CHAPTER 4: RESULTS

This chapter presents the findings of the study. After the collection of data, the drawings and questionnaires were scored and data was entered on excel sheets. These were transferred to the SPSS for Windows 10 analysis. A road-map to the analysis is presented in the previous chapter. The results are presented in terms of the objectives. The initial objectives pertain to data analysis of findings for the HTP and DAP from the Reference group i.e. Group 1. For the analysis of data for the later objectives, where findings of the HTP and DAP are compared with other tools the data from Group 2 and Group 3 are added

4.1. Identifying a Group of Emotional Disturbed and Non-Disturbed Children from a Sample of School-Going Children and Determining Its Statistical Independence.

As a first step to meet the requirements of this research question the scores on the HTP and DAP drawings were submitted to the cut off scores of the DAP: SPED system and the HTP system of Van Hutton and the reference group was classified into tow: Group 2.1 Identified Non-ED and Group 2.2 Identified ED. The number and percentage of children falling into these categories is shown below (table 4.2).

Analysing the percentage of children identified as Non-ED using the combined criteria of both, the HTP and DAP, the number of children identified as having ED is close to 50% of the sample which is an unlikely estimate.

Table 4.1

Frequencies and percentage of children in the ED and Non-ED in the reference group (Group 1)

Non-ED	ED
52.7%	47.3%
(n=177)	(n=159)
100% (N=336)	

t-tests were conducted on the ED and No-n ED two groups to establish that they were indeed independent. Highly significant t values were found showing that the ED and non-Ed groups classified on the drawing tests are significantly independent from each other.

Table 4.2

t- test for ED and non- ED groups for total scores on DAP and HTP

	ED		Non-ED		t	df	Significance (two-tailed)
	Mean	SD	Mean	SD			
HTP total	11.31	2.855	8.38	2.445	-10.132	334	000***
DAP total	15.66	3.746	12.37	3.052	-8.869	334	000***

*** $p < .001$

This suggests that the cut off scores on both tests are able to define two statistically different groups based on characteristics of disturbance on the drawing tests of HTP and DAP. This independence in sample is also evident using subscale scores of HTP and DAP. The t- test `values for SRC and AH subscales were also highly significant at .001 (t=-1.750) while the t-test for WGA was significant at .01. Similarly, all the t values of the scores on individual drawings of man, woman and self on the DAP were highly significant at.001.

The answer to this research question is that the cut off scores on the two tests can be used to categorize groups of an Indian sample of school going children for emotional disturbance using projective drawings which is likely to be different from a Non-ED group in terms of their scores on DAP/HTP drawing tests. Further, subscale scores on the HTP and scores on individual drawings on the DAP can also be used for classification. Other analysis across the research groups will further help to throw light on whether the scores reflect true disturbance in the children.

This suggests that there may be a chance of 'false positives' in identification if only drawing techniques are used. Yet, if these tests are looked on mainly for the purpose of screening and to initiate preventive or promotive interventions in school mental health programs they may be sufficient.

4.2. Age and gender-wise prevalence of emotional disturbance identified on HTP and DAP in a sample of 7-11 years old school going children.

The analysis for this objective can be broken up into three parts (1) Age patterns and (2) Gender patterns (3) Age and gender trends combined.

4.2.1 Age Patterns in ED Non-ED Classification

Fig 4.1 Percentage of children in identified Non-ED and ED groups according to age
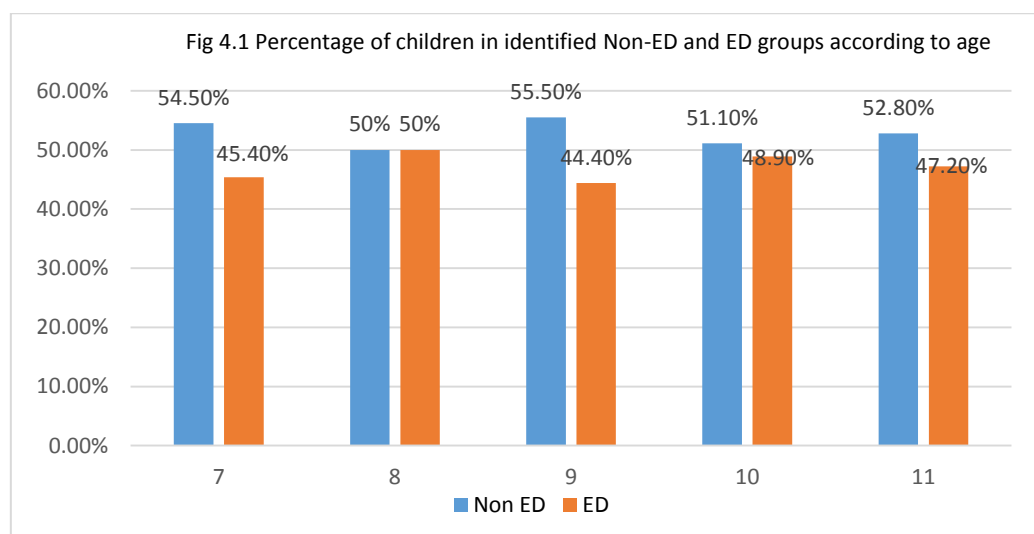
Note: N=336, n_1= 177 (Non-ED group), n_2 = 159 (ED group) 2.df=4 Chi- square value=.676 not significant

The percentage of cases identified as having ED and Non-ED are closely related in each age group. Findings of the chi-square test show that the overall group difference according to age group were not significant. However, examining the number of cases falling into ED and Non-ED at each individual age range shows that, there is a significant decrease in the percentage of cases identified as ED in the boys in the age groups of 7 to 9 years (50% versus 38.10 %). This may be seen due to two reasons: first, because the sample size for 7-year-old children is small (n= 11suggests) and norms for this age group on the DAP are more relaxed considering their under developed visual motor abilities. Secondly, classes first and third may be seen as transition stages of primary school years, where academic demands increase so case identification may temporarily raise. The children may be better adapted by the 4rth class, so case identification has decreased. Further analysis for age trends were conducted using the ANOVA.

Table 4.3
Mean and SD with one- way ANOVA for age for total scores and subscales of HTP

Variables	7	8	9	10	11	F value
SRC	3.18	3.05	2.81	2.69	2.83	1.005
	(1.328)	(1.621)	(1.395)	(1.526)	(1.464)	
AH	3.00^{ab}	3.69^{ab}	3.48^{a}	4.27^{bc}	4.55^{c}	4.933**
	(1.342)	(1.857)	(1.677)	(1.822)	(1.659)	
ADST	.73	.58	.58	.51	.55	.104
	(1.009)	(.702)	(.738)	(.658)	(.748)	
WGA	2.09	2.59	2.57	2.41	2.26	1.255
	(1.146)	(1.109)	(1.320)	(1.217)	(1.179)	
Total	9.00	9.92	9.45	9.88	10.19	1.090
	(2.236)	(2.992)	(3.028)	(3.169)	(2.949)	

** $p<.001$ Note: Groups with similar super script do not differ amongst themselves. Groups which differ have different super scripts.

This closer analysis of the ANOVA looking at age effects on subscale scores of the HTP reveals highly significant impact of age on aggression and hostility in drawings. Conducting a post hoc analysis with the Tukey test shows that there are significant differences in AH subscale across 7,8 9 years against 11 year olds (p≥.05) and of 9 year olds with 10 year olds (p≥.05) and 11 year olds (p≥.01). This suggests that issues of aggression are a major component of emotional disturbance in this age range and tends to increase with age and indicates the need to target life skill interventions directed at understanding and handling negative emotions and channelizing aggression through healthy outlets particularly form 9-11 years. DAP results for individual and total scores showed no significant difference. Findings are presented in table 4.4.

