

ORIGINAL ARTICLE

Factors Correlating to Family Participation in Children Growth and Development in West Java Indonesia : A Retrospective Cohort Study

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ABSTRACT

Introduction: Family participation is significant in the development of toddlers and children. However, there has been no comprehensive research to examine the factors that influence family participation in the development of children, especially in West Java Province. This study aimed to determine the factors that influence family participation in the development of toddlers and children in West Java. **Methods:** The research design used a retrospective cohort study to analyze various factors that affect family participation in the development of toddlers and children. The data used were secondary data based on the 2019 Program Performance and Accountability Survey performed by National Population and Family Planning Agency in West Java Province, Indonesia. This study included 3,894 data of families who have toddlers and children in West Java. Data analyzed using distribution frequencies, Rank Spearman test, and multinomial regression analysis. **Results:** The results showed that eight factors influence family participation in their toddler and child development: behavior and hygienic practice (not littering, save energy) and family functioning from religious, cultural, affective, protection, reproduction, and socialization and education aspects. Two prominent factors towards low-income family participation in toddler and child development are the low protection function (OR=10.52; CI: 6.51 – 16.94) and the low reproduction function of the families (OR=8.92; CI: 5.62 – 14.16). **Conclusion:** The results of this study can be used by National Population and Family Planning Agency to use information about factors that influence family participation to formulate programs and policies that can increase family participation effectively.

Keywords: Child development, Family participation, Toddler development

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INTRODUCTION

Stunting compared to age is a growing problem due to the long-term insufficient nutritional intake in addition to the incidence of diseases, especially during the first one thousand days of life (1). The first 1000 days of life is the initial period of life that begins in the womb until the first two years after birth. This is the "Golden Period" for a child to grow and develop optimally (2). Therefore, if there is stunting in children, this will have an important long-term effect in adulthood that has the potential to damage future national economic growth (3). Families provide preventive health care and jointly care for family members who are healthy and sick. Therefore, the health nursing model given to families should be

changed. Extension and counselling for family self-care is the primary goal of family-oriented nursing practice (4).

Health promotion and health-protective measures designed to keep individuals free from disease or injury (4). For example, one research stated that active family participation is proven to be effective in helping and encouraging children and families to reach a healthy weight to reduce the risk of heart disease and contribute to reducing obesity in children and adolescents (5).

Another study proved that family participation through family-based education in caregivers of stroke patients after one month of intervention could increase the awareness and self-esteem. Moreover, this study demonstrated a positive correlation between knowledge and self-esteem in the case group and led to the efficient treatment of patients (6). Likewise, another research proves that family participation is rapidly becoming a

key component of heart failure management, increasing knowledge, self-care, and health-related quality of life (HRQoL) in heart failure patients and caregivers in rural Thailand (7). Thus, family participation is essential in the care of toddlers and children. However, there has been no comprehensive research to examine the factors that influence family participation in the development of children under five and children, especially in West Java Province.

In this study, the factors that influence family participation in the growth and development of toddlers and children consist of six main factors, namely: 1) family characteristics consisting of family type, stages of family development, number of family members, level of family welfare (wealth Index); 2) determinants of fertility such as length of marriage, age of first marriage, education level, work status, incidence of child mortality, and use of contraception); 3) The practice of family hygiene, 4) Environmental health conditions in the family such as sanitation and household conditions; 5) The level of family knowledge which consists of understanding and awareness of 8 family functions; family accessibility to mass and electronic media regarding the program of "BANGGA KENCANA" [Family Development and Family Planning Program]; and family knowledge about family development for children under five, family planning and population issues; 6) family functioning that consist of religious, cultural, affective, protection, reproduction, socialization and education, economic, and environmental aspects. This study aimed to determine the factors that influence family participation in the development of toddlers and children in West Java.

MATERIALS AND METHODS

The research design used a retrospective cohort study to analyze various factors that affect family participation in the development of toddlers and children. The samples in this research were from the 2019 Program Performance and Accountability Survey from National Population and Family Planning Agency. The samples selected are families who have toddlers and children whose data are already recorded in the 2019 Program Performance and Accountability Survey system in West Java Indonesia. The variables that being used in this study includes the ID link between household data, family data, asset information, and family welfare level (Wealth Index); determinants of fertility; access to family planning information and services; information on hygiene practices, sanitation, and household conditions; data and information on family participation on the development of children under five; data on understanding and awareness of 8 family functions; family accessibility to mass media and electronics regarding the family development program; information on family knowledge about family planning and population issues, and eight functions of the family. Growth and development improvement

programs measured in children include physical, mental, and social. Family participation in child care and development from National Population and Family Planning Agency consisted of physical, social, and mental aspects. The family participation levels were categorized in low, medium and high participation level.

