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INFLUENCE OF FATHERS ON NUTRITIONAL STATUS OF THEIR CHILDREN IN RURAL AREA OF DELHI: AN IN-DEPTH STUDY BY MIXED QUALITATIVE RESEARCH APPROACH

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Abstract:
Background: Many studies in Indian context have focused primarily on key role of mothers in nutritional status of their children; but what is the role of fathers in influencing child nutritional status has not explored so far in literature. **Material and Methods:** The study was done in one Rural Block of Delhi in area of 2 Anganwadi Centre's in year 2012 among 400 fathers of 400 children studied for their nutritional status between the age group 0-5 years of 2 Anaganwadi Centre's-X and Y. Total of 100 fathers were sampled randomly for data collection by qualitative methods i.e. Participatory Rural Appraisal (PRA) technique (In-depth interviews) and Phenomenographic technique. Two additional Focus group discussions were also conducted on fathers who were not included in indepth interview. The data was analyzed by SPSS version 18 software and both quantitative as well as qualitative data was triangulated to elucidate the role of fathers in deciding nutritional status of their children. **Results**: The proportion of undernourished children was higher in the mild to moderate category of PEM (53.5% in AWC-X vs 46% in AWC-Y, overall 49.7%). The father's occupation and literacy were significantly associated with the nutritional status of children ($p < 0.01$) in area of both AWCs(X & Y).**Conclusion**: Fathers can influence child nutritional status significantly. For improving nutritional status of undernourished children in rural areas of Delhi, father can also play an active role, provided they are also sensitized well by ICDS & health department.

Keywords: Under nutrition, Father, Rural area, Delhi, Integrated Child development Services, Literacy, Occupation, Participatory Rural Appraisal, Phenomenography.

Introduction:

The global literature of last 5 decades reveals that the median case fatality from severe malnutrition has remain unchanged and the available literature also shows that child malnutrition is decreasing but at a slower rate. [1] A recent WHO data on Millennium Development Goals (2015) achievements has also shown that the percentage of underweight children, in

developing countries although has declined from 25% to 15% from 1990 and 2014 but these rates of progress and improvements are unevenly distributed and far from satisfaction level between and within different regions.[2]

The countries of south Asia (India, Bangladesh, Bhutan, Maldives, Pakistan, Nepal & Sri Lanka) have faced & are still facing major problems related to under nutrition.[3] Much of the under nutrition in south Asia is attributable to inadequate access to foods of the sizeable population. Although there is a striking improvement in child survival, but this has yet to be followed up to the point of achieving optimal child nutrition.

In India, one in every 15 children die within the first year of life and one in every 11 children die before they reach the age 5 years [4]. After the Independence in 1947, Indian subcontinent was a veritable museum of the most florid forms of under nutrition. In spite of huge buffer stocks, 8% of Indians do not get two meals / day and there are pockets where severe under nutrition takes their toll even today. India continues to have one of the highest proportions of childhood malnutrition in world much higher than the sub Saharan Africa.[5] The incidence of under nutrition among rural children is slowly declining but it is still alarmingly high (Incidence of 47.7% in 2000-2001) which is higher than the income poverty [5].

Various studies and survey from last 4 decades show that much remains to be done as around 47% % of young children are undernourished and there are several variations in prevalence of under nutrition in different regions, states & segments of population of India [6].The PEM in rural areas is still a significant problem with nearly 47% of under-six children in rural areas of India are still malnourished. The problem of under nutrition is even substantially higher in rural areas of Delhi(45% Stunting,40% Underweight & 23% Stunted) in under 3 years age group children [NFHS-3(2005-06)][7].Studies [8-10] have suggested that some remedial steps are needed on community basis to improve the nutritional status of under-six slum & rural children, as majority of them are under-weight & stunted. The problems of malnutrition are different in urban slums and rural areas. Moreover North Indian children are found to show marked differences in favour of boys in both mortality and health care [11].