Table 4.4
One- way ANOVA for age for individual drawings and total scores on DAP

Variable	7	8	9	10	11	F value
Man	4.55	4.91	4.30	4.41	4.64	.999
	(1.968)	(2.240)	(2.047)	(1.607)	(1.733)	
Woman	4.73	4.61	4.81	4.94	5.13	.665
	(2.533)	(1.886)	(1.624)	(1.631)	(1.710)	
Self	3.36	4.78	4.43	4.52	4.77	1.492
	(2.673)	(1.988)	(1.768)	(1.874)	(1.601)	
Total	12.64	14.30	13.54	13.88	14.55	.777
	(4.08)	(4.144)	(4.144)	(3.408)	(3.742)	

4.2.2 Gender trends in ED and Non-ED identification

Looking at gender trends, we can see here in the graphical representation of gender distribution of ED and Non-ED, that there are significant gender differences in the

identification of ED and Non-ED. The Chi-square test of difference showed a highly significant difference in the identification rate of emotional disturbance of girls in the drawings. Contrary to reported literature on clinical groups, girls in the age group of 7- 11 years in a normal school-going sample are much more likely to show emotional disturbance on the projective drawing tests than boys. Cultural reasons may be responsible for this. It is well known that girls are likely to be more sensitive and emotional. Despite changes in the contemporary society, girls in India are still likely to be suppressed. This trend that often goes unnoticed and unacknowledged may be manifest in the indicators on drawings.

Fig 4.2 Genderwise percentage distribution in identified ED and Non-ED groups
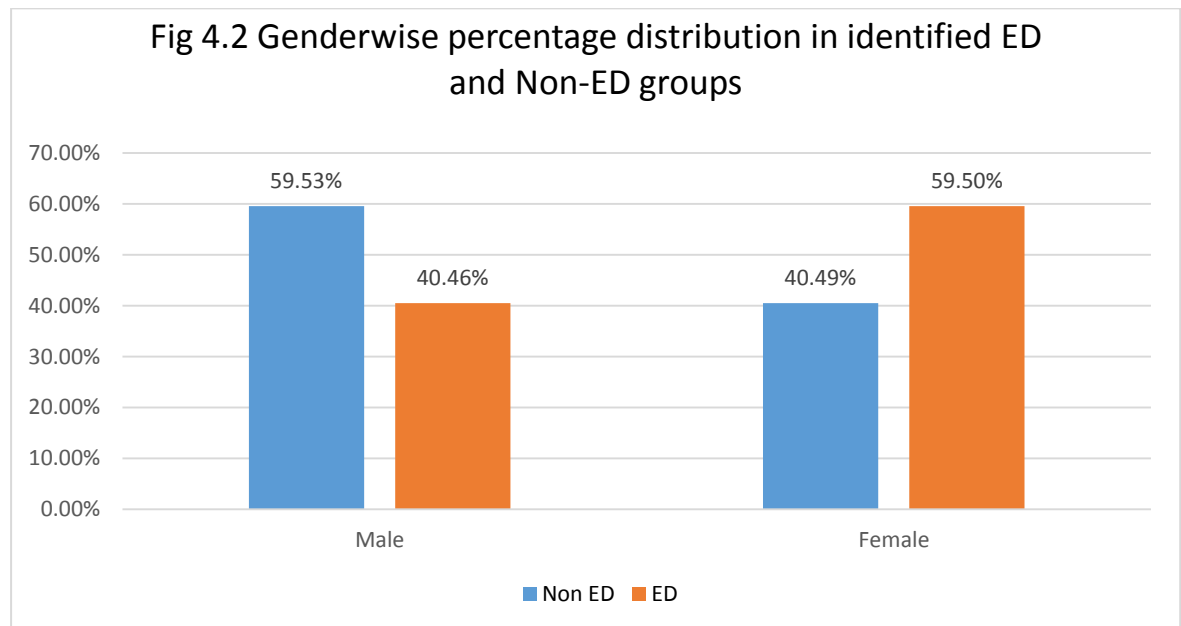
Note: N=336, n_1= 177 (Non-ED group), n_2 = 159 (ED group),n_3=215 (Males), n_4=121(female) .df=1 Chi- square value=11.259 significant at .001

When we examine the overall impact of gender on the scores on subscales and totals, we find the effects of gender on the HTP and DAP are not significant suggesting that there are no significant differences in the test scores in the ED and Non-ED groups due to gender.

Table 4.4
One- way ANOVA for gender for sub scales of HTP and DAP

Variable	Male		Female		F Value*
	Mean	SD	Mean	SD	
HTP scales					
SRC	2.82	1.482	2.90	1.508	.060
AH	3.88	1.853	3.91	1.683	.445
ADST	0.57	0.739	0.55	0.683	.679
WGA	2.47	1.215	2.43	1.237	.430
Total	9.76	3.180	9.79	2.732	.039
DAP drawings					
Man	4.82	1.866	3.99	1.956	2.826
Woman	4.94	1.788	4.69	1.622	.028
Myself	4.57	1.850	4.32	1.898	1.45
Total	14.33	3.957	13.21	3.311	1.249

*p>.05

4.2.3 Trends seen for gender and age

Examining the combined effects of age and gender within groups, the sub- scale scores and total scores of the HTP were computed using the two-way ANOVA. These are reported in table 4.1 From the figures, it is clear that the independent effect of gender and combined effect of age and gender is not significant for the total score. This means that the scores on the drawings of HTP of boys and girls do not vary much when examined for indicators of Sexually Relevant concepts, Alertness to Danger Suspiciousness and Mistrust and Withdrawal and Guarded Accessibility in the age group of 7-11 years. However, the F value for age in the subscale of Aggression and Hostility was found to be highly significant suggesting that age plays an

important role in expressed indicators of aggression and hostility and that there is increased aggression and hostility in the males in this age group.

Tables 4.3 and 4.5 and 4.6 show the results of the one -way and two-way ANOVA conducted to study independent and combined age and gender effects within between groups for the DAP scores on individual drawings of Man, woman, myself drawings and total scores. No significant differences were found. This may be due the age and gender wise norms being applied to classify the children as being ED or Non-ED.

Table 4.5
Two- way ANOVA for interaction effects of age and gender

Age	7 years		8 years		9 years		10 years		11 years		F value
Gender	B	G	B	G	B	G	B	G	B	G	e
Mean (SD)	9.38 (2.56 0)	8.0 0 (.00 0)	9.63 (2.91 2)	10.5 7 (3.13 1)	9.38 (3.37 2)	9.56 (2.50 1)	10.2 1 (3.37 4)	9.30 (2.73 3)	9.97 (3.05 6)	10.6 5 (2.73 7)	1.1 17
TOTAL	9.00 (2.236)		9.92 (2.992)		9.45 (3.028)		9.88 (3.169)		10.19 (2.949)		

Note: B=Boys, G=Girls
N=336 ($n_{1=}$ 215 and n_2=121)

Summarizing the findings, we can say that the findings on analysis for research question 1, finds partial support for Age and gender differences in the pattern of emotional disturbances seen on the HTP and DAP. There is an increase in no. of children identified as emotionally disturbed in ages 9, 10 and 11 years. Looking at the age patterns on subscale scores of the HTP drawings, significant differences were seen in the subscale of AH suggesting that the emotional disturbance seen is likely to manifest increased aggression and hostility in the age range of 9-11 years. Gender

differences are also seen, as identification of girls in the group of emotionally disturbed exceeded the number of boys in the group.

