

<http://heanoti.com/index.php/hn>



RESEARCH ARTICLE

URL of this article: <http://heanoti.com/index.php/hn/article/view/hn20201>

Stimulation Model Growth and Social Personal Development of Children Autism in Health Promotion

Atik Badi'ah^{1(CA)}, Ravik Karsidi², Ahmad Arman Subijanto³, Diffah Hanim⁴

^{1(CA)}Post Graduate Program, Sebelas Maret University of Surakarta, Indonesia; atik.cahyo@yahoo.com

(corresponding author)

²Sebelas Maret University of Surakarta, Indonesia

³Sebelas Maret University of Surakarta, Indonesia

⁴Sebelas Maret University of Surakarta, Indonesia

ABSTRACT

Background: Autism is a developmental disorder caused organic brain damage, difficulty communicating verbal, nonverbal. Need supervision and parental attention. The stimulation helps stimulate the brain to produce hormones in its development. **Purpose:** (1) analyze the internal factors, external influences growth and social personal development of autistic children (2) analyze the relationship between nutritional status and the growth and social personal development of autistic children (3) analyze the effect of stimulation of the growth and social personal development of children with autism (4) formulate a stimulation model of growth and social personal development of children with autism in health promotion. **Method:** This type of research is a Research and Development (R & D) research and quasi experimental method, time series design. The study was conducted in 7 autism school in Yogyakarta. The total sample of 90 children with autism. Conducted in November 2015 and April 2016. Data were analyzed using multiple linear regression, ods ratio, Mann Whitney and Wilcoxon. **Results:** (1) Internal factors (race) affects Weight and external factors (intranatal) and internal (genetic) influence growth and social personal development of children with autism $p < 0.05$, (2) there is a relationship with the nutritional status of growth and social personal development of children with autism $p < 0.05$, (3) There is a stimulation effect on the growth and development of social personal development of children with autism with $p < 0.05$, (4) the drafting of a stimulation model of growth and social personal development of children with autism. **Conclusion:** Establishment of stimulation model of growth and social personal development of children autism in the form of manual stimulation of growth and social personal development of children with autism in health promotion.

Keywords: Stimulation model, Growth, Social personal development, Autism, Health promotion

INTRODUCTION

Health development is very important in improving the quality of human resources of a nation as it has been formulated in the Sustainable Development Goals (SDG's). Health development should be directed to the development of quality human resources both physically, mentally and socially, so that economically and socially productive. In connection with the increase of quality human resources, the role of health promotion is very important⁽¹⁾.

Autism is a developmental disorder caused by organic damage to the brain. Generally, children with autism have difficulty communicating both verbal and non verbal, when they want something, the way he is tugging at the hands of others to get attention and in addition they are also very rigid with their regular activities as if they are undergoing certain rituals. Attitudes such as withdrawing, not weaven communication, talking to himself, singing alone, crying for no reason, circling without reason, it can even lead to the aggravation of the people around him.

Children with autism have the ability and different characteristics from each other, so that a different way to interact with themselves and the environment and make an autistic child as a unique person⁽²⁾. Children with autism is one of a group of children with special needs are less able to organize anything, less planning something, have difficulty finding a solution and less flexible tasks. Children with autism can not show an affectionate

relationship. Stimulus sensor autistic children are processed in a different way with a normal child, resulting in children with autism have difficulty in express his affection in a manner commonly done by normal children.

Growth and social personal development of children with autism whether physical, emotional, intellectual, or psychosocial problems resulting in delays in growth and development of children achieving level appropriate for their age⁽³⁾.

If the disorder persists then it will be a permanent disability in children, but if early growth disorders has been detected, it can be done a stimulation in accordance with the needs of children. Through stimulation that's done early child development at a later stage can walk better.

Impaired growth and social personal development of children with autism is a problem that is prevalent in society, so it is essential that all the components involved in the development of children with autism that parents, school teachers with special needs and people can work together in stimulation of growth and social personal development of children with autism by using the guidelines easy, inexpensive but accurate⁽⁴⁾.