Rao et al[12] also suggested the need to examine the area of malnutrition in ICDS covered Urban-slum & rural areas for planning the appropriate programmes. Men(fathers) are real decisions makers in families, deciding the nutritional conditions of a household as found in few studies from different parts of the world, which stresses upon the promotion of male involvement in the health and nutritional issues, as perceived by nurses also.[13-14] Most of the studies in India in rural area of Delhi in past were focused only on mothers role in nutritional status of their malnourished children, but aspect of fathers role has not been touched deeply so far in literature in Indian scenario.[15-16]With this background in mind, the present study was therefore done, to study the in-depth knowledge and perceptions of the key stake holder from the family level i.e. father in deciding the nutritional status of their children in Rural area of Delhi. Phenomenography which is a qualitative research methodology; investigates the qualitatively different ways in which people experience something or think about something. Its data collection methods typically include close interviews with a small, purposive sample of subjects.[17] The Participatory Rural Appraisal(PRA) method can explore the

knowledge and opinions of rural people in the planning and management of their programs. When the Phenomenography technique is used along with Participatory Rural Appraisal (PRA) method it can give better understanding of Picture related to some critical issues, as explored in this study by authors on role in children feeding practices of fathers.

Material & Methods:

Ethical Approval: Institutional Ethics Committee of National Institute of health & family welfare approved this study in 2005 for conduction in a Rural ICDS block of Delhi and verbal informed consent was taken not only from all participants and written consent also from ICDS department Delhi before conduction of this study was taken.

Study Design: Descriptive – Observational.

Study Area*: The study was done in July-Dec 2012 in the one rural ICDS block of Delhi.*

Inclusion Criteria:

All the 400 fathers of 400 children (between the age group 0-5 years) as found in the survey register of Rural ICDS project.

Exclusion Criteria:

All the 400 Mothers of all 400 children were not included specifically in this study in order to gain a clear picture of father's role in children nutritional status.

Study Population: *All the 400 fathers of 40children (between the age group 0-5 years) as found in the survey register of Rural ICDS project for 2 Anganwadi Centre's X & Y (AWC-X & AWC -Y) (200 fathers each-from AWC –X & Y) at the time of data collection, were included in the study population.*

Sampling technique: 400 families were studied from the survey register, with one child selected from each family. All fathers, 200 from each AWC X and Y, from the surveyed families were included in the study**.** Thus making total sample size 400. All fathers (400) were interviewed to obtain their socio-demographic details. However; further they were sampled by simple random selection technique, constituting 50 fathers from each AWC(X & Y) irrespective of nutritional status of their children, thus making sample size 100 for indepth-interview, in order to know their opinions,, knowledge, attitude & practices in malnutrition prevention & management in under six children 2 FGDs were also conducted among fathers who were not included in indepth interview to understand their belief, opinion and views regarding prevention and management of malnutrition in their children.

Data collection tools and technique

Valid Open ended pre-tested interview schedule was used after pilot study in the Rural ICDS Block. The children (0-5yrs) were examined for their nutritional status and their fathers thereafter were studied by PRA & Phenomenographic techniques.

Data analysis

The collected data was analyzed with using appropriate Statistical package for Social Sciences (SPSS) version 18.

Results:

Distribution of Socio-demographic details of Children in Anganwadi centers (AWCs)

There were 200 children each under 5 years of age in the AWCs X and Y. The infants were 9.5% in AWC X and 12.5% in AWC Y. The children in age groups 1-3 years were highest in AWC-X (41.5%) as compared to 35% in AWC-Y in 3-6 years age groups and overall highest children were in 3-6 years age group (37.8%). The sexes of children were also unevenly distributed as boys were slightly higher than girls (56.5% males vs 44.5% females). In AWC X, there were 56% males, but in AWC-Y area, males were (57%).The majority of children were in

first order births (47.5% in both AWC area X & Y). Very few (5.0% each) of AWC-X & Y were in 4th birth order. [Table 1].

When all these children were examined for their nutritional status, in both the AWCs the proportions of undernourished children in all the grades of PEM were higher in one AWC- X than AWC- Y. [Table: 02].

Distribution of Fathers socio-demographic features in Anganwadi centres (AWCs) areas

The majority of fathers of study children (55% in AWC- X, 47.5% in AWC- Y, overall-51.3%) were in 45-55 years age group, (61.8%) in AWC X were also SCs and 56% were OBCs in AWC Y. Most of fathers of the children belonged to Hindu religion [AWC Y (92.5%) & 67% in AWC Y]. [Table no: 03].

