

# Awareness Regarding Cerebral Palsy and Its Risk Factors in Young Adults from Karad

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## ABSTRACT

### BACKGROUND

The objective of the study was to assess and determine the level of awareness regarding cerebral palsy and its risk factors in young adults and provide a statistical data showing the level of awareness in young adults. Cerebral palsy is one of the most commonly occurring neurological disorders in children with having lifelong abnormalities. Increasing prevalence of cerebral palsy needs attention as this is the leading cause of disability in children. The age group of 18 - 35 years is known as the reproductive age group; it is important to assess the level of awareness to educate them about the preventive measures during pregnancy. Due to this, the percentage of occurrence of cerebral palsy will drop significantly.

### METHODS

The research was completed by survey method. It is an observational study including 192 participants. Sample size was calculated by the formula  $n = \frac{4pq}{l^2}$ . Both males and females in the age group of 18 to 35 were included. A structured questionnaire comprising of cerebral palsy and risk factor questions was used. Ethical approval from institutional ethical committee, permission from respective authorities were taken. After the protocol and ethical clearance, the procedure was started. Results were obtained from statistical analysis.

### RESULTS

The obtained results revealed significantly low level of awareness about cerebral palsy in younger adults which was 29.17 % of the sample size 192 (100 %) which made 70.83 % unaware about the condition with an extreme low level of awareness regarding the risk factors causing cerebral palsy. Only 9.38 % were aware about risks causing cerebral palsy.

### CONCLUSIONS

Study results concluded that there is lack of awareness about cerebral palsy and its risk factors in young adults.

### KEY WORDS

Awareness, Cerebral Palsy, Disability, Risk Factors, Young Adults, Pregnancy

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## BACKGROUND

Prevalence of cerebral palsy is 1 - 2 in 100 live births.<sup>1,2,3</sup> This is also a leading cause of disability in a child. Cerebral palsy can be defined as non-progressive neuromotor disorder of cerebral origin.<sup>1</sup> Its severity ranges from minor incapacity to total disability. Most of the cases have multiple neurological deficit and variable mental disability. It is difficult to estimate the precise magnitude of the problems since mild cases are likely to be missed. It occurs due to damage or insult to the child's brain either in the uterus, during birth process or during first 3 to 5 years of life.<sup>1</sup> It is also referred as a permanent, non-progressive and occasionally involving disorders of tone, movement, or posture caused by an insult to developing brain. This disorder affects the coordination, movement, balance, and posture and muscle strength.<sup>1</sup> So, the condition needs attention to reduce its prevalence. Prematurity, low birth weight, multiple births and perinatal infections are among the most common causes for developing cerebral palsy.<sup>2</sup> The prevalence of cerebral palsy increases dramatically with decreasing gestational age. The prevalence increases from 20 to 80 times in infants with low birth weight (less than 1500 gm) than normal weight babies.<sup>3</sup> Other risk factors include cerebral malformation, perinatal hypoxia, birth trauma, chorioamnionitis, acid base imbalance, indirect hyperbilirubinemia, consanguinity, foetal distress, long and difficult labour, meningitis, infection, and trauma after birth.<sup>1,4,5,6</sup>

All these are known risk factors but steps to prevent these risk factors might not be taken due to the lack of knowledge. As cerebral palsy is a leading cause of disability in children, understanding the aetiology and planning the preventive strategies is very crucial.<sup>2</sup> Once cerebral palsy occurs the child may face problems with emotional and social adjustment.<sup>7</sup> The child also faces difficulty in performing daily activities due to pain and joint deformity.<sup>8</sup> In later stages the child may also become a victim of bullying so, creating awareness about disability to improve the social inclusion of the patient is a much needed step. Creating awareness about the condition is important for developing a peer support network and building self confidence among children of cerebral palsy.<sup>9</sup> Chances of developing impairment is more, so preventing this disorder from occurring is the most important step. As young adults belong to the reproductive age group, creating awareness among them is necessary to reduce the chances of developing the cerebral palsy. Even the parents of cerebral palsy child show lack of knowledge about core issues in cerebral palsy. In most of the cases parents notice delay in child's development. Cerebral palsy is diagnosed by clinical examination.