Data obtained the cohort was transferred to computer software for data cleaning and coding. Quantitative descriptive analysis was conducted to obtain frequency distribution and was presented in tabular forms. After the quantitative descriptive analysis, the correlation analysis was conducted using Rank-Spearman.

This study obtained permission from the West Java National Population and Family Planning Agency to use the 2019 survey data. A signed written consent were given to researchers to use this data responsibly. This research has received information that has passed the ethical approval from the National Population and Family Planning Agency number 454 / LB.02 / H4 / 2019.

RESULTS

The results showed the six factors that were influencing family participation in their toddler and child development. The factors were family characteristics, fertility determinants, behavior and hygiene practice, environmental condition, family knowledge, and family functioning. Table I presented the percentage of family participation levels and the correlation of the factors. Most of the respondents have knowledge of all aspects of family function at the moderate level, and most of the respondents have a low understanding of all aspects of family functions.

Table II presented the correlational of the factors with family participation in toddler and childhood development. Based on Table II, in family characteristics, only the wealth category has correlation with the level of family participation. In the fertility determinants, only knowledge of family planning has a correlation with the level of family participation. All subdomains of behaviour and hygienic practice have a correlation with the level of family participation. In terms of environmental health, the behaviour of dumping garbage in a hole around the house, waste management, and public garbage dumping have correlations with family participation. All subdomains of family knowledge have correlations with the level of family participation except for demographic bonuses. All family functions have correlations with the level of family participation. Most of the variables showed the coefficient correlation that is below 0.3 which means a negligible correlations (8). However there are two major factors namely behavior and hygienic practice (not littering, saving energy) and family functioning (religious, cultural, affective,

Table I: Distribution of Family Characteristic and Family Participation Level (n= 3,894)

Factors		Family Participation in Their Toddler and Child Development						Total	
		Poor		Medium		Good			
		f	%	f	%	f	%		
Family Characteristic									
Location	Urban	842	21.6	1435	36.9	290	7.4	2567	65.9
	Rural	484	12.4	680	17.5	163	4.2	1327	34.1
Wealth Category	Low-income	211	5.4	245	6.3	44	1.1	500	12.8
	Middle-income	612	15.7	1001	25.7	214	5.5	1827	46.9
	High-income	503	12.9	869	22.3	195	5.0	1567	40.2
Number of children under 5 years old in the family	1	1129	29	1803	46.3	379	9.7	3311	85
	2	187	4.8	293	7.5	68	1.7	548	14.1
	3	10	0.3	19	0.5	6	0.2	35	0.9
Fertility Determinant									
Educational Level	Not attending school	4	0.1	4	0.1	0	0	8	0.2
	Not finishing school	403	10.3	628	16.1	143	3.7	1174	30.1
	Elementary school	383	9.8	588	15.1	109	2.8	1080	27.7
	Junior high school	230	5.9	358	9.2	81	2.1	669	17.2
	Senior high school	238	6.1	398	10.2	97	2.5	733	18.8
	Diploma	18	0.5	31	0.8	6	0.2	55	1.4
	Higher education	50	1.3	108	2.8	17	0.4	175	4.5
Occupation	Not yet working/ student	643	16.5	1024	26.3	221	5.7	1888	48.5
	Not working/ housewife	277	7.1	440	11.3	89	2.3	806	20.7
	Farmers	36	0.9	28	0.7	3	0.1	67	1.7
	Fishers	0	0	1	0.0	0	0	1	0.0
	Entrepreneur	155	4	202	5.2	44	1.1	401	10.3
	Government/military employee	7	0.2	26	0.7	17	0.4	50	1.3
	Private company employee	116	3.0	194	5.0	47	1.2	357	9.2
	Retiree	2	0.1	0	0	0	0	2	0.1
	Freelancer	80	2.1	179	4.6	29	0.7	288	7.4
	Others	10	0.3	21	0.5	3	0.1	34	0.9
Marital status	Married	655	16.8	10472	26.9	234	6	1936	49.7
	Living together	1	0.0	11	0.1	0	0	3	0.1
	Divorce (alive)	11	0.3	6	0.3	1	0.0	23	0.6
	Divorce (pass away)	6	0.2	1049	26.9	2	0.1	14	0.4
	Not yet married	653	16.8			216	5.5	1918	49.3
Know about family planning	No	75	1.9	62	1.6	4	0.1	141	3.6
	Yes	1251	32.1	2053	52.7	449	11.5	3752	96.4
Behaviour and Hygienic Practice									
Know about childhood family program	No	846	21.7	1245	32	180	2.6	2271	58.3
	Yes	480	12.3	870	22.3	273	7	1623	41.7
Explain about the reproduction organ hygiene	No	764	19.6	811	20.8	34	0.9	1609	41.3
	Yes	562	14.4	1304	33.5	419	10.8	2285	58.7
Not littering	No	465	11.9	213	5.5	8	0.2	686	17.6
	Yes	861	22.1	1902	48.8	445	11.4	3208	82.4
Clean the surrounding environment	No	250	6.4	243	6.2	10	0.3	503	12.9
	Yes	1076	27.6	1872	48.1	443	11.4	3391	87.1
Environment Conservation	No	1218	31.3	1798	46.2	279	7.2	3295	84.6
	Yes	108	2.8	317	8.1	174	4.5	599	15.4
Save energy	No	1262	32.4	1737	44.6	129	3.3	3128	80.3
	Yes	64	1.6	378	9.7	324	8.3	766	19.7
Environmental Health									
Dump garbage in the river	No	1233	31.7	1934	49.7	425	10.9	3592	92.2
	Yes	93	2.4	181	4.6	28	0.7	302	7.8
Dump garbage in the yard/ burn garbage	No	570	14.6	969	24.9	225	5.8	1764	45.3
	Yes	756	19.4	1146	29.4	228	5.9	2130	54.7
Dump garbage in a hole around the house	No	1139	29.3	1768	45.4	336	8.6	3243	83.3
	Yes	187	4.8	347	8.9	117	3.0	651	16.7
Littering anywhere	No	1296	33.3	2007	51.5	445	11.4	3748	96.3
	Yes	30	0.8	108	2.8	8	0.2	146	3.7
Waste management	No	914	23.5	1277	32.8	243	6.2	2434	62.5
	Yes	412	10.6	838	21.5	210	5.4	1460	37.5
Public garbage dumping	No	741	19	974	25	159	4.1	1874	48.1
	Yes	585	15	1141	29.3	294	7.6	2020	51.9