Stimulation was very helpful in stimulating the brain to produce hormones needed in development. The stimulation can be provided in various forms are simple and easy to do. The stimulation can be a genuine warmth and love that parents can afford. In addition, parents can provide direct experience with the use of the five senses (sight, hearing, taste, touch and smell). Interaction between children and parents through touch, a hug, a smile, singing and listening attentively is also a form of early stimulation. When a child who is not able to speak babble, babble, it is necessary to get a response as a form of speech stimulation⁽⁵⁾.

Parents should encourage early conversing with a soft voice and give a sense of security to children. When born, the child's brain already has billions of nerve cells that had the numbers, but the number that many are missing after birth. When the brain is getting a new stimulus, the brain will learn something new. The stimulus will cause the nerve cells to form a new connection to store information. The cells are used to store information expands, while rarely or unused would be destroyed. This is where the importance of a stimulation routinely given. Stimulation is constantly given routinely would strengthen links between nerve that has been formed so that the automatic functions of the brain will become even better⁽⁶⁾.

Problems disability in children is a fairly complex problem both in quantity and quality, given the various types of disability has its own problems. If the problems of disabled children is treated early with good and improved their skills according to their interests, then the burden on families, communities and countries can be reduced. Conversely, if not addressed properly, then the impact will aggravate the burden of the family and the state. It is therefore necessary stimulation model of growth and social personal development of children with autism in health promotion in the form of manual stimulation of growth and social personal development of children with autism that can be used by parents at home, teachers in special needs schools.

The stimulation model of growth and social personal development of children with autism in health promotion can provide services to children with autism who qualified with easy access to the community. Parents can be given the knowledge to do the stimulation of growth and social personal development of children with autism at home in the relief efforts on the rehabilitation of children with autism.

Stimulation model growth and social personal development of children with autism in health promotion to enhance the knowledge and parenting skills be able to work more effectively, prepare autistic children for the challenges that can not be avoided and can perform the stimulation of growth and social personal development of children with autism⁽⁷⁾. Until now the development model of stimulation of growth and social personal development of children with autism in health promotion in order to overcome the problems in social interaction, communication / language, limited interest / fine motor skills and talent / gross motor skills yet. It is therefore necessary stimulation model of growth and development of children with autism in the rehabilitation of children with autism can be done by parents, school teachers with special needs and the community through community empowerment to family and special school children with autism using a guide book to be effective and efficient in improving the knowledge and skills parents and teachers in monitoring uprooted and promotions (Growth monitoring and promotion)⁽⁸⁾.

Based on preliminary studies were conducted in January 2014 by interviewing the parents' school partially Autism Yogyakarta showed that parents have never got a special material on the growth and social personal development of children with autism and not knowing how to stimulate personal growth and social personal development in children with autism. Hence the need for stimulation model of growth and social personal development of children with autism in health promotion in the form of guide books for parents and teachers of children with autism to be able to stimulate growth and social personal development of children with autism.

Generally, this research aims to create a model for stimulation model of growth and social personal development of children with autism in the health promotion.

Specifically, the study aims to :

1. Analyze the factors that affect the internal and external growth and social personal development of children with autism
2. Analyze the relationship between nutritional status and the growth and social personal development of autistic children.

3. Analyze the effects of stimulation of the growth of the social personal development of children with autism.
4. Formulate stimulation model of growth and social personal development of children with autism in health promotion

METHODS

This type of research was a Research and Development (R & D) research. This study aims to create a specific product. In this case the researcher will develop a product in the form of "Autism Growth Stimulation Guidebook for Health Promotion" which will be used by parents to be applied in giving stimulation of autistic child growth during home and autistic teacher in giving stimulation of autistic children growth during school.