Table 4.6
Percentage of boys and girls and Chi- square values in the age range of 7-11 years in Non-ED and ED groups of Group 1

| Age | Status of Emotional disturbance | | | |
	Non-ED		ED	
	Boys	Girls	Boys	Girls
7 years	4	2	4	1
	(50%)	(66.67%)	(50%)	(33.33%)
8 years	28	9	23	14
	(54.90%)	(39.13%)	(45%)	(60.86%)
9 years	39	21	24	24
	(61.90%)	(46.67%)	(38.10%)	(53.33%)
10 years	33	13	24	20
	(57.89%)	(39.39%)	(42%)	(60.60%)
11 years	24	4	12	13
	(66.67%)	(23.53%)	(33.33%)	(76.47%)
Total Gender	128	49	87	72
Total ED		177		159
Grand Total			336	

Note: df=1 χ^2 values 7 years= .244, 8 years=1.577*, 9 years= 2.469*, 10 years= 2.863**, 11 years= 8.623**, Total age=11.259***. *$p < .05$, **$p < .01$, ***$p <$ at .001

The frequencies in the above table show clearly that while the sample has more male children, the number of girls show more signs of ED (45.3% girls show ED in a sample of 121) and the number of cases seem to increase according to age. For example, 48.9% (44 out of 90 children) aged 10 years show ED). When the prevalence of ED and Non-ED groups were studied according to age and gender using the Chi-square test of difference, chi-square values of low significance are seen at 8 and 9 years, while the findings are highly significant for ages 10 and11 years and the total score. This suggests increases identification of ED as age increases particularly in the sample of girls. This seems to be due to increased scores on the AH subscale scale of the HTP.

For a closer look at the differences in identification of ED according to Age and gender, the percentage distribution is shown graphically. The graph clearly shows a trend of variable and decreasing identification of ED in boys, whereas in girls, the trend is increasing. Peaks of identification of ED for girls occur at 8 years and 11 years suggesting greater vulnerability in girls of these age groups.

Figure 4.3
 Percentage distribution of Boys and Girls with ED in the age range of 7-11 years
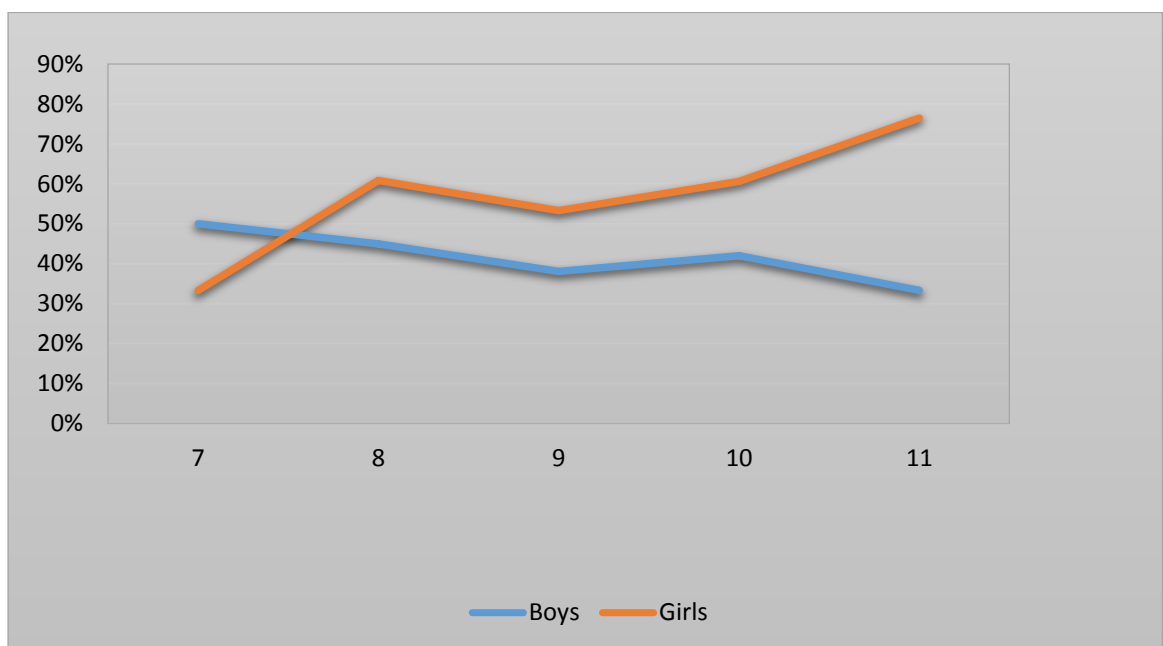
The increasing gap between the figures for girls and boys shows an important trend in relation to gender related prevalence of ED.

4.3. Examining similarities in identified disturbance on the emotional indicators of DAP and HTP for convergent validity.

Table 4.7
Correlation between HTP and DAP scores

Variable	M	SD	Pearson Correlation
HTP Total	9.77	3.022	---
DAP Total	13.93	3.772	.251**

**p< 0.01 level (2-tailed).

To examine this question, Pearson's product moment correlations were computed across the total scores on HTP and DAP. The correlation was highly significant at .01(r=.251). This shows that there is a strong positive relationship between the scores of the two tests suggesting convergent validity. Both tests can be assumed to measure emotional disturbance in similar ways and are likely to tap the same kind of disturbances. The tests can also be assumed to give similar type of information about a subject. This implies that these two tests can complement each other and be included in a test battery for measuring emotional disturbance.

For a closer look at the different aspects of both tests, correlations between the subscales of the HTP test and the three drawings of the DAP were computed. As can be seen in table 4.11 Significant correlations within the HTP test were seen for the SRC scale with ADST and WGA. This suggests that, as scores on sexual preoccupation increase, there is corresponding increase alertness to danger and mistrust as well as withdrawal and guarded accessibility. The scale of AH, which was more successful in the differentiation of ED and Non-ED groups, showed a significant positive correlation with scores on the WGA scale. This indicates that as aggression and hostility increase there is a tendency to be more withdrawn and guarded too. This

suggests an overall consistent pattern of social maladjustment where in order to maintain a tendency to acting out on internal conflicts through aggression and hostility, children may resort to social withdrawal and offer guarded accessibility to their inner world.

When we turn to correlations of the HTP subscales with the DAP, we find that there is a significant correlation of the AH scale with 'woman' and 'myself 'drawings. This indicates that the AH scale correlates better with the DAP test scores. Moreover, the aggression and hostility features seen on the HTP drawings correlate significantly with the features recorded on 'woman' and 'myself' drawings more than man. It is possible that this finding reflects a tendency to repress aggressive feelings in the context of 'man' drawings, perhaps due to a fear of the male authority figure / or father figure while allowing them to be expressed more freely towards the 'woman/mother' figure or 'self'. This finding may also related to the sequence of drawings. As the 'man' drawing is made first there may be a tendency to be over controlled on the first drawing and more free with expression on later drawings.

Table 4.8
Correlation between subscale scores of HTP and DAP

	SRC	AH	ADST	WGA	Man	Woman	Myself
SRC	1						
AH	.074	1					
ADST	.108*	-.045	1				
WGA	.139*	.122*	.082	1			
Man	.082	.072	.077	.061	1		
Woman	.086	.158**	.041	.032	.209**	1	
Myself	.216**	.142**	.036	.073	.123*	.263**	1

Note *p< at .05 level ** p<.01 level

Looking at correlations of DAP drawings within themselves, it is seen that Man drawings correlate significantly with woman and myself drawings while woman drawings too correlate with 'self' drawings. This shows that the test has high internal consistency and the drawings reveal similar information.

The researcher could not find any studies looking at the DAP and HTP together for the identification of emotional disturbance. However, there is indirect evidence to suggest that the information got about the client on the two tests may be similar in more ways than one. Echoes of this fact are seen in the in the findings of Abell, Heiberger and Johnson (1994) who examined the DAP, scored by Koppitz method and the HTP for their correlations with IQ measures. Both drawing techniques showed a similar pattern of relationship to IQ scores suggesting a similarity in the type of data received from the DAP and HTP.

Thus, we can say that the findings of this study suggest that though the concordance is not complete, there is similarity in the two projective techniques in terms of the indicators and nature of disturbance.

4.4. Comparison of HTP and DAP identification of emotional disturbance across Group 1 (Reference group) and Group 3 (Clinical group) for clinical validity.