Once the clinical examination is done brain imaging such as CT and MRI is done to decline at the extent of cerebral damage.<sup>10</sup> So, awareness in normal population might be even less. Cerebral palsy can be prevented by avoiding the maternal infection, foetal or perinatal insults, better managing strategies for difficult deliveries and good maternal and foetal care.<sup>2</sup> Foetal heart rate monitoring is a hope for preventing hypoxic accidents thus reducing the cerebral palsy. This could alert the caregiver to take necessary actions.<sup>11</sup> Diagnosis and prompt adequate management plans can reduce the residual neurological and psychosocial emotional impairment for the

child and his / her family.<sup>1</sup> Cerebral palsy is influenced by awareness, socioeconomic status, and beliefs of families. Many families have negative social beliefs about cerebral palsy. There are scenarios where the mother of disabled child is blamed for disability. Also, some believe that deeds of the parents in their past lives have impact on present condition of their child. Socioeconomic status significantly influences the assumption that physical exercises would contribute to improvement of the condition of the child. Whereas families of lower socioeconomic class think that only medicine and surgery can bring the improvement.<sup>12</sup> Educating the people from lower socioeconomic classes is required and for this assessing their knowledge would be the first step. Parents of children with cerebral palsy must have knowledge about the disease and its management because parental involvement is vital in the process of rehabilitation and care of such children.<sup>13</sup> Very few studies are done to check the knowledge about cerebral palsy. Since this disorder has many risk factors and many impairments, creating awareness is a necessity. For reducing its prevalence educating young adults is important, so that they can take the precautions during pregnancy. The intention of this study was to find out the level of knowledge about this disorder in young adults.

## METHODS

This was observational analytical study, carried out in and around Karad. Total 192 participants were selected by the formula =  $\frac{4pq}{l^2}$ , where p is prevalence of the condition, q is (100 - p), l is precision of the estimate. P = 14 (from previous study),<sup>14</sup> q = 86 and l is 5 % precision. Both males and females with age ranging from 18 to 35 years were selected randomly. Ethical approval was taken from Krishna institute of medical sciences, (Krishna college of physiotherapy) ethical committee. After the protocol and ethical clearance, the survey was started. The study was conducted from December 2019 to May 2020, at Karad (district Satara, state Maharashtra) Total 192 subjects were selected on the basis of inclusion criteria (both male and female, age between 18 and 35 yrs.) and exclusion criteria (parents of cerebral palsy children, people working in medical profession, people who were not willing to participate). Written consent was taken. Detailed explanation about survey was given. Questionnaire was given to the participants which consisted of 15 questions, 7 questions about cerebral palsy and 8 questions about risk factors and were asked to select the option. Results were obtained from statistical analysis.

## Outcome Measure

Structured objective questionnaire approved by guide and experts. The procedure and importance of the study was explained to the participants before giving the questionnaire. According to protocol committee and expert suggestions score more than 4 out of 7 was considered as awareness for cerebral palsy and more than 4 out of 8 was considered awareness for risk factor. The result of study was calculated on the basis of answers given by participants.

**Statistical Analysis**

The collected data was in the form of Microsoft Excel software. In this study we have used various statistical tools such as percentage, mean, standard deviation, graphical techniques, and chi square test respectively. (Figure 1) (Table 1) The above figure shows the percentage of awareness about cerebral palsy and its risk factors. 56 participants were aware of cerebral palsy and 136 were unaware about the condition. About risk factors, 18 were aware and rest 174 were unaware.

**RESULTS**

The results showed low level of awareness about cerebral palsy and its risk factors in young adults. 29.17 % of participants were aware about cerebral palsy which made 70.83 % participants unaware about this condition. Only 9.38 % participants were aware about the risk factors and the rest 90.62 % participants didn't have enough knowledge about risk factors which could be the reason for increasing prevalence of this condition. The mean awareness about cerebral palsy was 5.57 and mean awareness for risk factors was 5.44. 140 females and 52 males took part in this study, and it was found that only 16 males and 40 females were aware about the cerebral palsy and only 8 males and 10 females were aware about the risk factors responsible for it.

The study co-relates between genders, awareness about cerebral palsy and its risk factor using chi square as a statistical tool. When considering awareness of cerebral palsy, the chi square and P values were 0.01418 and 0.9052 respectively, which was not statistically significant. Thus,

there was no co-relation between gender and level of awareness about cerebral palsy in young adults. Comparing awareness of risk factors between males and females, the chi square and P values were 2.139 and 0.1436 respectively, which was statistically not significant. Hence, there was no co-relation between gender and level of awareness about risk factors in young adults.