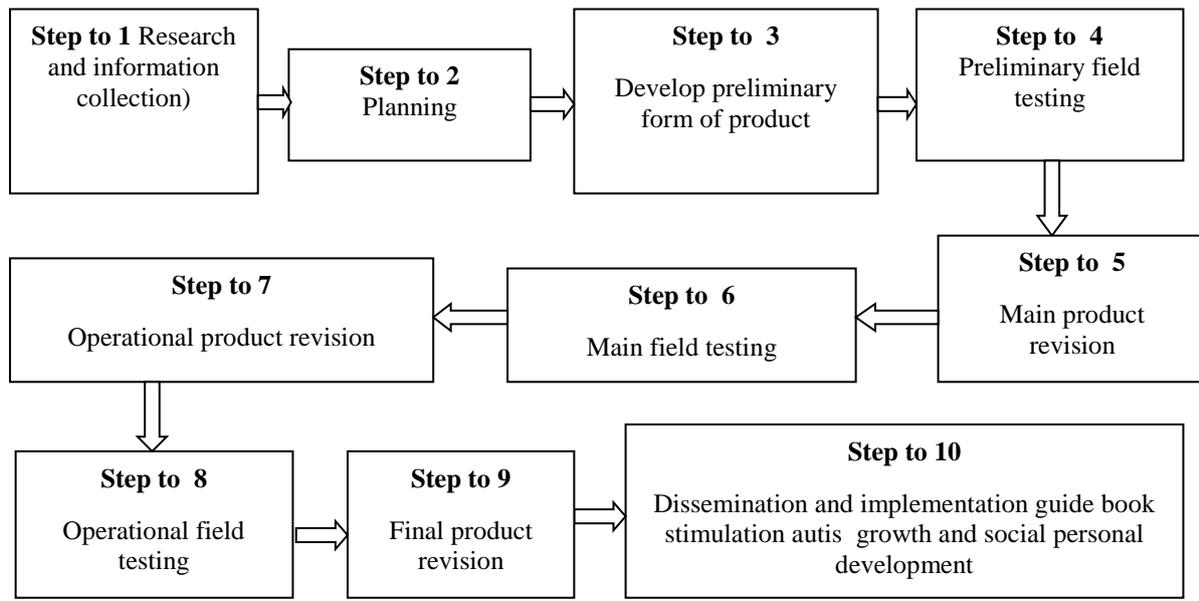
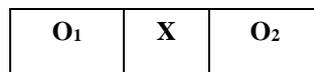


Figure 1. The steps of research

In step to 6 the researcher uses quasi experimental research design, that is research which aims to explain the influence and test the influence of variables through hypothesis testing. The design of time series design design is the serial design of time to perform repeated measurements, before and after the experiment or treatment⁽⁹⁾. This type of research is quantitative research. The study design using quasi experimental methods, the research aimed to explain the influence and examine the influence between variables through hypothesis testing. Research design form time series design is the design of serial time doing repetitive measurements, before and after the experiment or treatment⁽¹⁰⁾.

The shape of the design is as follows:



Information :

- O₁** = Growth observations (Weight, high, head circumference, upper arm Circumference, Chest circumference, abdominal circumference, nutritional status) and social personal development in autistic children before being given stimulation treatment using a falling stimulant guidebook in the first month
- X** = Treatment of stimulation of growth and social personal development of children with autism using guidebook stimulation of growth and development
- O₂** = Growth observations (Weight, high, head circumference, upper arm Circumference, Chest circumference, abdominal circumference, nutritional status) and social personal development in autistic children after being given stimulation treatment using the stimulation guide book collapsed in the second, third and fourth months.

Figure 2. The design of research

The population of this research is all autistic children, all parents who have children with autism in the region of Yogyakarta province, with a population (n = 90 children with autism). A sample of 90 children with autism and parents of autistic children were taken by total sampling of 16 weeks (4 times observation growth and social personal development of children with autism). The statistical test used is multiple linear regression analysis and path analysis (path analysis), Mann Whitney, Wilcoxon and Ods Ratio.

