

Self Esteem in Children With Ametropia and EmmetropiaShaji Ankan^{1*}, P.T.Baburaj², Vijayamma.N³¹Assistant Professor, Department of Ophthalmology, Govt Medical College, Konni, Pathanamthitta, Kerala, India²Associate Professor, Department of Behavioural Medicine, School of Behavioural Sciences, Mahatma Gandhi University, Kottayam, Kerala, India³Professor and HOD, Department of Ophthalmology, Govt Medical College, Kottayam, Kerala, India

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Abstract

Introduction: The World Health Organization (2012) defines disability as follows: "Disabilities is an umbrella term, covering impairments, activity limitations, and participation restrictions. Impairment is a problem in the functioning of body or its structure. An activity limitation is aim penetrability experienced by an individual in executing an action or a task; while a participation restriction is a serious problem experienced by an individual in involvement in his or her daily life situations. Thus, disability is a complex phenomenon, reflecting an interaction between a person's features of body and features of the society in which the person lives." **Materials and Methods:** A descriptive research design involves describing the characteristics of a particular individual or a group. "Descriptive Research Design concerned with conditions or relationship that exist, opinions that are held, processes that are going on, effects that are evident, or trends that are developing". There are different methods used in descriptive research. Among the different possible approaches, the investigator adopted the survey method in his present study. According to Hill way (1964) the survey method is used to obtaining exact facts and figure about current situation. A survey method is an attempt to collect appropriate data from the corresponding population of the study, for describing a condition or to determine current status. The data were collected by using standardized scales, having well established psychometric properties. The sample technique used in the study was purposive sample technique. Purposive sampling is a technique in which samples are drawn to include particular areas or groups found in a population (Kerlinger, 1986). **Results:** Mean and Standard deviation and self-esteem scores of children with respect to emmetropia and refractory errors. The mean value obtained by Emmetropia (33.580), Myopia (29.652) Astigmatism (30.921) and Hypermetropia (30.2083) and their standard deviations are 3.123, 3.813, 3.879 and 4.191 respectively. There is significant difference between the self-esteem of children with emmetropia and myopia, hypermetropia which are statistically significant at 0.00 level. Emmetropia and astigmatism is statistically significant at 0.05 level. Emmetropia refers to an eye that has no refractive errors. Images formed on an emmetropic eye are perfectly focused, clear and precise than children with myopia and hypermetropia. **Conclusion:** When comparing self-esteem of children with emmetropia and refractive errors with respect to religion, children with emmetropia from Christian community have reported significantly more self-esteem than children from Muslim community and Hindu community. The significant mean difference has shown in the Hindu- Christian religious community. Children with myopia from Christian community have reported significantly more self-esteem than children from Muslim community and Hindu community. The significant mean difference has shown in the Hindu- Christian religious community.

Keywords: Emmetropia, myopia, hypermetropia.

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Introduction

The understanding of disability nowadays is radically totally different from what existed more than 20 years ago. In distinction to the traditional medical models of disability that were oriented towards impairment, deficits and cure, the emphasis now could be on conceptualizing disability as a social issue. The World Health Organization (2012) defines disability as follows: "Disabilities is an umbrella term, covering impairments, activity limitations, and participation restrictions. Impairment is a problem in the functioning of body or its structure. An activity limitation is aim penetrability experienced by an individual in executing an action or a task; while a

participation restriction is a serious problem experienced by an individual in involvement in his or her daily life situations. Thus, disability is a complex phenomenon, reflecting an interaction between a person's features of body and features of the society in which the person lives." [1-4] Globally, many people are living with different kinds of disabilities. Among various types of disability, visual impairment is one of the major disabilities that limit or restrict the participation of an individual in mainstream society. Analysis of the causes of disability from a medical or bio-centric standpoint tends to give emphasis to hereditary, disease and birth defects over environmental and systemic factors. Genetic factors and lack of admittance to basic services can also lead to a person becoming disabled. Malnutrition, improper medication, taking drugs, smoking cigarettes, mother exposed to the disease, mental or physical trauma are the causes before birth. In the process of parturition or during birth premature delivery, complicated deliveries are the main reasons behind the disability. Malnutrition, Lack of vaccination, Infections like meningitis polio, accident, trauma and exposure to the toxic substance will be the causes of disability after birth.

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The eyes are very important sensory organ in our body greatly to one's learning behaviors right from childhood. Usually the physical, intellectual and behavioral development occurs in children in their school going years. The eyes at the time of birth is hypermetropic and as the child grows their eyes also growing to adult size or the development of eyes will be completed by the age of two years. That means the hypermetropic eyes will become emmetropic by the age of two years. The child never complaining of any defective vision and they adjust to poor vision by sitting near the black board, holding the book closer to eyes, squeezing the eyes and avoiding works of visual concentration. The refractive errors are very common in children may be due to increase near works and in children of parents having refractive errors. The common refractive errors in children are Myopia, Hypermetropia and Astigmatism[5-7].

Emmetropization constitutes intrinsic mechanisms of the attention to attain physiological condition in childhood. Each refractive part changes during a complementary and synchronized manner because the eye grows to attenuate refractive error (David & Difford, 2004; Ian et al., 2009; Mutti et al., 2005; Mutti et al., 2007). In what seems to be failing, incomplete or distorted try at Emmetropization, shortsightedness and hyperopia result due to 'naturally occurring' residual incompatibility between the ability of the optical components of the eye and the axial length. Various theories have tried to clarify incomplete emmetropization or secondary visual defect following an ideal emmetropization.