One of the ways to understand the validity of the classification of emotional disturbance of Projective drawing techniques, would be to compare a group of children identified as emotionally non- disturbed with a clinical sample with an assumption that there may be significant statistical differences across the groups. Moreover, a group of children who are identified as emotionally disturbed through the drawings can also be compared with the clinically referred sample and similarities may be expected between the two groups. To test this research question, a One-way

ANOVA analysis was conducted. The results of this are presented below. The table shows that there is significant difference between the scores of SRC, AH, WGA, HTP total scores, Man, woman and self-drawings as well as DAP total scores between the school selected sample and clinically referred group. This indicates that projective drawing techniques can be used reliably to differentiate between groups of emotionally disturbed and non- disturbed samples. The post-hoc analysis throws further light on this.

The post-hoc Tukey's test shows that the sub scales of the HTP test, namely SRC AH could differentiate significantly between emotionally disturbed and non-disturbed children as well as between the normal and clinical groups, showing that scores on these scales are sensitive enough to differentiate between emotional disturbance of clinical and non-clinical levels. The sub- scale of WGA successfully differentiated between normal and clinical samples. The scores on this scale showed similarities between the emotionally disturbed and clinical sample giving testimony to the validity of the classification of emotional disturbance by projective drawings. The sub-scale of ADST was found to be least discriminating of all, in the identification of emotional disturbance as it was not useful in either the sample of normal children or the clinically referred group. Similarly, the HTP total scores significantly differentiated between a Non-ED sample and ED as well as clinical sample, while there was no statistically significant difference between ED group and clinical sample.

The DAP findings on the Tukey test also shows similar trends. Man, drawings show significant difference between Non-ED with both ED and clinical groups. The groups also differ significantly among themselves. Woman and Self- Drawings and the DAP total scores show significant differences between Non-ED group of Group 1 with the ED group as well as the clinical group. The clinical group and the emotionally

disturbed groups, however, do not differ significantly amongst themselves. This implies that the disturbed group has significant similarities in score to the clinically referred group.

Table 4.9.
One- way ANOVA showing effect of different groups on test variables with post hoc Tukey's test

Variables	Group 1 Non-ED		Group 1- ED		Group 3-Clinical		F Value
	Mean	SD	Mean	SD	Mean	SD	
SRC	2.01[a]	.922	3.76[b]	1.821	2.81[c]	1.821	69.271***
AH	3.57[a]	1.642	4.24[b]	1.910	4.85[c]	2.151	14.957***
ADST	.53	.710	.54	.60	.45	.739	1.335
WGA	2.30[a]	1.186	2.54[b]	2.66	2.82[b]	1.542	5.914**
HTP total	8.41[a]	2.450	11.25[b]	2.888	10.82[b]	3.336	47.636***
Man	4.09[a]	1.705	5.30[b]	1.728	4.69[b]	1.920	16.417***
Woman	4.48[a]	1.636	4.91[b]	1.642	4.86[ab]	1.712	8.954***
Self	3.85[a]	1.620	5.25[b]	1.792	4.70[b]	1.869	35.927***
Total	12.41[a]	3.029	15.46[b]	3.994	14.25[b]	3.865	39.697***

Note: **p< .01, ***p< at .001

4.5. Comparison of DAP and HTP with external ratings of emotional disturbance on the Strength and Difficulties Questionnaire (SDQ, Goodman 1997) for criterion validity

This objective was mainly framed to examine the criterion and concurrent validity of the classification of emotional disturbance by projective drawing techniques. To test research question 6 a series of correlations have been conducted for HTP and the

DAP- SPED scales with each of the questionnaires that were part of the study. The discussion in this section is divided into 4 main sections which are then further divided into 3 sections each

4.5.1 Projective drawings and external rating of emotional and behavioral disturbance (HTP with SDQ)

4.5.2 Projective drawings and Objective screening of emotional and behavioral disturbance (DAP with SDQ)

Let us start with 4.5.1.

4.5.1. Projective drawings and external rating of emotional and behavioral disturbance (HTP with SDQ) for criterion validity

(HTP/DAP with SDQ)

The discussion under the heading follows a pattern of discussing the intra test correlations for the drawing tests, followed by intra-test correlations for the SDQ and later interaction of the projective drawings with SDQ will be discussed.

4.5.1.1 Intra- test correlation for HTP:

 As might be expected, it is evident here, that while there are some significant intra-test correlations for HTP at .01 level suggesting an internal consistency and reliability of the test. Looking at the Non-ED group we can see that of the internal scales of the test, SRC is negatively correlated with the subscale of AH(p> .05). SRC is also highly correlated to the total score of HTP (p<01). This suggests that children who show higher scores on SRC, which was designed to indicate suspected sexual or other abuse in children, show lower scores on aggression and hostility in the Non emotionally

disturbed group. If the test truly measures abuse, this indicates a worrying trend of emotional suppression in children who face abuse and are unlikely to show manifest emotional disturbance. In the ED group to SRC was significantly correlated with AH in the negative direction but with lower level of significance ($p<05$).

AH shows a relation of low statistical significance ($p<05$) with ADST in the negative direction. Unexpectedly, this finding seems to suggest that scores of suspiciousness and mistrust are not likely to be linked with aggressive signs on the HTP. Normally attitudes of mistrust are related to increased aggression, which does not hold true in this group who show no emotional disturbance. Moreover, SRC and AH were highly correlated to the total scores of HTP, showing that they contribute significantly to the classification in the group of Non-ED children ($p<01$). The scale of WGA, too was related to the total of HTP but with lower statistical significance ($p<05$). This indicates that WGA contributes to the classification of Non-ED but less. ADST however did not appear to contribute significantly to this classification. Conversely, in the ED group only AH scores were found to be significantly correlated with the total scores of HTP ($p<01$), therefore suggesting that only this scale contributes significantly to the classification of this group.

Table 4.10

Correlations for HTP subscale scores with SDQ- scale for ED and Non-ED group of Group 2

		1	2	3	4	5	6	7	8	9	10	11	12	13
SRC	Non-ED	1.00												
	ED	1.00												
AH	Non-ED	-0.04	1.00											
	ED	-.432*	1.00											
ADST	Non-ED	0.19	-.35*	1.00										
	ED	0.06	-0.05	1.00										
WGA	Non-ED	-0.07	-0.03	-0.16	1.00									
	ED	-0.15	-0.12	-0.10	1.00									
TOTAL HTP	Non-ED	.46**	.65**	0.06	.44*	1.00								
	ED	0.27	.59**	0.21	0.27	1.00								
SDQ-E	Non-ED	-0.04	-0.06	0.16	0.05	0.01	1.00							
	ED	-0.12	-0.08	0.06	0.08	-0.12	1.00							
SDQ-C	Non-ED	-0.02	0.07	0.15	0.12	0.17	.60**	1.00						
	ED	-0.10	-0.04	0.32	0.02	-0.02	0.34	1.00						
SDQ-H	Non-ED	-0.02	0.06	0.27	0.10	0.19	.65**	.68**	1.00					
	ED	0.04	-0.17	.40*	-0.03	-0.04	0.17	.42*	1.00					
SDQ-PP	Non-ED	0.02	0.07	-0.14	-0.03	0.00	0.23	.47**	0.04	1.00				
	ED	0.15	-0.22	0.04	0.04	-0.08	0.24	0.29	0.10	1.00				
SDQ-Pro	Non-ED	0.18	-0.08	-0.04	0.13	0.08	-0.18	-.51**	-.53**	-0.20	1.00			
	ED	-0.24	0.03	-0.09	-0.23	-0.31	0.03	-0.19	-0.22	-0.18	1.00			
SDQ-In S	Non-ED	-0.03	-0.01	0.04	0.02	0.00	.86**	.69**	.51**	.69**	-0.24	1.00		
	ED	-0.03	-0.16	-0.01	0.01	-0.18	.89**	.451**	0.18	.48**	-0.16	1.00		
SDQ-Ex S	Non-ED	-0.02	0.07	0.23	0.13	0.19	.67**	.92**	.914**	0.27	-.56**	.64**	1.00	
	ED	-0.04	-0.11	.42*	-0.01	-0.03	0.31	.86**	.82**	0.23	-0.25	.38*	1.00	
Total	Non-ED	-0.03	0.02	0.16	0.07	0.09	.84**	.89**	.80**	.515**	-.46**	.89**	.92**	1.00
	ED	-0.04	-0.16	0.25	0.00	-0.12	.71**	.79**	.60**	.43*	-0.24	.83**	.84**	1.00