Distribution of Literacy & Occupational status of Fathers:-

The 39.1% father had completed high school and above (34.2% in AWC -X and 44% in AWC- Y respectively). The majority of fathers were only primary school passed in both AWC-X (40%) and AWC-Y (37.5%) [Overall 38.7%]. Fathers who have completed middle school and above, the majority of their children were normal (52.7% in AWC X and 63.1% in AWC Y). Illiteracy among fathers was only 2.6%. [Table no: 4].

(a). Distribution of Literacy Status of Fathers in AWCs area:-

In both the AWCs the severe malnutrition was found in majority of fathers who were illiterate (66.6% in AWC X and 100% in AWC Y) and also in few just literate category of fathers in both these AWC areas (75% in AWC X and 25% in AWC Y). [Table no: 5].

(b).Distribution of Occupational status of Fathers in AWCs area:-

Almost 50% of fathers were laborers which were more in AWC -X (54%) as compared to AWC Y (46.5%). In AWC X majority of children (61.5%) were normal whose father were in service category but in AWC B 51.5% normal children were from laborer category. In AWC X -the children who had severe grade malnutrition their fathers were laborers (11.8%) as compared to those in service category (0%). In AWC Y the mild to moderate malnourished children were more in the fathers who were in service category (47.5%) but again severe malnutrition was more in the fathers who were labourers (8.6%). [Table: 06]

Awareness and role of fathers in deciding child nutritional status:-

(a). FGD responses of fathers awareness of the normal children- They said that-

1. *They know that there child is healthy (100%). It was told by AWW or health worker after weighing the child.*
2. *All said a weak or a malnourished child is known by its appearance & knowing its weight (100%).*
3. *All the fathers of the normal and healthy child said that the child remains healthy by giving all types of foods, milk, immunizations and regular health check up.*
4. *The fathers allowed continue the feeding to the child even when child suffers from illnesses like loose motions, diarrhoea, fever, cough& cold etc.*

(b). FGD responses of father's awareness of the malnourished children: - They said that-

1. "*They do not know whether this child is healthy or weak or malnourished but they were told by anganwadi worker or health worker".*
2." *Workers had asked them to give more food at home to the child to keep him healthy.*
3. "*For the cause of malnutrition most of them mentioned the lack of availability of food at home due to poverty."*

4."*They do not continue the feeding to the child even when child suffers from illnesses like loose motions, diarrhea, fever, cough& cold etc as they feel it is not digested."*

(c). Actions taken by fathers for malnourished children- They said that-

Fathers of the normal and malnourished children were asked regarding different actions taken by them to keep their child healthy.

(d)FGD responses of father's action taken of Normal Children: They said that-

1. *All (100%) fathers of normal children of both arms of AWC said that-"they immunize their child right from the birth & at regular intervals."*
2. *"They give food to the child even when they are ill and take medicines from private doctor or health worker or Government doctor for the treatment of diseases like loose motions, fever, cough & cold, so that the child remains healthy."*

(e)FGD responses of father's action taken of Malnourished Children:

Among the malnourished children all (100%) fathers said that:

1. *"They give all types of available food at home and sometimes milk is also given to the children if available. Immunizations of the children is also given from time to time."*
2. *"They take medicines from doctor or health worker for the treatment of diseases like loose motions, fever, cough & cold, so that the child remains healthy".*

Discussion:

In our study, the higher proportion of infants and 3-6 years children found in AWC (Y) suggests that the AWW (X) had enumerated all the infants but perhaps she (AWW-X) may have missed out some older children during the survey. This may have influenced the outcome of finding of higher proportion of undernourished children in the mild to moderate category of PEM (53.5%) in AWC-X as compared to 46% in AWC-Y, indicating the uncovered children influence on the nutritional status of the children in their AWC area. This further signifies the individual efficacies of AWWs in doing survey for children in their area, which can impact the nutritional status of children in their area, by their influence on shaping health and nutritional literacy of family members such as father and mother as found in our study results.