**DISCUSSION**

Cerebral palsy is one of the most commonly occurring neurological disorder in children with having lifelong abnormalities. The prevalence of cerebral palsy is 1 - 2 per 100 live births.<sup>1</sup> The risk of cerebral palsy is higher in infants who have very low birth weight. Many studies have been done to determine the risk factors and causes of cerebral palsy. The study conducted in Europe from 1980 to 1996, in which the infants who were born with cerebral palsy were selected. The data were analysed to determine prevalence of cerebral palsy in very low birth weight infants. Data showed that 1575 belonged to very low birth weight, 414 (26 %) having birth weight less than 1000g, and 317 (20 %) infants were from multiple pregnancies and 1426 (94 %) had spastic cerebral palsy.<sup>3</sup> The study conducted in Henan, China in 2018 showed that the prevalence of cerebral palsy in Henan province was 2.37 per 1000 live births and risk factors included moving into newly painted room, complicated diseases like infection, heart disease, anaemia, hypertension, high gravida, foetal asphyxia, low birth weight.<sup>4</sup>

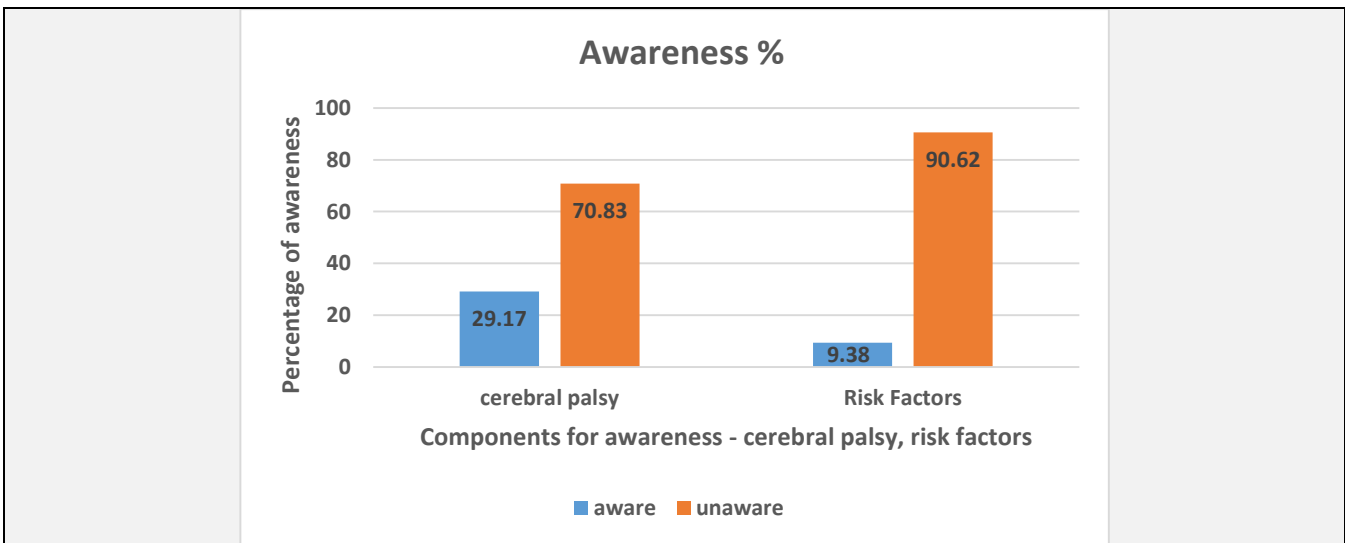


Figure 1. Percentage of Awareness

	Aware About Cerebral Palsy	Unaware About Cerebral Palsy	Chi Square	P Value	Aware About Risk Factors	Unaware About Risk Factors	Chi Square	P Value
Male	16	36	0.01418	0.9052	8	44	2.139	0.1436
Female	40	100			10	130		

*Table 1. Association of Gender with Awareness about Cerebral Palsy and Risk Factors among Young Adults*

	Awareness Frequency	Awareness %	Mean	Standard Deviation	Unawareness Frequency	Unawareness %	Mean	Standard Deviation
Cerebral palsy	56	29.17 %	5.57	0.6283	136	70.83 %	2.66	1.03
Risk Factors	18	9.38 %	5.44	0.5113	174	90.62 %	1.17	1.313