RESULTS

Table 1. Characteristics of autistic children by age, sex and classes in autism schools

| No | Characteristics of the child | Amount | |
|----|------------------------------|-----------|------------|
| | | Frequency | Percentage |
| 1. | Age | | |
| | 6 year | 4 | 4.45 |
| | 7 year | 11 | 12.22 |
| | 8 year | 75 | 83.33 |
| 2. | Gender | | |
| | Boys | 70 | 77.80 |
| | Girl | 21 | 22.20 |
| 3. | Class | | |
| | Kindergarten | 12 | 13.30 |
| | Primary school | 78 | 86.70 |

From Table 1 it can be seen that the number of children with autism is the most aged 8 years, male gender and primary school education.

Table 2. Internal and external factors that affect the growth and Social Personal Development of autistic children with multiple linear regression test data analysis in autistic children in autism school

| No | Factors | p value (significancy) | | | | | | Social Personal Development |
|----|------------------|------------------------|--------|--------------------|-------------------------|---------------------|-------------------------|-----------------------------|
| | | Growth | | | | | | |
| | | Weight | Height | Head circumference | Upper arm circumference | Chest circumference | abdominal circumference | |
| 1 | Internal Factors | | | | | | | |
| a | Genetic | 0.849 | 0.225 | 0.548 | 0.709 | 0.775 | 0.597 | 0.006* |
| b | Race | 0.034* | 0.854 | 0.239 | 0.354 | 0.219 | 0.784 | 0.418 |
| c | Gender | 0.192 | 0.879 | 0.720 | 0.242 | 0.192 | 0.959 | 0.796 |
| 2 | External Factors | | | | | | | |
| a | Prenatal | 0.300 | 0.060 | 0.330 | 0.492 | 0.549 | 0.716 | 0.572 |
| b | Intranatal | 0.308 | 0.373 | 0.274 | 0.223 | 0.827 | 0.742 | 0.029* |
| c | Postnatal | 0.282 | 0.337 | 0.327 | 0.410 | 0.880 | 0.702 | 0.998 |

Table 3. Nutritional Status (BMI) month 1 to 4 in children with autism (n = 90)

| No | Nutritional Status | Month to 1 | | Month to 2 | | Month to 3 | | Month to 4 | |
|----|--------------------|------------|------|------------|------|------------|------|------------|------|
| | | f | % | f | % | f | % | f | % |
| 1 | Very Thin | 2 | 2.2 | 2 | 2.2 | 2 | 2.2 | 0 | 0 |
| 2 | Thin | 9 | 10.0 | 9 | 10.0 | 9 | 10.0 | 4 | 4.4 |
| 3 | Normal | 44 | 48.9 | 44 | 48.9 | 44 | 48.9 | 48 | 53.3 |
| 4 | Fat | 19 | 21.1 | 19 | 21.1 | 19 | 21.1 | 22 | 24.5 |
| 5 | Obesity | 16 | 17.8 | 16 | 17.8 | 16 | 17.8 | 16 | 17.8 |

From Table 2 it can be seen internal factors and external factors that affect the growth of children with autism (Weight, Height, Head circumference, Upper Arm Circumference, Chest Circumference and Abdominal Circumference is the internal factors (race) affects weight children with autism with p value (significancy) is 0.034. Means no influence of internal factors (race) on the growth of children with autism with $p < 0.05$. Internal factors (genetic and gender) and external factors (prenatal, intranatal and postnatal) does not affect the affect the

growth of the p value (significancy) is >0.05 . Internal factors (genetic) influence social personal influence with p value (significancy) is 0.006. Means no influence of internal factors (genetic) to the social personal development of children with autism socially with $p < 0.05$. External factors (intranatal) influence social personal autistic child with p value (significancy) is 0.029. External factors (intranatal) affect the development of children with autism social personal with $p < 0.05$.