Note *p< .05 **p<.01 KEY: SRC= Sexually Relevant Concepts, AH=Aggression and Hostility, ADST= Alertness to danger, suspiciousness and Mistrust WGA= Withdrawn and guarded accessibility; SDQ-E= SDQ- Emotional Scale, SDQ-C= SDQ- Conduct Scale, SDQ-H= SDQ Hyperactivity scale, SDQ- PP= SDQ- Peer problems scale, SDQ- Pro= SDQ- Prosocial behaviour scale; SDQ- In S= SDQ- Internalizing scale and SDQ-Ex S = SDQ- Externalizing scale

4.5.1.2 Intra-test correlations for SDQ.

Considering the correlations between SDQ scales   we can see that in the Non-ED group there are high intra test correlations for e.g. the conduct scale is correlated with the emotional problems scale, showing that emotional problems may express themselves as behavioral problems in this group. The hyperactivity scale correlates well with E and C scales. This indicates that hyperactive children are likely to show co- morbid emotional and conduct problems. Peer problems scale correlated significantly with the conduct problems scale, showing that withdrawal from peer relations may be related to conduct problems in the Non-ED group. A negative correlation was seen between the conduct scale and pro-social behaviour which is expected. Similarly, there are significant correlations of the Internalizing scale with the emotional, conduct, hyperactive and peer problems scales. The externalizing scale showed significant correlation with all the other scales of the test except the peer problems scale, which can be understood in light of the fact that it measures withdrawal from relationships which is an internalizing behaviour.

In the ED group the subscale scores of the SDQ did not correlate well with each other. However, strong correlations (significant at .001) were seen for the Internalizing scale with the emotional, conduct and peer problems scales scale. Likewise, the externalizing scale correlated well with the conduct, hyperactivity scales. The total scores showed good correlation with nearly all the subscales except the pro-social behaviour scale which is different from the other scales in that it measures strengths in social behaviours. These findings indicate that more reliable results for the emotionally disturbed group is got when the summated scales are used instead of relying on individual scale scores.

4.5.1.3 Correlation of projective drawings with SDQ.

The first set is for the subscales of each projective drawing test with the SDQ for establishing criterion validity. As seen in the methodology chapter, the SDQ is a psychometrically rigorous tool for screening of emotional and behavioral disturbances in children and adolescents and so, it is fair to assume that there would be a fair correlation in the positive direction for the subscales of the HTP and DAP with the SDQ in the emotionally disturbed group. On the other hand, we can expect significant low correlations in the scales of the SDQ. The findings for the Non-emotionally disturbed group is presented in Table 4.11. No significant correlation between SDQ scales and HTP can be seen. The direction of correlations between the two tests is largely negative in this set of results, showing that these tests render differing information about emotional disturbance in the Non-ED group. This also suggests that when scores of emotional disturbances on the HTP are increasing, scores on the SDQ scales are decreasing in the Non-ED group.

Negative correlations were seen in the SRC scale with SDQ-E, C, H, Internalizing, and total score which may indicate that use of Sexually relevant concepts in drawings may not be reflective of objectively observable changes in behaviour. The AH scale also showed negative correlations with the pro-social behaviour scale of the SDQ showing that positive pro-social behaviours decrease with higher scores of aggression and hostility. The scales of ADST and WGA also showed negative correlation but with the SDQ scale of Peer problems. This is a surprising finding as both mistrust and withdrawn behaviour have construct similarities with the SDQ-PP scale which reports lack of friendships and withdrawal from social behaviours. This seems to suggest that objective reports differ from reports on projective drawings in this case.

Table 4.11
Correlations between HTP and SDQ in the clinical group

	Disturbance	1	2	3	4	5	6	7	8	9	10	11	12	13
SRC	Non-ED	1.00												
	ED	1.00												
AH	Non-ED	0.18	1.00											
	ED	-0.23	1.00											
ADST	Non-ED	0.05	0.12	1.00										
	ED	0.04	0.19	1.00										
WGA	Non-ED	-0.14	-0.11	0.39	1.00									
	ED	-0.07	-0.21	0.04	1.00									
HTP total	Non-ED	.45*	.79**	0.18	0.31	1.00								
	ED	.41**	.52**	.40**	.38**	1.00								
SDQ-E	Non-ED	0.09	-0.25	-0.19	0.04	-0.17	1.00							
	ED	0.10	-0.14	0.03	-0.12	-0.11	1.00							
SDQ-C	Non-ED	-0.02	0.03	-0.05	-0.05	-0.04	0.13	1.00						
	ED	0.00	0.10	0.25	-0.13	0.00	0.00	1.00						
SDQH	Non-ED	-0.17	0.01	0.04	-0.36	-0.25	0.00	.38*	1.00					
	ED	0.03	0.04	0.12	-0.08	0.02	-0.09	.421**	1.00					
SDQPP	Non-ED	0.08	-0.36	-0.16	-0.07	-0.31	.60**	0.36	0.20	1.00				
	ED	0.23	-0.01	0.16	-0.11	0.05	.44**	0.19	0.12					
SDQPro	Non-ED	0.00	0.03	0.29	0.06	0.13	-0.10	-0.41	-0.21	-0.32	1.00			
	ED	0.03	0.03	-0.12	-0.11	-0.04	0.02	-0.13	-0.18	-0.34				
SDQInS	Non-ED	0.13	-0.28	-0.18	0.00	-0.19	.89**	0.33	0.08	.81**	-0.27	1.00		
	ED	0.13	-0.04	0.07	-0.18	-0.06	.82**	0.13	0.08	.73**	-0.09			
SDQExS	Non-ED	-0.14	-0.05	-0.03	-0.26	-0.26	0.15	.73**	.83**	.41*	-0.31	0.23	1.00	
	ED	0.05	0.02	0.24	-0.08	0.01	0.03	.80**	.74**	0.23	-0.24	0.03		
SDQ total	Non-ED	0.06	-0.18	-0.14	-0.16	-0.24	.68**	.63**	.56**	.79**	-0.36	.82**	.73**	1.00
	ED	0.18	-0.05	0.20	-0.16	-0.04	.61**	.54**	.52**	.62**	-0.17	.71**	.62**	1.00

Note*p< .05 ****p<.01 KEY:** SRC= Sexually Relevant Concepts, AH=Aggression and Hostility, ADST= Alertness to danger, suspiciousness and Mistrust WGA= Withdrawn and guarded accessibility; SDQ-E= SDQ- Emotional Scale, SDQ-C= SDQ- Conduct Scale, SDQ-H= SDQ Hyperactivity scale, SDQ- PP= SDQ- Peer problems scale, SDQ- Pro= SDQ- Prosocial behaviour scale; SDQ- In S= SDQ- Internalizing scale and SDQ-Ex S = SDQ- Externalizing scale

Examining the correlations for HTP scales with SDQ in the ED group for Group 2again there does not appear to be a statistically significant positive relationship between the two. Significant inter-subscale correlations are seen between the scales of SRC and AH and between AH and the total scores of HTP in the ED group. Correlations between HTP and scales of SDQ show significant correlation between the HTP subscale of ADST and SDQ scale of Hyperactivity (p<05). This indicates that children showing significant hyperactivity in this group also show indicators of paranoia on the HTP. A significant correlation between the total score on SDQ and ADST is also seen (p<05). This further indicates that increased scores of cumulative, objectively reported disturbances may be related to increased mistrust as witnessed on HTP drawings.

When we look at the correlations of the HTP with SDQ for the clinical sample, we find no significant correlations. This shows that the HTP subscales do not relate well to different scales of external ratings of emotional and behavioral problems in children.

