stress	-.11	.37	-.08	.46	-.03	.81	—	—	-.20	.12	-.01	.91	-.05	.62	—	—	—	—	-.14	.30
Maternal cognitive fostering	—	—	—	—	.29	.008	—	—	—	—	—	—	—	—	.23	.04	—	—	—	—

Main findings in this study

76

- It is the first study to examine the child and family factors for predicting 6-month later participation for toddlers with GDD
- Child factors (older age and higher perceived persistence), not the family factors, significantly predicted participation diversity and intensity of overall activities
- Different factors predicted different aspects of participation attendance
- Child's mastery motivation, especially perceived persistence was the most relevant predictor for 6-month later participation
- When controlling for child factors, only maternal teaching behaviors significantly predicted participation diversity and intensity, and then only for skill development.

Conclusions & Implications

77

- Based on the **child and their caregiver preferences**, applicability and/or engagement for different activity types, interventionists could collaborate further with caregivers to find strategies to increase children's participation attendance in daily life.
- Interventionists could consult with caregivers: (a) to observe the **persistence and positive affect (mastery motivation)** of children during different activities, (b) to figure out the possible barriers to participation in those activities, and (c) to demonstrate appropriate caregiver-child interactions.
- Interventionists are encouraged to support children's mastery motivation and quality of maternal teaching behaviors to enhance participation in daily activities.

Thanks for your attention!!