Table 4. Social Personal Development compared to the Body Mass Index (IMT) months to 1 until to 4 in children with autism

| NO | Social Personal Development | Month to 1 | Month to 2 | Month to 3 | Month to 4 |
|-----|-----------------------------|------------|------------|------------|------------|
| 1. | Eyes | 0.643 | 0.770 | 0.846 | 0.570 |
| 2. | Smile | 0.641 | 0.846 | 0.842 | 1.051 |
| 3. | Replying to smile | 0.577 | 0.769 | 0.595 | 0.471 |
| 4. | Applause | 0.464 | 0.238 | 0.291 | 0.405 |
| 5. | Mimicking activities | 0.365 | 0.222 | 0.277 | 0.497 |
| 6. | Feed themselves | 0.576 | 0.386 | 0.314 | 0.400 |
| 7. | Drinking alone | 0.569 | 0.486 | 0.561 | 0.673 |
| 8. | Organize toys | 0.643 | 0.473 | 0.944 | 1.036 |
| 9. | Play with friend | 0.346 | 0.488 | 0.517 | 0.778 |
| 10. | Interaction with others | 0.363 | 0.379 | 0.400 | 0.351 |
| 11. | Help others | 0.583 | 0.517 | 0.692 | 0.778 |
| 12. | Putting on clothes | 0.359 | 0.335 | 0.444 | 0.487 |
| 13. | Undressed | 0.524 | 0.487 | 0.704 | 0.727 |
| 14. | Wearing T-shirts | 0.344 | 0.704 | 0.847 | 1.013 |
| 15. | Removing shirts | 0.384 | 0.473 | 0.351 | 0.333 |
| 16. | Brush your teeth | 0.306 | 0.322 | 0.365 | 0.477 |

From Table 4 above it can be seen that the social personal development compared to the Body Mass Index (BMI) months to 1 sd to 4 in autistic children at school autism Yogyakarta province with results ODDS Ratio increase is smiling (1.051), pack toys (1.036) and wearing T-shirts (1.013). While variat else (eyes, smiled, clapping, imitating activities, feed themselves, drink alone, playing with friends, interaction with others, help others, they dressed, undressed, wearing shirts and brush teeth) no enhancement.

Table 5. Influence stimulation of social personal development test wilcoxon data analysis in children with autism

| No | Social Personal Development | Z | p value (significancy) |
|-----|-----------------------------|--------|------------------------|
| 1. | Eyes | -2.293 | 0.022* |
| 2. | Smile | -3.559 | 0.000* |
| 3. | Replying to smile | -3.785 | 0.000* |
| 4. | Applause | -2.353 | 0.019* |
| 5. | Mimicking activities | -1.863 | 0.062 |
| 6. | Feed themselves | -1.606 | 0.108 |
| 7. | Drinking alone | -2.171 | 0.030* |
| 8. | Organize toys | -3.612 | 0.000* |
| 9. | Play with friend | -2.453 | 0.014* |
| 10. | Interaction with others | -1.888 | 0.059 |
| 11. | Help others | -1.821 | 0.069 |
| 12. | Putting on clothes | -2.083 | 0.037* |
| 13. | Undressed | -1.784 | 0.074 |
| 14. | Wearing T-shirts | -3.274 | 0.001* |
| 15. | Removing shirts | -4.200 | 0.000* |
| 16. | Brush your teeth | -3.874 | 0.000* |

From Table 5 above it can be seen that the effect of stimulation on the development of social personal data analysis Wilcoxon test in children with autism in the province of Yogyakarta autism school obtained p value < 0.05 is staring at the face of $p = 0.022$, smile $p = 0.000$, smile back $p = 0.000$, applause $p = 0.019$, drinking himself $p = 0.030$, pack toys $p = 0.000$, playing with friends $p = 0.014$, wearing $p = 0.037$, wearing shirts $p = 0.000$, took off shirt $p = 0.000$ and brush teeth $p = 0.000$.