4.5.2 Projective drawings and Objective screening of emotional and behavioral disturbance (DAP with SDQ)

To understand the relationship of the DAP test with SDQ scores, this section is divided into 3 parts: 1. Intra test correlations of the DAP, which will examine the individual drawing scores of Man, Woman and Self and total scores for both ED and Non-ED groups 2. Intra- test correlations of the SDQ, which looks at the relationship between subscale scores and total scores of the SDQ 2. Correlations between DAP and SDQ, which explains the relationship between sub scale and total scores of both tests for the ED and Non-ED groups.

4.5.2.1 Intra-test correlations for DAP

Examining the correlations for DAP for the Non-ED group, there are significant correlations of the woman and self-drawings with the man-drawings. All three drawings correlated highly significantly with the total DAP score (p<01). In the ED group, man and woman drawing were correlated significantly at .05, while other individual drawings were not correlated. Again, each individual drawing score correlated highly with the total score. This implies that a cumulative score across the three drawings is more useful in classifying children according to emotional disturbance on the DAP. If we look at the individual drawings, out of the 3 drawings, the single drawing of 'Man' seems more useful and contributory to significant classification of children as disturbed or non- disturbed emotionally.

4.5.2.2 Intra- test correlations for SDQ

In the Non-ED group, within the SDQ, there were significant correlations of the Emotional scale with the Conduct scale and the Hyperactivity correlated with both Emotional and Conduct scales (p<01in all correlations). Further significant correlation between Conduct scale and Peer Problems scale is also evident. These suggest that emotional problems are likely to be co-existent with conduct problems and hyperactivity. Conduct problems are also likely to be related to poor peer relations. This fact is also corroborated in the negative correlation found between the Pro-social behaviour scale with Conduct and Hyperactivity. The summative scale for internalizing behaviours showed significant correlations with all test scales except the Prosocial behaviour scale. The externalizing behaviour scale correlated well with all test scales except Peer problems scale where the items are mainly internalizing. Likewise, all the test scales showed significant correlations with the total score. Overall the

Table 4.12
Correlations for DAP Non-ED / ED sub groups with SDQ in Group 2

		1	2	4	5	6	7	8	9	10	11	12	13
MAN	Non-ED	1											
	ED	1											
WOMAN	Non-ED	.40*	1										
	ED	.41*	1										
MYSELF	Non-ED	.37*	.05	1									
	ED	.09	.04	1									
TOTAL DAP	Non-ED	.82**	.68**	.65**	1								
	ED	.78**	.68**	.56**	1								
SDQ-E	No n ED	.25	.04	.18	.22	1							
	ED	-.21	-.13	.01	-.17	1							
SDQ-C	No n ED	.42*	.34	.26	.47**	.60**	1						
	ED	.03	.02	-.16	-.05	.31	1						
SDQ-H	No n ED	.39*	.18	.31	.40*	.65**	.68**	1					
	ED	.27	-.05	-.05	.11	.17	.42*	1					
SDQ-PP	No n ED	.28	.26	.15	.33	.23	.47**	.04	1				
	ED	.14	.11	-.17	.07	.21	.29	.10	1				
SDQ-Pro	No n ED	-.39*	-.16	-.17	-.33	-.18	-.51**	-.53**	-.20	1			
	ED	-.27	-.17	-.11	-.28	.03	-.19	-.22	-.18	1			
SDQ-In S	No n ED	.33	.16	.20	.32	.86**	.69**	.51**	.69**	-.24	1		
	ED	-.11	-.07	-.09	-.14	.89**	.45**	.18	.48**	-.16	1		
SDQ-Ex S	No n ED	.45**	.28	.32	.48**	.67**	.92**	.91**	.27	-.56**	.64**	1	
	ED	.17	-.02	-.13	.03	.31	.86**	.82**	.23	-.25	.38*	1	
Total	Non-ED	.45*	.26	.28	.46**	.84**	.89**	.80**	.52**	-.46**	.89**	.92**	1
	ED	.04	-.05	-.13	-.06	.71**	.79**	.60**	.43*	-.24	.83**	.84**	1

Note*p< .05 **p<.01   KEY: SDQ-E= SDQ- Emotional Scale, SDQ-C= SDQ- Conduct Scale, SDQ-H= SDQ Hyperactivity scale, SDQ- PP= SDQ- Peer problems scale, SDQ- Pro= SDQ- Prosocial behaviour scale; SDQ- In S= SDQ- Internalizing scale and SDQ-Ex S = SDQ- Externalizing scale

findings for this test in the Non-ED group showed good internal consistency and construct validity.

When compared with the ED group findings for the SDQ, the SDQ- Hyperactivity scale correlated with the Conduct scale. The internalizing scale was found to be correlated with the Emotional, Conduct and Peer problems scales, while the Externalizing scale showed significant correlations with Conduct, Hyperactivity and Internalizing scale. The total SDQ score correlated significantly with all the test scales except Prosocial behaviour. This suggests that when groups are classified for emotional disturbance based on cut off scores of projective drawings, the summed up scales of Internalizing and Externalizing behaviours are more reliable rather than individual scales.

In the correlations for the clinical sample, it was seen that 'self' drawings had a significant relationship with the Emotional, Peer problems and the combined score of the two in the Internalizing scale, but in the Non-ED group which raises a question about the current cut-off scores being used to classify disturbances on the DAP and indicates that they cannot be used reliably without modification in the Indian context.

Table 4.13

Correlations for DAP and SDQ in the clinical group

	Disturbance Code	1	2	3	4	5	6	7	8	9	10	11	12
SDQ-E	**Non-ED**	1.00											
	ED	1.00											
SDQ-C	**Non-ED**	0.13	1.00										
	ED	0.00	1										
SDQH	**Non-ED**	0.00	.38*	1.00									
	ED	-0.09	.42**	1									
SDQPP	**Non-ED**	.60**	0.36	0.20	1.00								
	ED	.44**	0.19	0.12	1								
SDQPro	**Non-ED**	-0.10	-0.41	-0.21	-0.32	1.00							
	ED	0.02	-0.13	-0.18	-0.34	1							
SDQInS	**Non-ED**	.89**	0.33	0.08	.81**	-0.27	1.00						
	ED	.82**	0.13	0.08	.73**	-0.09	1						
SDQExS	**Non-ED**	0.15	.74**	.83**	.41*	-0.31	0.23	1.00					
	ED	0.03	.80**	.74**	0.23	-0.24	0.03	1					
Total_B	**Non-ED**	.68**	.63**	.56**	.79**	-0.36	.82**	.728**	1.00				
	ED	.61**	.54**	.52**	.62**	-0.17	.71**	.619**	1				
Total Man(M)	**Non-ED**	0.24	0.32	0.00	0.25	-0.22	0.32	0.15	0.26	1.00			
	ED	-0.15	0.14	-0.13	0.24	-0.17	-0.03	0.03	0.03	1.00			
Total Woman(F)	**Non-ED**	0.03	0.16	-0.12	0.15	-0.30	0.19	-0.09	0.10	0.11	1.00		
	ED	-0.21	0.19	-0.04	0.08	-0.20	-0.10	0.07	0.00	.43**	1		
Total Myself(S)	**Non-ED**	.36*	0.16	0.08	.46*	0.10	.42*	0.20	.45*	0.07	0.18	1.00	
	ED	-0.06	0.12	-0.12	0.05	-0.08	-0.03	0.03	-0.03	.52**	.30*	1	
DAP Grand Total	**Non-ED**	0.35	0.33	0.02	.47**	-0.21	.50**	0.17	.46*	.56**	.67**	.69**	1.00
	ED	-0.17	0.19	-0.12	0.16	-0.19	-0.06	0.06	0.01	.84**	.72**	.79**	1