Parents play an important role in the socialization of their child with special needs. When they identify their child is a person with a disability, they face several issues from family, society, workplace etc. which are challenging and difficult to cope up, parents are unprepared to face this which leads to unfavorable behavioral outcomes (Janssen, Schuengel, & Stolk, 2002). The presence of a child with a disability in the family adds extra burden as well as caring for such a child becomes cumbersome. Society's attitude and care givers burden increase the stress level of the family (Lee & Sohng, 1996). They always reject their child because of resentment. So, the child of that family is also doing the same. But he or she is not able to communicate his blame so he becomes a victim of anxiety, guilt and self-hostility. The present study conducted among children with ametropia (with refractive errors) and children with emmetropia (without refractive errors) because, children living with these kinds of disability tend to be marginalized in the society, schools and other social situations and they cannot able to come to the mainstream even though many policies for inclusion still exist. In the present study, the investigator attempts to find out the effects of self-esteem concerning the nature of the disability

Materials And Methods

A descriptive research design involves describing the characteristics of a particular individual or a group. "Descriptive Research Design concerned with conditions or relationship that exist, opinions that are held, processes that are going on, effects that are evident, or trends that are developing" (Best and Khan 1992). There are different methods used in descriptive research. Among the different possible approaches, the investigator adopted the survey method in his present study. According to Hill way (1964) the survey method is used to obtaining exact facts and figure about current situation. A survey method is an attempt to collect appropriate data from the corresponding population of the study, for describing a condition or to determine current status. The data were collected by using

standardized scales, having well established psychometric properties. The sample technique used in the study was purposive sample technique. Purposive sampling is a technique in which samples are drawn to include particular areas or groups found in a population (Kerlinger, 1986).

Population

A population is the aggregation of all the units in which the researcher is interested. A population can be any set of people, events or things which have one or more characteristics in common that are of interest to the researcher and are to be generalized by end of the study. The population is defined according to the objectives of the study. The present study was targeted to draw the effects of self-esteem in children with refractive errors and without refractive errors. The population selected for this study consists of children with emmetropia myopia, hypermetropia and astigmatism. Ametropic children with myopia, hypermetropia and astigmatism and emmetropic children without any refractive errors collected from Government medical College Kottayam, Kerala.

Samples selected for the study

The sample selection is a very important step in conducting any research study. From the different sampling techniques, the investigator adopted purposive sampling techniques to select the sample for the study. The study was carried out by the investigator in the outpatient department of the ophthalmology clinic, Kerala Government Medical College, Kottayam. This is composed of 158 participants in whom 50 children with normal vision (emmetropia) and 108 children with refractive errors. The sample of children with refractive errors includes 46 children with myopia, 38 children with astigmatism and 24 children with hypermetropia. The participants were classified based on their gender, nature of refractive error, age, class, type of schools, residence, family type and socio-economic status. The samples, as collected for the study, were based on inclusion and exclusion criteria.

Inclusion and Exclusion criteria

Inclusion criteria

- Children with and without refractive errors
- Children with ages between 5 to 15
- Education: 1st standard to 10th standard
- Both sexes (male and female)
- Written or Verbal informed consent submitted

Exclusion criteria

- Individuals with ages below 5 and above 15
- Education: below 1st standard and above 10th standard
- Children with psychiatric illness
- Those who are hesitant to give written or verbal informed consent [8-10]

Results

The present chapter deals with systematic consolidation, tabulation, and representation of collected data and discussion of the results. The details are presented under different heads.

Self - Esteem of Children with Emmetropia and Refractive Errors

Table 1: Mean and Standard deviation and self-esteem scores of children with emmetropia and refractory errors

Variables	N	Mean	SD
Emmetropia	50	33.580	3.123
Myopia	46	29.652	3.813
Astigmatism	38	30.921	3.879
Hypermetropia	24	30.208	4.191

Table 1 shows the Mean and Standard deviation and self-esteem scores of children with respect to emmetropia and refractory errors. The mean value obtained by Emmetropia (33.580), Myopia (29.652)

Astigmatism (30.921) and Hypermetropia (30.2083) and their standard deviations are 3.123, 3.813, 3.879 and 4.191 respectively.

Table 2: Summary of ANOVA for self-esteem scores of children with emmetropia and refractory errors

Source of variation	Sum of Squares	df	Mean Square	F
Between groups	418.847	3	139.616	10.271**
Within groups	2093.336	154	13.593	
Total	2512.184	157		

*Significant at 0.00 level

Table 2 shows that the F-ratio scores with respect to emmetropia and refractory errors. is 10.271, which is statistically significant at 0.00

level. So, it can be concluded that refractory errors are significant factors in predicting the self-esteem scores of the students.

Table 3: Summary of Sheffe test and self-esteem scores of children with respect emmetropia and refractory errors

Emmetropia and Refractory errors	Emmetropia and refractory errors	Mean Difference	p
Emmetropia	Myopia	3.92783*	0.00
	Astigmatism	-2.65895*	0.05
	Hypermetropia	-3.37167*	0.00

*Significant at 0.00 level

*Significant at 0.05 level

From table 3 shows that there is significant difference between the self-esteem of children with emmetropia and myopia, hypermetropia which are statistically significant at 0.00 level. Emmetropia and astigmatism is statistically significant at 0.05 level. Emmetropia refers to an eye that has no refractive errors. Images formed on an emmetropic eye are perfectly focused, clear and precise than children with myopia and hypermetropia. Eyes that have emmetropia do not require vision correction. So, the children with emmetropia have good self-esteem than refractory errors group (Myopia, Astigmatism and Hypermetropia). Children with refractive errors often have difficulty to concentrating on academic activities maintaining attention on black board while coping etc. This is one of the reasons for their low achievement among children with refractory errors.

Dandona and Dandona (2001) indicated that blindness due to uncorrected or inadequately corrected refractive errors start at a younger age as such it hinders education, personality development and career opportunities in addition to causing an economic burden on society. Ovenser-Ogbomo and Assien (2010) indicated that uncorrected refractive errors remain a public health problem which has a considerable impact on learning and academic achievement especially in underserved and under-resourced communities. Refractory errors can decrease their self-confidence and self-esteem, in these circumstances visual correction is necessary for these children's overall development and success in personal life.