*Table 2. Awareness, Mean and Standard Deviation*

In a study conducted to investigate risk factors for cerebral palsy in Palestinian population, 107 cases and 233 controls were included. Data was collected from parents of 107 cases by using a structured questionnaire. 34.6 % cases were born to parents who were first cousins and 8.5 % born to second cousins. So, this signified consanguinity was one of the most important risk factors for cerebral palsy in Palestinian population.<sup>5</sup>

This study focuses on knowledge about cerebral palsy and knowledge about risk factor in selected population. Although cerebral palsy is not uncommon there is still paucity in the knowledge in general population. According to the study conducted in 2008 the diagnosis of cerebral palsy was not made in almost one third (34.6 %) of cases till they were above two years of age. This indicates that majority of children with cerebral palsy are either referred late or that parents try out all other options before bringing over the child for treatment<sup>10</sup>

This research showed that, 29.17 % of people were aware whereas 70.83 % people were unaware about cerebral palsy and regarding risk factors only 9.38 % were aware and had knowledge about 5 or more than 5 risk factors. This suggested that there was significant low level of awareness in young adults about cerebral palsy. It showed that the lowest score for both sections was zero. Highest score out of 7 for cerebral palsy questionnaire was 7 but in Risk Factor questionnaire highest score out of 8 was only 6. No candidate was able to answer all the questions correctly.

The results suggested that considerably small amount of population was unaware about the fact that children could suffer from abnormalities from birth to 5 years of age. 64 % of population considered cerebral palsy curable. 94 % still think first milk of mother can cause this disorder. This is a serious threat to health of new-born and awareness campaign regarding the importance of first milk and its health benefits to new-borns need to be conducted. Orthodox beliefs around child birth such as natural birth and home delivery have their own risk factors, most common being injury to the brain of infant. About 50 % of population were unaware about the fact that brain injury could cause cerebral palsy. Study also observed that, People tend to ignore the maternal health during pregnancy which increases the danger of maternal infection and hence cerebral palsy in a foetus.

52 males and 140 females took part in this study. Only 16 males and 40 females were aware about cerebral palsy. In risk factor section, 8 males and 10 females were aware but they were also not fully aware as none of them could give the correct answer. The results of chi square test comparing level of awareness between males and females suggested no correlation. Thus, gender does not affect the level of awareness.

A study conducted in Mumbai which included parents of cerebral palsy children showed only 19 % were aware about cerebral palsy but after educational program, 77 % gave correct answers showing that only one session of educational program significantly increased the level of awareness.<sup>10</sup>

A study conducted in Jalandhar district, Punjab concentrated on awareness, beliefs, and service utilization among parents of cerebral palsy child found that 16.1 % parents realized Right to Education (RTE) act and had some knowledge of disability certificate, travelling concession, and benefits and tax rebates available to parents of youngsters with disability. On the brink, 70 % families believe that the condition of the child is due to the deeds of oldsters in their previous lives and almost an equal number accuse the mother

for the present condition of her child.<sup>12</sup> Another study included 49 caregivers of children with cerebral palsy, wherein the caregivers were divided into two groups whether they attended educational workshop or not. The cerebral palsy questionnaire was given to the participants to check their knowledge regarding that. The mean questionnaire score was 17.4 who attended workshop and 13.8 for who did not attend workshop.<sup>14</sup>

All these studies show that minimum one session of educational program is enough to make people aware about the condition. Results showed significant improvement in pre and post - test of these studies. So, by this data it is not very difficult to make people aware about the cerebral palsy and thus reducing its prevalence by decreasing the risk factors. This study has few limitations, first the sample size was small considering the number of cases of cerebral palsy and the study was performed in small area.

Application of work section was to create the awareness among the young adults about the condition so as to reduce the prevalence of the cerebral palsy. Workshop should be carried out in this age group about preventive and precautionary measures to be taken during pregnancy and after delivery of the baby for better health of the new-borns.

## CONCLUSIONS

Cerebral palsy is still an unexplored disorder to large number of individuals whereas extremely less number of individuals are unaware of the risk factors involved. Percentage of population unaware about the cerebral palsy and risk factor is higher. Hence, it is important to conduct the awareness camps for the general population about cerebral palsy.

Data sharing statement provided by the authors is available with the full text of this article at jemds.com.

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