DISCUSSION

From Table 3 it can be seen that the nutritional status of children in the first, second and third and fourth month is mostly with normal nutritional status. In the fourth month of very thin nutritional status there has been an increase to none. Nutritional nutritional status in the fourth month also increased. While obesity nutritional status from month 1 to 4 s.d no change or fixed.

According Handojo⁽¹¹⁾ stating the cause of autism can occur during pregnancy. In the first trimester, triggering factor usually consists of infection (toxoplasmosis, rubella, candida), heavy metal poisoning, additives (MSG, preservatives, dyes), or drugs other woods. In addition, the excessive growth of fungi in the intestines of children as a result of excessive use of antibiotika, can cause intestinal leaks (leaky-gut syndrome) and incomplete digestion of casein and gluten. Increased frekeuensi high of autism disorders in children with congenital, rubella, herpes simplex encephalitis, and cytomegalovirus invectioin.

In children who were born during the spring with their mothers suffer from influenza mekunginan winter when they are in the womb, has led researchers to suspect a virus infection is one of the causes of autism. The nutritional status of children in the months to one, two and three mostly normal total of 44 children (48.9%). Meanwhile, in the fourth with a normal nutritional status of 48 children (53.3%). In the fourth month of nutritional status is very thin already have an increase of 2.2% to no. Skinny on the nutritional status of the fourth month also increased from 10% to 4.4%.

Weight is one measure that provides an overview tissue mass, including body fluids. Weight loss is very sensitive to sudden changes either because of infectious diseases as well as decreased food consumption. Height gives an overview function of the state of growth seen emaciated and little short. Height is very good to see the nutritional state of the past, especially with regard to the state of low birth weight and malnutrition in infancy.

Child development is influenced by three main factors that work in stimulants, namely: (1) Hereditary factors, the nature or congenital conditions inherited from parents; (2) The growth and physical maturation, influenced by the consumption of food (nutrient intake), health care, and child care in general; (3) environmental stimulation. This factor depends on the extent to which parents and the environment around the child provide psychosocial stimulation or learning processes that encourage child development. In childhood, the growth and development occurs very rapidly, if the food does not contain enough nutrients needed, and this situation lasts long, it will cause changes in brain metabolism.

Behavioral therapy helps change behavior repeated, inappropriate and aggressive. This therapy is done to help autistic children develop the skills necessary to be able to blend with the surrounding environment. Various methods are used to cope with autism, both carried out simultaneously or separately. Applied behavior analysis by dividing skills in several stages and then teach it to children with autism. Giving gifts whenever children are able to perform a certain stage will help autistic children to learn to imitate (imitation). Therapy sensory integration focuses on sensory stimulation through exposure to the taste, sound, or a different texture. Another method used is play therapy, where emotional development focus. This therapy is usually done by playing roles between adults and children, as well as trying to develop social skills and social interaction⁽¹²⁾.

Intervention for children with autism / autism infantile form of stimulations for the child showed a response. Actually, before the child is enrolled in a treatment program that is being followed, parents should give him endless stimulation at home so that children do not drown in his own world. Do not leave children alone and preoccupied with the interests and activities that rigid, for example, turn on and turn on the lights, amazed watching the fan spins and no other important activities. Always try there are always people who accompany children for no sleep⁽¹³⁾.

Inviting children two-way communication both verbal and non-verbal. Do not allow children engrossed with television or other games that are unidirectional and damaging his eye contact. Early moments do not expect children to respond to an invitation to communicate given to him. most of the child's responses ignorant, not understanding that the communication addressed to him or if it was aware of possible child will respond negatively as crying out loud because he felt disturbed⁽¹⁴⁾.

Stimulation can also form taking children singing, clapping, imitating the movement or play a game together. In some children with autism, ability imitate or humming sound better than communication. It can be used as an entrance into the world of children. Although parents also should beware because children are invited easement humming continues then his communication skills are not developed⁽¹⁵⁾. Simple games are also good for children as game ci stimulation boo. Moreover, this game requires the presence of others. With this game parents can introduce to children with the people that is around. This kind of game can and should be done by the whole family. With performed by different people, children are given the opportunity to experience the same stimulus in different settings (playing with her mother in the room, along with his father on the porch, etc.)