Self Esteem of Children With Emmetropia With Respect To Selected Sociodemographic Variables

Table 4: Mean, standard deviation and "t" value of the self-esteem scores of the children with emmetropia with respect to age

Variable	Age	N	Mean	Standard deviation	"t" Value
Self- esteem	5 to 9 Yrs	26	34.538	3.127	2.361*
	10 to 15 Yrs	24	32.542	2.828	

*Significant at 0.05 level

Table 4 shows that mean, standard deviation and "t" value of the self-esteem scores of the children with hypermetropia with respect to age. For children whose age ranges from 5 to 9 years, the mean value and standard deviation is found to be 34.538 and 3.127 respectively. For children whose age ranges from 10 to 15 years, the mean value and standard deviation is found to be 32.542 and 2.828 respectively. The obtained "t" value for self-esteem is 2.361 which is statistically significant at 0.05 level. So, it can be concluded that children with

emmetropia (normal vision) whose age ranges from 5 to 9 years have reported more self esteem than children ages 10 to 15 years. Self esteem changes with age. Studies shows that self-esteem begins to rise between ages 4-11, as children develop socially and cognitively gain some sense of independence. In the present study, the researcher assumes that, children with in the age ranges of 5-9 years may experience more independence and get confident thorough interaction with parents and teachers.

Table 5: Mean, standard deviation and "t" value of the self-esteem scores of the children with emmetropia with respect to gender

Variable	Gender	N	Mean	Standard deviation	"t" Value
Self- esteem	Male	26	34.038	2.705	1.082
	Female	24	33.083	3.512	

Table 5 shows that mean, standard deviation and "t" value of the self-esteem scores of the children with emmetropia with respect to gender. The mean value for males is found to be 34.038 and standard deviation is 2.705. For females, the mean value and standard

deviation is found to be 33.083 and 3.512 respectively. The obtained "t" value for self-esteem is 1.082 which is not statistically significant. So, it can be concluded that there is no male and female difference in the level of self-esteem of children with emmetropia.

Table 6: Mean, standard deviation and "t" value of the self-esteem scores of the children with emmetropia with respect to class in which they are studying

Variable	Class	N	Mean	Standard deviation	"t" Value
Self- esteem	1 st -5 th standard	22	33.181	3.621	-.796
	6 th -10 th class	28	33.892	2.698	

Table 6 shows that mean, standard deviation and "t" value of the self-esteem scores of the children with emmetropia with respect to the class in which they are studying. The mean value for children who studies at 1st -5th standard is found to be 33.181 and standard deviation is 3.621. for children who studies at 6th-10th standard, the mean value and standard deviation is found to be 33.892 and 2.698

respectively. The obtained "t" value for self-esteem is -.796 which is not statistically significant. So, it can be concluded that there is no difference in the level of self-esteem of children who studies at 1st -5th standard and children who studies at 6th-10th standard with emmetropia.

Table 7: Mean, standard deviation and “t” value of the self-esteem scores of the children with emmetropia with respect to type of school.

Variable	Type of school	N	Mean	Standard deviation	“t” Value
Self- esteem	Government	24	32.583	2.857	-2.256*
	Aided	26	34.500	3.127	

*Significant at 0.05 level

Table 7 shows that mean, standard deviation and “t” value of the self-esteem scores of the children with hypermetropia with respect to type of school. For children who studying in government school, the mean value and standard deviation is found to be 32.583 and 2.857 respectively. For children who studying in government school, the mean value and standard deviation is found to be 34.500 and 3.127 respectively. The obtained "t" value for self-esteem is -2.256 which is statistically significant at 0.05 level. So, it can be concluded that children with emmetropia (normal vision) who studying in aided

school have reported more self-esteem than children who studying in government school. Aided school have good physical facilities and method of teaching is also better than government schools. Aided schools have teachers with higher qualification and better teaching materials than government school. Aided schools were significantly higher on study habits, cooperation and teacher’s involvement. Children with emmetropia (normal vision) who studying in aided school have reported more self-esteem than children who studying in government school. Hence the null hypothesis rejected.

Table 8: Mean, standard deviation and “t” value of the self-esteem scores of the children with emmetropia with respect to area of residence

Variable	Area of residence	N	Mean	Standard deviation	“t” Value
Self- esteem	Rural	26	33.615	3.151	.083
	Semi- urban	24	33.541	3.162	

Table 8 shows that mean, standard deviation and “t” value of the self-esteem scores of the children with emmetropia with respect to area of residence. The mean value for children from rural area is found to be 33.615 and standard deviation is 3.151. For children from semi urban area, the mean value and standard deviation is found to

be 33.541 and 3.162 respectively. The obtained "t" value for self-esteem is .083 which is not statistically significant. So, it can be concluded that there is no rural and semi-urban difference in the level of self-esteem of children with emmetropia.

Table 9: Mean, standard deviation and “t” value of the self-esteem scores of the children with emmetropia with respect to area of family type

Variable	Family type	N	Mean	Standard deviation	“t” Value
Self- esteem	Nuclear	30	33.166	3.474	-1.150
	Joint	20	34.200	2.462	

Table 9 shows that mean, standard deviation and “t” value of the self-esteem scores of the children with emmetropia with respect to area of family type. The mean value for children from nuclear family is found to be 33.166 and standard deviation is 3.474. The mean value and standard deviation for children from joint family is found

to be 34.200 and is 2.462 respectively. The obtained "t" value for self-esteem is -1.150 which is not statistically significant. So, it can be concluded that there are no nuclear and joint family differences in the level of self-esteem of children with emmetropia.