In our study, the proportion of undernourished children were higher in the grades 1 & 2 of PEM suggesting that just the mere presence of AWCs were not enough to make sufficient dent in children's nutritional status, role of parents is also important. One such study in India; had also found the Prevalence rates of around 37% undernutrion even in best health performing states such as Kerala even among beneficiaries of ICDS program, suggest that parental role is more important in management of malnutrition in their children.[18]

In our study, the most important factor of both the literacy status of the fathers and their occupation were significantly associated with the nutritional grades of children in area of both AWCs(X & Y) ($p < 0.01$). This finding is in consonance with findings in few studies from different parts of the world where it has been suggested that- Men(fathers) can be real decisions makers in families as per their literacy as well occupational background, ultimately deciding the nutritional conditions of a household and this also stresses upon the fact of promotion of male involvement in the health and nutritional issues, as perceived by nurses in few studies.[13-14] The father's literacy and occupational status turns

out to be a more accurate indicator for malnutrition rather than household income as found in our study; and this finding is just similar to few studies in past- who found that children of fathers who were day laborers were -3 times more likely to be severely underweight and the fathers of most (84%) of the wasted children were either rickshaw pullers or day laborers.[19-20]

In our study, FGD analysis revealed some interesting qualitative issues: all fathers of normal children of both AWC X and Y (100% each) said that- they had asked mothers of children to give breast milk (including colostrums) up to 6 months, thereafter add semisolid foods to the child. It appeared from these findings that fathers of normal children had some awareness and good actions were taken by them in the family for keeping their child nutritionally healthy. In contrast to this, all the fathers of malnourished children of both AWC X and Y (100% each) said that they do not know whether this child is healthy or weak or malnourished, but it is told to them by Anganwadi worker or health worker. Moreover they do not continue the feeding to the child even when child suffered from illnesses. From their opinions it appeared that they had less knowledge about treatment & prevention of malnutrition in children. The study of Sharma SR (1997)[21] had also emphasized that deficient communication between AWW,PRI & Mahila Mandals with family members can lead to low participation of community in ICDS scheme, as also found in our study from the low nutritional and health education knowledge of fathers of undernourished children.

Few studies conducted globally have also indicated that child feeding practices actually needs to be based on their target needs, in which father apart from mother can also play a significant role.[22] The parents in which especially a father can also play a good role in shaping the nutritional status of children by adopting following means :a)Establishing daily times for family meals and snacks b) Decide what food is offered and when; let the child decide whether to eat; c) Serve as role models and can also Provide consistent messages/actions.[23]Study of Victora C J et al(1986) & Christian P et al(2007) had also found that income and parental education are strongly correlated, and the parents education affects child nutritional status even when family income is taken into consideration[24-25] as similar to finding of our study.

In our study from the findings of PRA technique, it appeared that- among fathers the normal and malnourished children when they were asked regarding different actions taken by them to keep their child healthy. All (100%) decision makers of normal children of both AWC said that they immunize their child right from the birth & at regular intervals. The malnourished children's fathers said that although they got medicines, injections, advises on food and nutrition taken by mother & her child but they do not have much faith on utility of the ICDS services. The reason for dissatisfaction for facility(AWC) is that as even after using these services, their child health is not improving They also said that AWW or health worker comes only once in a year at home for advising on care of mother and child feeding. The active participation of mothers & decision makers in family such as father in child development is one of the most crucial factor, as responses of mother & father in family in most situations determine the health, nutritional status & survival of young children as found by De Fatima Antero Sousa Machado M, Vieira NF(2004)[26] .Tinkew JB & DeJong G (2004)[27] who had

examined the influence of household structure & economic resources on nutritional status of children by comparing the impact of different types of household structures, also found that living in a single parent household & cohabiting household increases the odds of stunting for children.

Our study findings from PRA & Phenomenographic techniques are also in consonance with Study by Sherriff N et al (2014) in UK in which a model for fathers support in encouraging breastfeeding, and role of health practitioners in supporting breastfeeding couples was emphasized.[28-30]

Our study from above technique also found that pressuring children to eat was a key feeding strategy adopted by fathers in rural area of Delhi , which was also found in review study by Khandpur N et al(2014) from USA.[31] Our study also found that fathers, like mothers, can be a potential agent for implementation of good feeding practices within the family, which was also suggested by Mallan KM et al (2014) from Australia.[32] In our study, fathers' perceptions regarding child feeding were shaped by many factors such as : a)Self experiences, b)advice from experienced elders, and c)information received by the fathers from AWW & health department, and this finding is also similar to study by Anderson KE et al(2010) in USA.[33] Study by Ojofeitimi EO & Adelekan MO(1984) had also emphasized that fathers perceive that child welfare should be mainly the responsibility of the mother and ignorance, prolonged absence of fathers from the home are one the important causative factors of PEM as found in our study and other studies who had also found that host factors in family are an important issue in deciding children nutritional status.[34-35] Therefore low faith & less participation by fathers(who are already burdened by poor literacy and improper occupation) of malnourished children for ICDS services as found from our study; also raises an issue of quality services imparted by AWWs in ICDS Scheme in rural areas of India, where fathers can influence the nutritional status of their children, so this Quality services issue of ICDS scheme can be studied further in detail in future studies.