Note $^{*}p < .05$ $^{**}p < .01$ KEY: SDQ-E= SDQ- Emotional Scale, SDQ-C= SDQ- Conduct Scale, SDQ-H= SDQ Hyperactivity scale, SDQ- PP= SDQ- Peer problems scale, SDQ- Pro= SDQ- Prosocial behaviour scale; SDQ- In S= SDQ- Internalizing scale and SDQ-Ex S = SDQ- Externalizing scale

4.5.2.3 Correlation of projective drawings (DAP) with SDQ.

As the table 4.13 shows the correlations between DAP and SDQ are mostly not significant which indicates lower validity for this projective drawing techniques. However, in the Non-ED group significant correlations were seen for the DAP Man drawings with the SDQ- Conduct scale. This suggests that Man drawings can be correlated to increasing scores on the conduct scale and higher scores on the Man drawings could be indicative of conduct problems. Significant correlations were also seen between the total DAP scores with Hyperactivity (p<05) showing that High scores on the DAP may be sensitive to behavioral disturbances seen in Hyperactivity. Since the externalizing behaviour scale comprises of the Hyperactivity and Conduct scale, as expected from the above results, a significant correlation of the DAP total score with the SDQ- externalizing scale and with the SDQ total score is seen. This indicates that DAP scores can be useful indicators of externalizing behaviours. This trend departs from the trend seen in international research which has found the DAP-SPED to be a better screening tool for internalizing behaviour problems. The latter finding also points to the fact that the DAP scores are better related to cumulative scores on the SDQ. The trends between the DAP and SDQ scores were, however, not seen in the ED group which suggests that the scores of disturbances as they exist, on projective drawings does not relate much to the disturbance scores on the quantitative measures. This suggests low criterion validity for classification of emotional disturbance when projective drawings are compared with objective, quantitative measures of emotional disturbance like the SDQ.

The next section seeks to find the relationship of the projective drawing scores with a self-report measure of self-esteem, namely the CFSEI.

4.6 Projective drawings and Self-esteem (HTP/DAP with CFSEI).

Table 4.14
Correlations for HTP with self-esteem in ED and Non-ED groups of Group 2

		1	2	3	4	5	6	7	8	9	10
SRC	Non-ED	1.00									
	ED	1.00									
AH	Non-ED	-0.04	1.00								
	ED	-.43*	1.00								
ADST	Non-ED	0.19	-.35*	1.00							
	ED	0.06	-0.05	1.00							
WGA	Non-ED	-0.07	-0.03	-0.16	1.00						
	ED	-0.15	-0.12	-0.10	1.00						
TOTAL HTP	Non-ED	.46**	.65**	0.06	.44*	1.00					
	ED	0.27	.59**	0.21	0.27	1.00					
CFSEI-A	Non-ED	-0.01	0.07	0.12	0.04	0.12	1.00				
	ED	0.06	0.07	0.19	0.08	0.21	1.00				
CFSEI-G	Non-ED	0.09	0.34	-0.06	-0.02	0.29	.56**	1.00			
	ED	0.18	0.18	0.05	-.37*	0.13	-0.06	1.00			
CFSEI-P	Non-ED	0.19	-0.23	0.29	0.09	0.05	.37*	0.14	1.00		
	ED	0.25	0.26	0.00	0.15	.53**	.52**	0.31	1.00		
CFSEI-S	Non-ED	0.01	.37*	-0.04	-0.11	0.23	0.31	.50**	0.03	1.00	
	ED	0.32	-0.18	-0.06	-0.31	-0.12	0.18	0.33	0.13	1.00	
TOTAL SE	Non-ED	0.15	0.25	0.02	-0.08	0.23	.70**	.89**	0.33	.71**	1.00
	ED	0.19	-0.03	0.03	0.00	0.12	.370*	0.15	.37*	.36*	1.00

Note*p< .05 **p<.01 **KEY:** SRC= Sexually Relevant Concepts, AH=Aggression and Hostility, ADST= Alertness to danger, suspiciousness and Mistrust WGA= Withdrawn and guarded accessibility; TOTAL HTP- Total score of HTP test (House-Tree Person); CFSEI-G= Culture Free Self-Esteem Inventory-Academic Self-Esteem Scale, CFSEI-G=CFSEI-General Self-Esteem Scale, CFSEI-P= CFSEI-Parental Self-Esteem Scale, CFSEI-S=CFSEI-Social Self-Esteem Scale, Total SE= Self-Esteem Scale

In this section the areas where the strength of the relationship between the projective drawings and self-esteem as measured by a self-report instrument.

4.6.1. Intra-test findings for CFSEI

In the Non-ED group, the correlations for the CFSEI show that Academic self-esteem and Social self- esteem correlate significantly with General self- esteem scale at .01. Academic self-esteem also has correlation of lower significance with Parental self-esteem (p<01). This suggests that Academic self-esteem and social self-esteem are contributing to general self- esteem in this group. Academic self- esteem also appears to be related to how children think their parents view them. Total self-esteem showed significant correlations with Academic, general and social self- esteem in this group. but not with parental self- esteem. This indicates that a general positive view of self, a child's view of his or her academic abilities and view of social self, contribute to overall self-esteem. However, parental self-esteem appears to contribute here to only academic self-esteem but not to overall self-esteem. The test shows good internal consistency and reliability for use in the given sample.

In the case of the ED group Parental self- esteem correlated significantly with Academic self-esteem as in the Non-ED group. Total self-esteem correlated significantly with academic, social and parental self- esteem in this group showing that overall self-esteem in the emotionally disturbed group of children was more significantly related to their understanding of self- worth estimation in context of individual spheres of functioning, rather that general self-worth

4.6.2 Correlation of HTP with CFSEI

The rationale of using self-esteem in this study was that emotional disturbance can be hypothesized to be associated with low self-esteem as feelings of low self- worth are known to be associated with mood disturbances like depression and anxiety. The correlations reported here, were conducted with an aim to examine if self-esteem would show a relationship in the negative direction with emotional disturbance. When we look at the table though, it is clear that only one of the correlations of scores on the HTP with the CFSEI was found significant. The scale of Aggression and Hostility showed a significant positive correlation with Social self-esteem. This may suggest that higher social self-esteem can result in increases aggression and hostility in the Non-ED group.

In the ED group children, The CFSEI General self-esteem scale correlated significantly and negatively with the WGA scale (p<05). This suggests that children, who show features of defensiveness and withdrawal in social interactions, as measured on drawings, are likely to show lower general self-esteem. Parental self-esteem also showed significant correlation with the total score on HTP. This implies that children who evaluate their self- worth through their parent's views of themselves are likely to be more emotionally disturbed. The next section examines the relationship of the DAP to the CFSEI.

4.6.3 Correlations between DAP and CFSEI

Turning towards DAP with CFSEI we can see that while most of the sub scales of the DAP do not correlate significantly with the subscales of the CFSEI, which seems to suggest that the projective drawings are not good indicators of self- esteem. A significant negative correlation between Social Self-esteem and self- drawings in the

Non-ED group emerged (p<05). This suggests that increased Social self-esteem may correspond with lower scores on the Self drawings. As higher scores on the drawings show greater disturbance, this finding can be understood as indicating that as social self-esteem increases, emotional disturbance decreases. It also suggests that the self-drawings are better indicators of social self-esteem.