Table 10: Mean and Standard deviation of self-esteem of children with emmetropia with respect to religion

Religion	N	Mean	SD
Hindu	26	32.615	3.188
Muslim	10	33.500	1.715
Christian	14	35.428	3.106
Total	50	33.580	3.123

Table 10 shows the means and standard deviations of self-esteem scores of children with emmetropia with respect to religion. The mean value obtained by parents belonging to Hindu community (32.615), Muslim community (33.500) and Christian community (35.428) religious group and their standard deviations are 3.188,

1.715 and 3.106 respectively. So, it can be concluded that children with emmetropia from Christian community have reported significantly more self-esteem than children from Muslim community and Hindu community.

Table 11: Summary of ANOVA for self-esteem of children with emmetropia with respect to religion

Source of variation	Sum of Squares	df	Mean Square	F
Between groups	72.098	2	36.049	4.172*
Within groups	406.082	47	8.640	
Total	478.180	49		

*Significant at 0.05 level

Table 11 shows that the F-ratio for self-esteem of children with emmetropia with respect to religion is 4.172, which is statistically significant at 0.05 level.

Table 12: post-hoc comparison for self-esteem of children with emmetropia with respect to religion

(I) Religion	(J) Religion	Mean Difference (I-J)	Sig.
Hindu	Muslim	-.884	.723
	Christian	-2.813*	.022

From table 12 shows that there is significant difference between the self-esteem of children with emmetropia. The children belonging to Christian religion have reported more self-esteem than children from

Hindu religion which is statistically significant at 0.00 level. Religiousness is significantly associated with self-esteem and psychological well-being. The researcher hypothesized that students

from Christian religion have more resources to improve their self-esteem and self-confidence. Self-control, Disciplined behavior and self-acceptance are partially earning from their religious teachings,

which facilitate self-monitoring skills and fosters the self-regulatory strength and well-being than children from Hindu religion.

Table 13: Mean and Standard deviation of self-esteem of children with emmetropia with respect to socioeconomic status

Socio economic status	N	Mean	SD
Low	15	32.933	3.751
Middle	27	34.148	2.892
High	8	32.875	2.532
Total	50	33.580	3.124

Table 13 shows the means and standard deviations of self-esteem scores of children with emmetropia with respect to socioeconomic status. The mean value obtained by parents belonging to low socioeconomic status (32.933), middle socioeconomic status(34.148)

and high socioeconomic status (32.875) group and their standard deviations are 3.751, 2.892 and 2.532 respectively.

Table 14: Summary of ANOVA for self-esteem of children with emmetropia with respect to socioeconomic status

Source of variation	Sum of Squares	df	Mean Square	F
Between groups	18.964	2	9.482	.970
Within groups	459.216	47	9.771	
Total	478.180	49		

*Significant at 0.05 level

Table 14 shows that the F-ratio for self-esteem of children with emmetropia with respect to socioeconomic status is .970, which is not statistically significant.

Self Esteem of Children With Myopia With Respect To Selected Sociodemographic Variables

Table 15: Mean, standard deviation and "t" value of the self-esteem scores of the children with myopia with respect to age

Variable	Age	N	Mean	Standard deviation	"t" Value
Self- esteem	5 to 9 Yrs	18	28.111	3.612	-2.300*
	10 to 15 Yrs	28	30.642	3.664	

*Significant at 0.05 level

Table 15 shows that mean, standard deviation and "t" value of the self-esteem scores of the children with hypermetropia with respect to age. For children whose age ranges from 5 to 8 years, the mean value and standard deviation is found to be 28.111 and 3.612 respectively. For children whose age ranges from 10 to 15 years, the mean value and standard deviation is found to be 30.642 and 3.664 respectively.

The obtained "t" value for self-esteem is -2.300 which is statistically significant at 0.05 level. So, it can be concluded that children with myopia whose age ranges from 10 to 15 years have reported more self-esteem than children ages 5 to 9 years. Hence the null hypothesis rejected.

Table 16: Mean, standard deviation and "t" value of the self-esteem scores of the children with myopia with respect to gender

Variable	Gender	N	Mean	Standard deviation	"t" Value
Self- esteem	Male	23	28.434	3.812	-2.262*
	Female	23	30.869	3.481	

*Significant at 0.05 level

Table 16 shows that mean, standard deviation and "t" value of the self-esteem scores of the children with myopia with respect to gender. The mean value for males is found to be 28.434 and standard

deviation is 3.812. For female participants, the mean value and standard deviation is found to be 30.869 and 3.481 respectively.

Table 17: Mean, standard deviation and "t" value of the self-esteem scores of the children with myopia with respect to class in which they are studying

Variable	Class	N	Mean	Standard deviation	"t" Value
Self- esteem	1 st -5 th standard	28	29.285	3.980	-.829
	6 th -10 th class	18	30.222	3.573	

Table 17 shows that mean, standard deviation and "t" value of the self-esteem scores of the children with myopia with respect to the class in which they are studying. The mean value for children who studies at 1st -5th standard is found to be 29.285 and standard deviation is 3.980. For children who studies at 6th-10th standard, the mean value and standard deviation is found to be 30.222 and 3.573

respectively. The obtained "t" value for self-esteem is -.829 which is not statistically significant. So, it can be concluded that there is no difference in the level of self-esteem of children who studies at 1st -5th standard and children who studies at 6th-10th standard with myopia.