(Continue.....)

Table 1: Distribution of Family Characteristic and Family Participation Level (n= 3,894) (Continued.....)

Factors		Family Participation in Their Toddler and Child Development						Total	
		Poor		Medium		Good			
		f	%	f	%	f	%	f	%
Family Knowledge									
Know about 8 family function	Yes	66	1.7	233	6	115	3	414	10.6
	No	1260	32.4	1882	48.3	338	8.7	3480	89.4
Know about family planning	No	75	1.9	62	1.6	4	0.1	141	3.6
	Yes	1251	32.1	2053	52.7	449	11.5	3753	96.4
Know about population explosion	No	786	20.2	1017	26.1	147	3.8	1950	50.1
	Yes	540	13.9	1098	28.2	306	7.9	1944	49.9
Know about migration	No	266	6.8	357	9.2	13	0.3	636	16.3
	Yes	1060	27.2	1758	45.1	440	11.3	3258	83.7
Know about transmigration	No	298	7.7	420	10.8	26	0.7	744	19.1
	Yes	1028	26.4	1695	43.5	427	11	3150	80.9
Know about urbanization	No	444	11.4	622	16	66	1.7	1132	29.1
	Yes	882	22.7	1493	38.3	387	9.9	2762	70.9
Know about fertilization	No	816	21	1061	27.2	114	2.9	1991	51.1
	Yes	510	13.1	1054	27.1	339	8.1	1903	48.9
Know about mortality	No	794	20.4	1026	26.3	141	3.6	1961	50.4
	Yes	532	13.7	1089	28.0	312	8.0	1933	49.6
Know about morbidity	No	752	19.3	1076	27.6	179	4.6	2007	51.5
	Yes	574	14.7	1039	26.7	274	7.0	1887	48.5
Know about unemployment	No	147	3.8	80	2.1	8	0.2	235	6.0
	Yes	1179	30.3	2035	52.3	445	11.4	2659	69.0
Know about workforce	No	112	2.9	71	1.8	4	0.1	187	4.8
	Yes	1214	31.2	2044	52.5	449	11.5	3707	95.2
Know about environment destruction	No	124	3.2	126	3.2	4	0.1	254	6.5
	Yes	1202	30.9	1989	51.1	449	11.5	3640	93.5
Know about poverty	No	101	2.6	76	2	8	0.2	185	4.8
	Yes	1225	31.5	2039	52.4	445	11.4	3709	95.2
Know about energy crisis	No	341	8.8	532	13.7	48	1.2	921	23.7
	Yes	985	25.3	1583	40.7	405	10.4	2973	76.3
Know about moral/social crisis	No	418	10.7	488	12.5	58	1.5	964	24.8
	Yes	908	23.3	1627	41.8	395	10.1	2930	75.2
Know about demographic bonuses	No	1188	30.5	1831	47	403	10.3	3422	87.9
	Yes	138	3.5	284	7.3	50	1.3	472	12.1
Family Functioning									
Overall family functioning	Low	489	12.6	130	3.3	3	0.1	622	16
	Medium	837	21.5	1691	43.4	41	1.1	2569	66
	High	0	0	294	7.6	409	10.5	703	18.1
Family functioning from religious aspect	Low	1253	32.2	1554	39.9	67	1.7	2874	73.8
	High	73	1.9	561	14.4	386	9.9	1020	26.2
Family functioning from social and cultural aspects	Low	1272	32.7	1828	46.9	108	2.8	3208	82.4
	High	54	1.4	287	7.4	345	8.9	686	17.6
Family functioning from affective aspect	Low	1090	28	1120	28.8	26	0.7	2236	57.4
	High	236	6.1	995	25.6	427	11	1658	42.6
Family functioning from protection aspect	Low	1229	31.6	1295	33.3	36	0.9	2560	65.7
	High	97	2.5	820	21.1	417	10.7	1334	34.3
Family functioning from reproduction aspect	Low	1276	32.8	1746	44.8	79	2	3101	79.6