However in our present study some limitations do exist; asthe large sample size of fathers in family could not be obtained due to the time constraints for the researchers. The Potential limitations of Participatory Rural Appraisal (PRA) Procedures i.e. In-depth Interviews & FGDs of fathers) and phenomenographic study are also intrinsic to the methodology & extrinsic for purposes of generalization from this study.

Conclusions:

Fathers who were at least middle school passed and those who were in service and those who had received nutrition and health education from AWW in ICDS scheme can have better understanding regarding child feeding practices for treatment and prevention of malnutrition in their children. Majority of fathers have improper beliefs regarding augmenting the nutritional status of their children for which they need proper health and nutritional messages from primary health care system. For improving nutritional status of undernourished children in rural areas of Delhi father can also play an active role, provided they are also sensitized well by ICDS & health department.

List of Abbreviations used:

1. AWC-Anganwadi Center
2. AWW-Anganwadi Worker
3. FGD-Focus Group Discussion
4. ICDS-Integrated Child Development Services
5. PRA-Participatory Rural Appraisal
6. PEM-Protein Energy Malnutrition

7. SC-Scheduled caste
8. OBC-Other Backward Caste

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List of Tables:

Table: 1: Distribution of Socio-demographic details of children

S. No	Socio-demographic details of Children	AWC-X		AWC- Y		Total	
		No.	%	No.	%	No	%
	Age groups						
	0-6 mths	19	9.5	26	13	45	11.2
	6mths-1 yr	17	8.5	39	19.5	56	14.0
	1-3 yrs	83	41.5	65	32.5	148	37.0
	3-6 yrs	81	40.5	70	35	151	37.8
	Total	**200**	**100**	**200**	**100**	**400**	**100**
	Sex						
	Male	112	56	114	57	226	56.5
	Female	88	44	86	43	174	44.5
	Total	**200**	**100**	**200**	**100**	**400**	**100**
	Birth order						
1	**First**	95	47.5	95	47.5	190	47.5
2	**Second**	60	30	63	31.5	123	30.7
3	**Third**	35	17.5	32	16.0	67	16.8
4	**Fourth**	10	5.0	10	5.0	20	5.0
5	**Total**	**200**	**100**	**200**	**100**	**400**	**100**

Table: 2: Distribution of children according to nutritional grades

S. No.	Nutritional Status	AWC X		AWC Y		Total	
		No	%	No	%	No	%
1	Normal	80	40	100	50	180	45
2	Grade 1 PEM	60	30	48	24	108	27
3	Grade 2 PEM	47	23.5	44	22	91	22.8
4	Grade 3 PEM	9	4.5	5	2.5	14	3.5
5	Grade 4 PEM	4	2.0	3	1.5	7	1.7
6	Total	200	100	200	100	400	100

Table: 3: Distribution of Fathers of children of 2 AWCs by age, religion and caste

S. No.	Socio-demographic details of fathers	AWC X		AWC Y	Total		
		No	%	No	%	No	%
	Age groups						
1	15-30yrs	46	23	51	25	97	12.7
3	30-45 yrs	44	22	51	25.5	95	23.7
4	45-50 yrs	110	55	95	47.5	205	51.3
5	Total	200	100	200	100	400	100
	Religion						
1	Hindu	185	92.5	134	67	319	79.8
2	Muslim	15	7.5	66	33	81	20.2
3	Total	200	100	200	100	400	100
	Caste						
1	SC	141	70.5	130	65	271	67.8
2	OBC	42	21.0	49	24.5	91	22.7
3	Gen	17	8.5	21	10.5	38	9.5
4	Total	200	100	200	100	400	100

Table: 4: Distribution of fathers according their literacy and occupational status