Table 18: Mean, standard deviation and "t" value of the self-esteem scores of the children with myopia with respect to type of school

Variable	Type of school	N	Mean	Standard deviation	"t" Value
Self- esteem	Government	25	30.080	3.957	.833
	Aided	21	29.143	3.664	

Table 18 shows that mean, standard deviation and "t" value of the self-esteem scores of the children with hypermetropia with respect to

type of school. For children who studying in government school, the mean value and standard deviation is found to be 30.080 and 3.957

respectively. For children who studying in aided school, the mean value and standard deviation is found to be 29.143 and 3.664 respectively. The obtained "t" value for self-esteem is .833 which is

not statistically significant. So, it can be concluded that there is no difference in the self-esteem of children with myopia who studying in government school and children who studying in aided schools.

Table 19: Mean, standard deviation and "t" value of the self-esteem scores of the children with myopia with respect to area of residence

Variable	Area of residence	N	Mean	Standard deviation	"t" Value
Self- esteem	Rural	24	29.625	4.362	-.051
	Semi- urban	22	29.681	3.213	

Table 19 shows that mean, standard deviation and "t" value of the self-esteem scores of the children with myopia with respect to area of residence. The mean value for children from rural area is found to be 29.625 and standard deviation is 4.362. For children from semi urban area, the mean value and standard deviation is found to be 29.681

and 3.213 respectively. The obtained "t" value for self-esteem is -.051 which is not statistically significant. So, it can be concluded that there is no rural and semi-urban difference in the level of self-esteem of children with myopia.

Table 20: Mean, standard deviation and "t" value of the self-esteem scores of the children with myopia with respect to area of family type

Variable	Family type	N	Mean	Standard deviation	"t" Value
Self- esteem	Nuclear	30	29.000	3.269	-1.465
	Joint	16	30.875	4.529	

Table 20 shows that mean, standard deviation and "t" value of the self-esteem scores of the children with myopia with respect to area of family type. The mean value for children from nuclear family is found to be 29.000 and standard deviation is 3.269. The mean value and standard deviation for children from joint family is found to be

30.875 and is 4.529 respectively. The obtained "t" value for self-esteem is -1.465 which is not statistically significant. So, it can be concluded that there are no nuclear and joint family differences in the level of self-esteem of children with myopia.

Table 21: Mean and Standard deviation of self-esteem of children with myopia with respect to religion

Religion	N	Mean	SD
Hindu	27	28.370	3.628
Muslim	4	29.750	5.123
Christian	15	31.933	2.814
Total	46	29.652	3.813

Table 21 shows the means and standard deviations of self-esteem scores of children with myopia with respect to religion. The mean value obtained by parents belonging to Hindu community (28.370), Muslim community (29.750) and Christian community (31.933) religious group and their standard deviations are 3.628, 5.123 and

2.814 respectively. So, it can be concluded that children with myopia from Christian community have reported significantly more self-esteem than children from Muslim community and Hindu community.

Table 22: Summary of ANOVA for self-esteem of children with myopia with respect to religion

Source of variation	Sum of Squares	df	Mean Square	F
Between groups	122.455	2	61.228	4.949*
Within groups	531.980	43	12.372	
Total	654.435	45		

*Significant at 0.05 level

Table 22 shows that the F-ratio for self-esteem of children with myopia with respect to religion is 4.949, which is statistically significant at 0.05 level.

Table 23: Post-hoc comparison for self-esteem of children with myopia with respect to religion

(I) Religion	(J) Religion	Mean Difference (I-J)	Sig.
Hindu	Muslim	-1.379	.766
	Christian	-3.563*	.012

*Significant at 0.05 level

From table 23 shows that there is significant difference between the self-esteem of children with myopia with respect to religion. The children belonging to Christian religion have reported more self-esteem than children from Hindu religion which is statistically significant at 0.05 level. Religiousness is significantly associated with self-esteem and psychological well-being. The researcher

hypothesized that students from Christian religion have more resources to improve their self-esteem and self-confidence. Self-control, Disciplined behavior and self-acceptance are partially earned from their religious teachings, which facilitate self-monitoring skills and fosters the self-regulatory strength and well-being than children from Hindu religion.

Table 24: Mean and Standard deviation of self-esteem of children with myopia with respect to socioeconomic status

Socioeconomic status	N	Mean	SD
Low	11	31.454	3.856
Middle	30	29.100	3.862
High	5	29.000	2.549
Total	46	29.652	3.813

Table 24 shows the means and standard deviations of self-esteem scores of children with myopia with respect to socioeconomic status. The mean value obtained by parents belonging to low socioeconomic

status (31.454), middle socioeconomic status (29.100) and high socioeconomic status (29.000) group and their standard deviations are 3.856, 3.862 and 2.549 respectively.

Table 25: Summary of ANOVA for self-esteem of children with myopia with respect to socioeconomic status

Source of variation	Sum of Squares	Df	Mean Square	F
Between groups	47.008	2	23.504	1.664
Within groups	607.427	43	14.126	
Total	654.435	45		

*Significant at 0.05 level

Table 25 shows that the F-ratio for self-esteem of children with myopia with respect to socioeconomic status is 1.664, which is not statistically significant.

Self Esteem Of Children With Astigmatism With Respect To Selected Sociodemographic Variables

Table 26: Mean, standard deviation and “t” value of the self-esteem scores of the children with astigmatism with respect to age

Variable	Age	N	Mean	Standard deviation	“t” Value
Self- esteem	5 to 9 Yrs	16	31.062	4.170	.189
	10 to 15 Yrs	22	30.818	3.749	

Table 26 shows that mean, standard deviation and “t” value of the self-esteem scores of the children with hypermetropia with respect to age. For children whose age ranges from 5 to 8 years, the mean value and standard deviation is found to be 31.062 and 4.170 respectively. For children whose age ranges from 10 to 15 years, the mean value and standard deviation is found to be 30.818 and 3.749 respectively.

The obtained "t" value for self-esteem is .189 which is not statistically significant. So, it can be concluded that there are no difference in the self-esteem of children with astigmatism whose age ranges from 10 to 15years and children ages 5 to 9 years.