	High	50	1.3	369	9.5	374	9.6	793	20.4
Family functioning from socialization and education aspects	Low	1214	31.2	1489	38.2	40	1	2743	70.4
	High	112	2.9	626	16.1	41.3	10.6	1151	29.6
Family functioning from economic aspect	Low	994	25.5	1121	28.8	47	1.2	2162	55.5
	High	332	8.5	994	25.5	406	10.4	1731	44.5
Family functioning from the environmental aspect	Low	1256	32.3	1633	41.9	107	2.7	2996	76.9
	High	70	1.8	482	12.4	346	8.9	898	23.1

Table II: Correlation of the factors with family participation in toddler and childhood development (n= 3,894)

Factors	r	p-value
Family Characteristic		
Location	-0.024	0.137
Wealth Category	0.055	0.001
Number of children under 5 years old in the family	0.008	0.613
Fertility Determinants		
Educational Level	0.020	0.213
Occupation	0.011	0.508
Marital status	-0.007	0.659
Know about family planning	0.085	0.000
Behavior and Hygienic Practice		
Know about childhood family program	0.121	0.000
Explain about the reproduction organ hygiene	0.295	0.000
Not littering	0.329	0.000
Clean the surrounding environment	0.151	0.000
Environment Conservation	0.212	0.000
Save energy	0.412	0.000
Environmental Health		
Dump garbage in the river	0.007	0.643
Dump garbage in the yard/ burn garbage	-0.040	0.12
Dump garbage in a hole around the house	0.077	0.000
Littering anywhere	0.030	0.060
Waste management	0.105	0.000
Public garbage dumping	0.129	0.000
Family Knowledge		
Know about 8 family function	-0.178	0.000
Know about family planning	0.085	0.000
Know about population explosion	0.160	0.000
Know about migration	0.113	0.000
Know about transmigration	0.101	0.000
Know about urbanization	0.104	0.000
Know about fertilization	0.199	0.000
Know about mortality	0.168	0.000
Know about morbidity	0.096	0.000
Know about unemployment	0.150	0.000
Know about workforce	0.127	0.000
Know about environment destruction	0.101	0.000
Know about poverty	0.099	0.000
Know about energy crisis	0.074	0.000
Know about moral/social crisis	0.133	0.000
Know about demographic bonuses	0.026	0.109
Family Functioning		
Overall family functioning	0.614	0.000
Family functioning from religious aspect	0.474	0.000
Family functioning from social and cultural aspects	0.436	0.000
Family functioning from affective aspect	0.448	0.000
Family functioning from protection aspect	0.512	0.000
Family functioning from reproduction aspect	0.470	0.000
Family functioning from socialization and education aspects	0.471	0.000
Family functioning from economic aspect	0.363	0.000
Family functioning from environmental aspect	0.434	0.000

protection, reproduction, socialization, education, economic, and environmental) that have a significant moderate correlation with family participation level.