Playing for children is not just a pastime, but through play children learn to control and coordinate the muscles, involving feelings, emotions, and thoughts. So with playing children received a variety of life experiences, besides when stiffened with his parents relationship of parents and children become increasingly familiar and parents will soon find out if there's disruption to early child development⁽¹⁶⁾.

CONCLUSION

Internal and external factors that affect the growth and social personal development of children with autism are internal factors (race) affects Weight children with autism, with $p = 0.034$. Internal factors (genetic) influence the development of social personal. External factors (intranatal) influence social personal development of autism child with p value (significancy) is 0.029.

Relations with the nutritional status of growth and social personal development of autism children. The nutritional status of children in month one, the second and third highest with normal nutritional status. Social personal development compared to the Body Mass Index (BMI) months to 1 s.d to 4 in autistic children at school autism Yogyakarta province with results ODDS Ratio increase is smiling (1.051), pack toys (1.036) and wearing T-shirts (1.013).

There is a stimulation effect on the growth and development of social personal development of children with autism with $p < 0.05$.

Establishment of stimulation model of growth and social personal development of children with autism in the form of manual stimulation of growth and social personal development of children with autism in health promotion.

REFERENCES

1. Ministry of Health of Indonesia. Guidelines for the Implementation of Stimulation of Early Childhood Detection and Intervention Growth at the level of primary health care. Jakarta: Ministry of Health of Indonesia; 2004.
2. Ginanjar. Understanding the Autistic Spectrum Holistically. Dissertation. Jakarta: Fakultas Psikologi Universitas Indonesia; 2007.
3. Narendra BM, Sularya T, Soetjningsih, Suyitno. Child Growth, edition 1, Jakarta: Book Publisher Sagung Seto; 2005.
4. Ismail D. Role of Pediatrician for Child Growth Optimization Gifted, In Seminar Understanding the uniqueness and preparing the Future of Gifted Children. Sardjito. Yogyakarta; 2007.
5. Edi. Early Diagnosis of Autism in Autism Holistic Management, Indonesia's First National Autism Congress and Indonesia's First National Autism Conference, Jakarta: FK Universitas Indonesia; 2003.
6. Kuntz. Trend In Special Education Code assignment For Autism: Implications For Prevalence For Estimates. Journal of Autism Dev Disord. 2007;37:1941-1948.
7. Gamayanti IL. Understanding the Uniqueness of Children Gifted Psychological Reviews, In Seminars Understand the uniqueness and prepare the Future Gifted Children. Sardjito. Yogyakarta; 2007.
8. Notoatmodjo. Health Promotion and Behavioral Science. Jakarta: PT Rineka Cipta; 2007.
9. Brown C, Lilford. The Stepped Wedge Trial Design: A Systematic review. Research article. BMC Medical Research Methodology. 2006.
10. Murti B. Design and Sample Size For Quantitative and Qualitative Research in Health. Yogyakarta: Gadjah Mada University Press; 2010.
11. Handojo Y. Autisma, Jakarta: PT. Bhuana Popular Science (BIP); 2004.
12. Kenny S. Developing Communities For The Future, Third Edition, Cengage Learning Australia; 2006.
13. Bitterman et al. A National Sample Of Preschool with Autism Spectrum Disorders: Special Education Services and Parent Satisfaction. Journal of Autism Dev Disord. 2008;38:1509-1517.
14. Erfandi. Caring for Autistic Children. Pro Health. Jakarta; 2009.
15. Danuatmaja. Autistic Child Therapy At Home. Prints 1. Puspa Swara. Jakarta; 2003.
16. Karen et al. Caring For Children With Autism In The School Setting. The Journal Of School Nursing. 2005; 21(4).