Table 27: Mean, standard deviation and “t” value of the self-esteem scores of the children with astigmatism with respect to gender

Variable	Gender	N	Mean	Standard deviation	“t” Value
Self- esteem	Male	19	32.789	3.505	3.356**
	Female	19	29.052	3.357	

*Significant at 0.01 level

Table 27 shows that mean, standard deviation and “t” value of the self-esteem scores of the children with astigmatism with respect to gender. The mean value for males is found to be 32.789 and standard deviation is 3.505. For female participants, the mean value and standard deviation is found to be 29.052 and 3.357 respectively. The obtained "t" value for self-esteem is 3.356 which is statistically significant at 0.01 level. So, it can be concluded that male children

with astigmatism have reported more self-esteem than female children with astigmatism. Boys seem to score higher than girls on self-esteem during adolescence (Frost &McKelvie, 2004). One possible explanation for this difference is gender roles. Many qualities associated with the male role are consistent with high self-esteem. Here the present study is supported with this finding. Hence the null hypothesis is rejected.

Table 28: Mean, standard deviation and “t” value of the self-esteem scores of the children with astigmatism with respect to class in which they are studying.

Variable	Class	N	Mean	Standard deviation	“t” Value
Self- esteem	1 st -5 th standard	21	31.381	4.080	.818
	6 th -10 th class	17	30.352	3.656	

Table 28 shows that mean, standard deviation and “t” value of the self-esteem scores of the children with astigmatism with respect to the class in which they are studying. The mean value for children who studies at 1st -5th standard is found to be 31.381 and standard deviation is 4.080. For children who studies at 6th-10th standard, the mean value and standard deviation is found to be 30.352 and 3.656

respectively. The obtained "t" value for self-esteem is .818 which is not statistically significant. So, it can be concluded that there is no difference in the level of self-esteem of children who studies at 1st - 5th standard and children who studies at 6th-10th standard with astigmatism.

Table 29: Mean, standard deviation and “t” value of the self-esteem scores of the children with astigmatism with respect to type of school

Variable	Type of school	N	Mean	Standard deviation	“t” Value
Self- esteem	Government	19	32.263	3.783	2.246*
	Aided	19	29.578	3.579	

*Significant at 0.05 level

Table 29 shows that mean, standard deviation and “t” value of the self-esteem scores of the children with hypermetropia with respect to type of school. For children who studying in government school, the mean value and standard deviation is found to be 32.263 and 3.783 respectively. For children who studying in aided school, the mean value and standard deviation is found to be 29.578 and 3.579 respectively. The obtained "t" value for self-esteem is 2.246 which is statistically significant at 0.05 level. So, it can be concluded that self-

esteem of children with astigmatism who studying in government school found to be higher than children who are studying in aided schools. Government school have good physical infrastructure and facilities and method of teaching is also same like aided schools. Government schools have better teaching materials in the school. Government schools are capable and significantly higher on study habits, cooperation and teacher’s involvement. Hence the null hypothesis is rejected.

Table 30: Mean, standard deviation and “t” value of the self-esteem scores of the children with astigmatism with respect to area of residence

Variable	Area of residence	N	Mean	Standard deviation	“t” Value
Self- esteem	Rural	23	30.782	4.011	-.272
	Semi-urban	15	31.133	3.796	

Table 30 shows that mean, standard deviation and “t” value of the self-esteem scores of the children with astigmatism with respect to area of residence. The mean value for children from rural area is

found to be 30.782 and standard deviation is 4.011. For children from semi urban area, the mean value and standard deviation is found to be 31.133 and 3.796 respectively. The obtained "t" value for self-

esteem is -.272 which is not statistically significant. So, it can be concluded that there is no rural and semi-urban difference in the level

of self-esteem of children with astigmatism.

Table 31: Mean, standard deviation and “t” value of the self-esteem scores of the children with astigmatism with respect to area of family type

Variable	Family type	N	Mean	Standard deviation	“t” Value
Self- esteem	Nuclear	21	29.047	3.169	-3.890**
	Joint	17	33.235	3.455	

*Significant at 0.01 level

Table 31 shows that mean, standard deviation and “t” value of the self-esteem scores of the children with astigmatism with respect to area of family type. The mean value for children from nuclear family is found to be 29.047 and standard deviation is 3.169. The mean value and standard deviation for children from joint family is found

to be 33.235 and is 3.455 respectively. The obtained "t" value for self-esteem is -3.890 which is statistically significant at 0.01 level. So, it can be concluded that children with astigmatism coming from joint families have reported more self-esteem than children with astigmatism coming from nuclear families.

Table 32: Mean and Standard deviation of self-esteem of children with astigmatism with respect to religion

Religion	N	Mean	SD
Hindu	15	30.666	3.287
Muslim	8	30.875	4.853
Christian	15	31.200	4.126
Total	38	30.921	3.879

Table 32 shows the means and standard deviations of self-esteem scores of children with astigmatism with respect to religion. The mean value obtained by parents belonging to Hindu community

(30.666), Muslim community (30.875) and Christian community (31.200) religious group and their standard deviations are 3.287, 4.853 and 4.126 respectively.

Table 33: Summary of ANOVA for self-esteem of children with astigmatism with respect to religion

Source of variation	Sum of Squares	df	Mean Square	F
Between groups	2.155	2	1.077	.068
Within groups	554.608	35	15.846	
Total	556.763	37		

*Significant at 0.05 level

Table 33 shows that the F-ratio for self-esteem of children with astigmatism with respect to religion is .068, which is not statistically significant.