DISCUSSION

Overall results showed that eight factors influence family participation in their toddler and child development: behavior and hygienic practice (not littering, save energy) and family functioning from religious, cultural, affective, protection, reproduction, and socialization and education aspects. According to BKKBN, understanding and implementing family functions, including external and internal factors, must be comprehensively and integrated. These functions are called the family's eight functions: religion, socio-culture, protection, love and compassion, social interaction and education, reproduction, economy, and environmental functions (9). The eight functions have different translations but become one unity supporting and influencing each other (9). If all family functions are performed well it can form family resilience to live healthily and prosperously (9).

Based on table 2, there was a correlation between family function and the level of family participation in the care of child and toddler growth. Based on a systematic review, there were four non-modifiable 'status' factors that were consistently associated with participation namely parental ethnicity, parental education, family type, and family socioeconomic status (14). Based on previous research, family functioning is important to improve the family's involvement in the community (18% variance) and increase the desire for change in the house combined with environmental helpfulness (21% of the variance) (10).

This study is similar to the research by Islamiyah, which concludes that parental involvement can be seen from the outcome aspect of the implementation of family development for toddlers. This is in accordance with a research that found most respondents were quite involved with their children's education. The existence of family involvement in child development makes the children in the family healthy and following their growth and development (11).

Family function as one of family management has a significant correlation with the child health status. Reproduction function and economical function have a significant association in reducing family stress and give positive contribution towards children health status. Aspects of reproduction (age, spacing, and the number of children) and economic elements substantially reduce family stress and positively contribute to children's health status (12).

Function religion aims to develop values to create members' families full of faith and piety to God Almighty. Social function culture has a goal so that families can

get to know the local culture and national culture. The function of love aims to provide love and affection love and provide a fun place for family members. A protection function is a form of family as the primary and first place provides truth and an example for members and their children and descendants. The reproductive function does not only emphasize the generation of offspring but also in arranging reproduction in a planned manner. The social function of education is a family way to provide a cognitive level or educate and form a good character in its members. Finally, the economic function has the purpose of fostering and instilling values and family financial planning (12).

There are five main factors that affect family participation in the care of sick children, namely: 1) family demographic characteristics (gender, number of children, age of parents, educational level of parents, and place of birth of children), 2) the level of health and illness of the child, 3) the child's temperament; 4) family environment, and 5) the relationship between mother and child. Apart from these five main factors, there are also other factors, namely care, health, environment, and food safety that can affect the growth and development of toddlers and children (13).

Another research stated that there are two main factors for family participation, namely 1) family status factors consisting of socio-demographic factors and family structure factors; and 2) family process factors consisting of the health and welfare of the parents; parental beliefs, perceptions, and attitudes; parental behavior; and family resources (14)(15). Support from community health volunteers to the family could also become ways to improve family participation (16). Educators also have roles to engage with the families to improve their participation (17). Community assests are important for optimal empowerment and utilisation such as community health posts, alert village programs, community volunteers, (cadres) and a large number of nurses and midwives can be used to increase family participation and responsiveness (18).

Parenting self-efficacy for mothers as the part of family function showed a significant increase when family nursing intervention was provided (19). Thus, involvement of academic institution also can be utilized to improve family participations (20). Community health nurses plays an important roles to providing comprehensive services, utilizing technology to bridge the information needs; implementing family nursing care; spreading the wings of health cadres to improve (21). Thus, the Nursing Center model can be utilized to educate nursing students in giving health education to improve family participations in the community (22). This current study showed slightly different results as family functioning, particularly in protection and reproduction aspects, were the most prominent factors influencing family participation in their toddler and

child development care. Literature indicates that the degree of family involvement is a critical element in the development and learning outcomes of children. Therefore, the scientific evidence from the Indonesian context can serve as a basis for future replications in advance studies. This study's strength can add to the body of knowledge of family and children development. The limitation of the study is the use of secondary data limiting exploration of other factors that are not in the survey data.

CONCLUSION

Overall, family behavior and family functioning are two significant factors that are influencing the family participation in their toddler and child development, mainly the low protection function and the low reproduction function of families as the two prominent aspects of family functioning. The results of this study can inform public health nurses, BKKBN, and policymakers to improve services for the families to enhance their protection and reproduction functions. Further research is needed to formulate intervention models to increase family participation in the development of toddlers and children.

ACKNOWLEDGEMENTS

The authors would like to convey their appreciation for National Population and Family Planning Agency (BKKBN) West Java for support, collaboration and funding for this study.

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