S. No.	Variables	AWC-X		AWC-Y		Total	
		No.	%	No.	%	No	%
Educational status of Father							
1	**Illiterate**	9	4.5	3	1.5	12	3.0
2	**Just literate**	4	2.0	12	6.0	16	4.0
3	**Primary school**	80	40	75	37.5	155	38.7
4	**Middle School**	57	28.5	65	32.5	122	30.5
5	**High school**	29	14.5	31	16.5	60	15
6	**Senior Secondary School**	21	11.5	14	7.0	35	8.8
7	**Total**	**200**	**100**	**200**	**100**	**400**	**100**
Occupation							
1	**Laborer**	108	54	93	46.5	201	50.2
2	**Service**	92	46	107	53.5	199	49.8
3	**Total**	**200**	**100**	**200**	**100**	**400**	**100**

Table: 5: Distribution of children according to the literacy status of father of AWC X & Y

S.N.	Nutritional status	Education Qualification* (AWC-X)						Total
		Illiterate	Just Literate	Primary school	Middle School	High school	Senior Secondary School	
1	**Normal**	0 (0)	0 (0)	15 (18.8)	30 (52.7)	20 (68.9)	15 (71.5)	80 (40.0)
2	**Grade I PEM**	1 (11.1)	0 (0)	25 (31.2)	20 (35.1)	08 (27.7)	06 (28.5)	60 (30.0)
3	**Grade II PEM**	2 (22.3)	1 (25)	36 (45.0)	07 (12.2)	01 (3.4)	00 (0)	47 (23.5)
4	**Grade III PEM**	3 (33.3)	2 (50)	04 (5.0)	0 (0)	0 (0)	0 (0)	9 (4.5)
5	**Grade IV PEM**	3 (33.3)	1 (25)	0 (0)	0 (0)	0 (0)	0 (0)	4 (2.0)
6	**Total**	**9 (100)**	**4 (100)**	**80 (100)**	**57 (100)**	**29 (100)**	**21 (100)**	**200 (100)**

Chi - Square test : χ^2=284, d.f = 20, p< 0.01								
Education Qualification* (AWC-Y)								
1	**Normal**	0 (0)	0 (0)	20 (26.7)	41 (63.1)	25 (80.6)	14 (100)	100 (50.0)
2	**Grade I PEM**	0 (0)	6 (50)	15 (20.0)	21 (32.3)	06 (19.4)	0 (0)	48 (24.0)
3	**Grade II PEM**	0 (0)	3 (25)	38 (50.7)	03 (4.6)	00 (0)	0 (0)	44 (22.0)
4	**Grade III PEM**	2 (66.7)	2 (16.7)	1 (1.3)	0 (0)	0 (0)	0 (0)	5 (2.5)
5	**Grade IV PEM**	1 (33.3)	1 (8.3)	1 (1.3)	0 (0)	0 (0)	0 (0)	3 (1.5)
6	**Total**	**3 (100)**	**12 (100)**	**75 (100)**	**65 (100)**	**31 (100)**	**14 (100)**	**200 (100)**
Chi - Square test: χ^2=166, d.f = 20, p< 0.01								

***Note: Figures in parenthesis represent percentages**

Table: 06: Distribution of children according to occupation of fathers in AWC X &Y

S. No.	**Nutritional status**	**Occupation (in AWC- X)**					
		Laborer		**Service**		**Total**	
		No	**%**	**No**	**%**	**No**	**%**
1	**Normal**	24	22.2	56	61.5	80	40
2	**Grade I**	42	38.5	18	19.7	60	30
3	**Grade II**	30	27.5	17	18.8	47	23.5
4	**Grade III**	9	8.2	0	0	9	4.5
5	**Grade IV**	4	3.6	0	0	4	2.0
6	**Total**	**109**	**100**	**91**	**100**	**200**	**100**
Chi - Square test : χ^2=98.5, d.f = 4, p < 0.01							
Occupation (in AWC -Y)							
1	**Normal**	48	51.5	52	48.5	100	50
2	**Grade I**	18	19.3	30	28.0	48	24
3	**Grade II**	23	24.7	21	19.5	44	22
4	**Grade III**	5	5.3	0	0	5	2.5
5	**Grade IV**	3	3.2	0	0	3	1.5
6	**Total**	**93**	**100**	**107**	**100**	**200**	**100**
Chi - Square test : χ^2=122.2, d.f = 4, p < 0.01)							