Table 34: Mean and Standard deviation of self-esteem of children with astigmatism with respect to socioeconomic status

Socioeconomic status	N	Mean	SD
Low	11	32.000	4.049
Middle	18	30.500	3.823
High	9	30.444	3.972
Total	38	30.921	3.879

Table 34 shows the means and standard deviations of self-esteem scores of children with astigmatism with respect to socioeconomic status. The mean value obtained by parents belonging to low

socioeconomic status (32.00), middle socioeconomic status (30.500) and high socioeconomic status (30.444) group and their standard deviations are 4.049, 3.823 and 3.972 respectively.

Table 35: Summary of ANOVA for self-esteem of children with astigmatism with respect to socioeconomic status

Source of variation	Sum of Squares	Df	Mean Square	F
Between groups	18.041	2	9.020	.586
Within groups	538.722	35	15.392	
Total	556.763	37		

Table 35 shows that the F-ratio for self-esteem of children with astigmatism with respect to socioeconomic status is .586, which is not statistically significant.

Self Esteem Of Children With Hypermetropia With Respect To Selected Sociodemographic Variables

Table 36: Mean, standard deviation and “t” value of the self-esteem scores of the children with hypermetropia with respect to age

Variable	Age	N	Mean	Standard deviation	“t” Value
Self- esteem	5 to 9 Yrs.	10	32.200	2.741	2.110*
	10 to 15 Yrs.	14	28.785	4.543	

*Significant at 0.05 level

Table 36 shows that mean, standard deviation and “t” value of the self-esteem scores of the children with hypermetropia with respect to age. For children whose age ranges from 5 to 8 years, the mean value and standard deviation is found to be 32.200 and 2.741 respectively. For children whose age ranges from 10 to 15 years, the mean value and standard deviation is found to be 28.785 and 4.543 respectively. The obtained "t" value for self-esteem is 2.110 which is statistically significant at 0.05 level. So, it can be concluded that children with hypermetropia whose age ranges from 5 to 9 years have reported

more self-esteem than children with hypermetropia whose age ranges from 10 to 15 years. Self-esteem changes with age. Studies shows that self-esteem begins to rise between ages 4-11, as children develop socially and cognitively gain some sense of independence. In the present study, the researcher assumes that, children with in the age ranges of 5-9 years may experiences more independence and get confident thorough interaction with parents and teachers. Hence the null hypothesis is rejected

Table 37: Mean, standard deviation and “t” value of the self-esteem scores of the children with hypermetropia with respect to gender

Variable	Gender	N	Mean	Standard deviation	“t” Value
Self- esteem	Male	12	32.583	2.968	3.330**
	Female	12	27.833	3.950	

*Significant at 0.01 level

Table 37 shows that mean, standard deviation and “t” value of the self-esteem scores of the children with hypermetropia with respect to gender. The mean value for males is found to be 32.583 and standard deviation is 2.968. For female participants, the mean value and standard deviation is found to be 27.833 and 3.950 respectively. The obtained "t" value for self-esteem is 3.330 which is statistically significant at 0.01 level. So, it can be concluded that male children

with hypermetropia have reported more self-esteem than female children with hypermetropia. Boys seem to score higher than girls on self-esteem during adolescence (Frost &McKelvie, 2004). One possible explanation for this difference is gender roles. Many qualities associated with the male role are consistent with high self-esteem. Hence the null hypothesis is accepted.

Table 38: Mean, standard deviation and “t” value of the self-esteem scores of the children with hypermetropia with respect to class

Variable	Class	N	Mean	Standard deviation	“t” Value
Self- esteem	1 st -5 th standard	11	31.091	4.229	.946
	6 th -10 th class	13	29.462	4.175	

Table 38 shows that mean, standard deviation and “t” value of the self-esteem scores of the children with hypermetropia with respect to the class in which they are studying. The mean value for children who studies at 1st -5th standard is found to be 31.091 and standard deviation is 4.229. For children who studies at 6th-10th standard, the

mean value and standard deviation is found to be 29.462 and 4.175 respectively. The obtained "t" value for self-esteem is .946 which is not statistically significant. So, it can be concluded that there is no difference in the level of self-esteem of children who studies at 1st - 5th standard and children who studies at 6th-10th standard with hypermetropia.

Table 39: Mean, standard deviation and “t” value of the self-esteem scores of the children with hypermetropia with respect to type of school

Variable	Type of school	N	Mean	Standard deviation	“t” Value
Self- esteem	Government	13	32.000	4.183	2.530**
	Aided	11	28.091	3.207	

**Significant at 0.01 level

Table 39 shows that mean, standard deviation and “t” value of the self-esteem scores of the children with hypermetropia with respect to type of school. For children who studying in government school, the mean value and standard deviation is found to be 32.000 and 4.183

respectively. For children who studying in aided school, the mean value and standard deviation is found to be 28.091 and 3.207 respectively.

Table 40: Mean, standard deviation and “t” value of the self-esteem scores of the children with hypermetropia with respect to area of residence

Variable	Area of residence	N	Mean	Standard deviation	“t” Value
Self- esteem	Rural	11	28.182	4.812	-2.392**
	Semi- urban	13	31.923	2.722	

**Significant at 0.01 level

Table 40 shows that mean, standard deviation and “t” value of the self-esteem scores of the children with hypermetropia with respect to area of residence. The mean value for children from rural area is found to be 28.182 and standard deviation is 4.812. For children from semi urban area, the mean value and standard deviation is found to be 31.923 and 2.722 respectively. The obtained "t" value for self-

esteem is -2.392 which is statistically significant at 0.01 level. So, it can be concluded that self-esteem of children with hypermetropia hailing from sub urban area found to be higher than children hailing from rural area. Rural parents have the least education, relatively very few have completed 10th standard education.

Table 41: Mean, standard deviation and “t” value of the self-esteem scores of the children with hypermetropia with respect to area of family type

Variable	Family type	N	Mean	Standard deviation	“t” Value
Self- esteem	Nuclear	13	29.615	4.272	-.748
	Joint	11	30.909	4.182	

Table 41 shows that mean, standard deviation and “t” value of the self-esteem scores of the children with hypermetropia with respect to area of family type. The mean value for children from nuclear family is found to be 29.615 and standard deviation is 4.272. The mean value and standard deviation for children from joint family is found

to be 30.909 and is 4.182 respectively. The obtained "t" value for self-esteem is -.748 which is not statistically significant. So, it can be concluded that there is no difference in the self-esteem of children with hypermetropia coming from joint families and children with hypermetropia coming from nuclear families.

Table 42: Mean and Standard deviation of self-esteem of children with hypermetropia with respect to religion

Religion	N	Mean	SD
Hindu	15	30.466	4.103
Muslim	3	30.333	2.081
Christian	6	29.500	5.576
Total	24	30.208	4.191

Table 42 shows the means and standard deviations of self-esteem scores of children with hypermetropia with respect to religion. The mean value obtained by parents belonging to Hindu community

(30.466), Muslim community (30.333) and Christian community (29.500) religious group and their standard deviations are 4.103, 2.081 and 5.576 respectively.

Table 43: Summary of ANOVA for self-esteem of children with hypermetropia with respect to religion

Source of variation	Sum of Squares	df	Mean Square	F
Between groups	4.058	2	2.029	.107
Within groups	399.900	21	19.043	

Total	403.958	23	
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Table 43 shows that the F-ratio for self-esteem of children with hypermetropia with respect to religion is .107, which is not statistically significant

Table 44: Mean and Standard deviation of self-esteem of children with hypermetropia with respect to socioeconomic status

Socioeconomic status	N	Mean	SD
Low	7	29.714	2.690
Middle	15	30.866	4.627
High	2	27.000	5.656
Total	24	30.208	4.191

Table 44 shows the means and standard deviations of self-esteem scores of children with hypermetropia with respect to socioeconomic status. The mean value obtained by parents belonging to low

socioeconomic status (29.714), middle socioeconomic status (30.866) and high socioeconomic status (27.000) group and their standard deviations are 2.690, 4.627 and 5.656 respectively.

Table 45: Summary of ANOVA for self-esteem of children with hypermetropia with respect to socioeconomic status

Source of variation	Sum of Squares	Df	Mean Square	F
Between groups	28.796	2	14.398	.806
Within groups	375.162	21	17.865	
Total	403.958	23		

Table 45 shows that the F-ratio for self-esteem of children with hypermetropia with respect to socioeconomic status is .806, which is not statistically significant.

Discussion

The study is intended to evaluate self-esteem of children with and without refractive errors. The investigator adopted purposive sampling techniques to select the sample for the study. The study was carried out by the investigator in ametropic as well as in emmetropic children who are attending the outpatient department of the ophthalmology clinic, Kerala Government Medical College, Kottayam for routine eye check up. This is composed of 158 participants in whom 50 children with normal vision (emmetropia) and 108 children with refractive errors. The sample of children with refractive errors (ametropia) includes 46 children with myopia, 38 children with astigmatism and 24 children with hypermetropia. Rosenberg self-esteem scale (1965) were used as an instrument.

The objectives of the present study are to study the difference between children with emmetropia and ametropia (Refractory errors - myopia, astigmatism and hypermetropia) and to study the difference between self-esteem of children with emmetropia and ametropia (Refractory errors - myopia, astigmatism and hypermetropia) refractory errors with respect to selected socio demographic variables. In the present study the data were analysed by using Statistical Package for Social Sciences (SPSS) Version 16 for windows and the main statistical analysis included Descriptive statistics, Student's 't' test, Analysis of variance and Pearson coefficient of correlation. The demographic and other variables of the study would be analysed using the descriptive statistics. The student's "t"-test was used to find out the mean difference between the two groups i.e., Gender, age, class, type of school, area of residence and type of family. To study the mean difference of religion and socio-economic status, ANOVA were used. The obtained "t" value for self-esteem is -2.262 which is statistically significant at 0.05 level. So, it can be concluded that female children with myopia have reported more self-esteem than male children with myopia. A robust finding to emerge from literature is a significant gender gap such that males tend to report higher levels of self-esteem than females do. For both genders, self-esteem is relatively high in childhood, drops during adolescence, rises gradually throughout adulthood before it tends to decline in old age (Orth & Robins, 2014). The present study found that female children have reported more self-esteem than male children. Hence the null hypothesis is rejected. Self-esteem changes with age. Studies show that self-esteem begins to rise between ages 4-11, as children develop socially and cognitively gain some sense of independence. Self-esteem became peak at adolescence. In the present study, the researcher assumes that, children with in the age ranges of 10 -15 years may

experiences more independence and get confident through interaction with peers and friends, it will strengthen their self-esteem and confidence. Self-esteem levels tend to decrease in early adolescence and increase in later adolescence (Baldwin and Hoffmann 2002). The present study found that early adolescents (10 to 15 Yrs) also have more self-esteem than 5 to 9 Yrs age group [11-14]

Conclusion

In the comparison of self-esteem of children with emmetropia and refractive errors with respect to area of residence, children with hypermetropia hailing from sub urban area found to be higher than children hailing from rural area. When comparing self-esteem of children with emmetropia and refractive errors with respect to family type, children with astigmatism coming from joint families have reported more self-esteem than children with astigmatism coming from nuclear families.

When comparing self-esteem of children with emmetropia and refractive errors with respect to religion, children with emmetropia from Christian community have reported significantly more self-esteem than children from Muslim community and Hindu community. The significant mean difference has shown in the Hindu-Christian religious community. Children with myopia from Christian community have reported significantly more self-esteem than children from Muslim community and Hindu community. The significant mean difference has shown in the Hindu-Christian religious community.

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