Table 4.15
Correlation between DAP and CFSEI

		1	2	3	4	5	6	7	8	9
MAN	Non-ED	1								
	ED	1								
WOMAN	Non-ED	.40*	1							
	ED	.41*	1							
SELF	Non-ED	.37*	.05	1						
	ED	.09	.04	1						
TOTAL DAP	Non-ED	.82**	.68**	.65**	1					
	ED	.78**	.68**	.56**	1					
CFSEI-A	Non-ED	-.01	-.09	-.07	-.08	1				
	ED	.04	-.26	.13	-.03	1				
CFSEI-G	Non-ED	.07	.16	-.22	.00	.56**	1			
	ED	.39*	.30	.17	.43*	-.06	1			
CFSEI-P	Non-ED	.02	.03	-.02	.01	.37*	.14	1		
	ED	.30	-.13	.32	.27	.52*	.31	1		
CFSEI-S	Non-ED	-.25	.12	-.39*	-.25	.31	.50**	.03	1	
	ED	-.05	.15	.24	.16	.18	.33	.13	1	
TOTAL SE	Non-ED	-.06	.13	-.30	-.11	.70**	.89**	.33	.71**	1
	ED	.00	-.07	-.08	-.07	.37*	.15	.37*	.37*	1

Note: *p<.05, **p<.01   KEY: CFSEI-G= Culture Free Self-Esteem Inventory-Academic Self-Esteem Scale, CFSEI-G=CFSEI-General Self-Esteem Scale, CFSEI-P= CFSEI-Parental Self-Esteem Scale, CFSEI-S=CFSEI-Social Self-Esteem Scale, Total SE= Self-Esteem Scale

When the findings for the ED group are examined, we can see that there is significant correlation of General Self- esteem with the scores on Man drawings and Total score on DAP (p<05). This implies that children who show higher General self-esteem have also shown greater emotional disturbance as manifested on the drawings of 'Man' and the total DAP score. This again points towards low concurrent validity between the two tests. It also indicates that Self-esteem as measured by a self-report inventory does not correlate with emotional disturbance as seen on projective drawings.

The next section explores the relationship of HTP and DAP drawings with adjustment as measured on a self-report instrument.

4.7 Projective drawings and Adjustment (HTP/DAP with PAAS)

In this section, we shall look at the strength of the relationship of the projective drawings scores and identified emotional disturbance or non-disturbance against Adjustment as measured on the PAAS. The PAAS has different areas namely Home adjustment, School adjustment, Peer adjustment, Teacher adjustment and Total adjustment. These are examined against the different scales of HTP namely SRC, AH, ADST and WGA and the scores on the 3 different drawings of the DAP.

4.7.1 Intra- test correlations for PAAS

The intra-test correlations for the PAAS showed a strong relationship of home and school adjustment and teacher adjustment with peer adjustment, showing better consistency within these scales for a non-disturbed group. Besides, general adjustment also correlated significantly with adjustment in the spheres of home, school and teacher adjustments. Expectedly the total scores on the PAAS correlated well with all sub scales in both ED and Non-ED groups. In the ED group significant correlations

Table 4.16
Correlations of HTP with PAAS

		1	2	3	4	5	6	7	8	9	10	11
SRC	Non-ED	1										
	ED	1										
AH	Non-ED	-.04	1									
	ED	-.43	1									
ADST	Non-ED	.19	-.35*	1								
	ED	.06	-.05	1								
WGA	Non-ED	-.07	-.03	-.16	1							
	ED	-.15	-.12	-.10	1							
TOTAL HTP	Non-ED	.46**	.65**	.06	.44*	1						
	ED	.27	.59**	.21	.27	1						
PAAS-H	Non-ED	.15	.11	.13	-.25	.07	1					
	ED	.07	.05	-.32	.07	.05	1					
PAAS-S	Non-ED	.29	.11	.43*	-.26	.23	.47**	1				
	ED	-.08	.03	.11	-.03	-.02	.06	1				
PAAS-P	Non-ED	.13	.14	.21	.09	.29	.24	.10	1			
	ED	.04	.09	.28	.14	.27	.00	.14	1			
PAAS-T	Non-ED	.06	.17	.15	-.15	.13	.31	.17	.39*	1		
	ED	.08	.15	.02	-.11	.16	.09	.18	.04	1		
PAAS-G	Non-ED	.32	-.03	.02	-.22	.02	.37*	.45**	.22	.59**	1	
	ED	.16	-.01	-.05	-.01	.09	.41*	.42*	.30	.27	1	
PAAS TOT	Non-ED	.26	.15	.26	-.23	.21	.70**	.60**	.54**	.77**	.78**	1
	ED	.10	.09	.01	.03	.19	.53**	.58**	.54**	.45**	.85**	1

Note: *p<.05, **p<.01 KEY: SRC= Sexually Relevant Concepts, AH=Aggression and Hostility, ADST= Alertness to danger, suspiciousness and Mistrust WGA= Withdrawn and guarded accessibility, TOTAL HTP= Total HTP score (House-Tree Person), PAAS-H=Pre-Adolescent Adjustment Scale-Home, PAAS-S=PAAS-School, PAAS-P=PAAS-Peer, PAAS-T=PAAS-Teacher, PAAS-G=PAAS-General, PAAS-TOT= PAAS-Total

were seen for general adjustment with Home and School areas, but not with other areas. This suggests that the overall test scales are more reliable in non- disturbed children. Also, it indicates that specific areas of adjustment may be more reliable in the case of the ED group.

4.7.2 Correlation of PAAS with HTP

Only a very fine thread of a relationship emerged between Adjustment and the HTP score in the area of School adjustment with ADST in the Non-ED group, which cannot be accounted for in the two constructs under study. No subscales of HTP and PAAS showed significant correlation in the ED group. This implies that House Tree Person drawings have poor relationship with a quantitative self-report inventory of adjustment, like the PAAS. Therefore, may be said that quantitative scoring techniques of projective drawings do not adequately tap overt adjustment.

4.7.3 Correlation of DAP with PAAS

Analyzing the relationship between DAP and PAAS, there is only minor difference from the findings of HTP with the PAAS. In the Non-ED group, there is not a single significant correlation between the two tests. However, in the case of the ED group, Self- drawings were found to correlate significantly with the total PAAS score showing that self- drawings may be a useful indicator of overall adjustment. Peer adjustment was also found to be significantly correlated with the DAP total score. As this sample included mainly adolescents and adolescents are known to prefer peer group relationships at this age, it is possible that better peer adjustment may show higher levels of inner emotional disturbance.

Table 4.17
Correlation of DAP with PAAS

		1	2	3	4	5	6	7	8	9	10
PAAS-H	Non-ED	1									
	ED	1									
PAAS-S	Non-ED	.47**	1								
	ED	.06	1								
PAAS-P	Non-ED	.30	.10	1							
	ED	.00	.14	1							
PAAS-T	Non-ED	.31	.17	.39*	1						
	ED	.09	.18	.04	1						
PAAS-G	Non-ED	.37*	.45**	.22	.59**	1					
	ED	.41*	.42*	.30	.27	1					
PAAS TOT	Non-ED	.70**	.60**	.54**	.77**	.78**	1				
	ED	.53**	.58**	.54**	.45**	.85**	1				
MAN	Non-ED	-.02	-.12	-.09	.18	.12	.04	1			
	ED	-.04	-.11	.20	.05	-.02	.03	1			
WOMAN	Non-ED	.16	-.06	.12	.03	-.03	.07	.40*	1		
	ED	-.28	.10	.29	-20	-.06	-.02	.49**	1		
SELF	Non-ED	-.27	.03	.17	.12	.23	.08	.37*	.05	1	
	ED	.22	.32	.04	.33	.25	.36*	-.09	-.16	1	
DAP Total	Non-ED	-.05	-.06	.09	.15	.15	.09	.82**	.68**	.65**	1
	ED	-.06	.11	.41*	.11	.11	.24	.81**	.72**	.25	1

Note: *p<.05, **p<.01 **KEY:** PAAS-H=Pre-Adolescent Adjustment Scale-Home, PAAS-S=PAAS-School, PAAS-P=PAAS-Peer, PAAS-T=PAAS-Teacher, PAAS-G=PAAS-General, PAAS-TOT= PAAS-Total

To summarize, a close scrutiny of projective drawings with quantitative measures of disturbance, adjustment and self- esteem shows limited validity. A The next section deals with the relationship within the quantitative measures used in this study.

4.8. Secondary objective 1. To find out predictive validity of indicators of emotional disturbance on Self-esteem using the different quantitative measures used.

To understand this results will be presented in 2 parts as below

1.   Predicting self-esteem from emotional and behavioral disturbance (SDQ and CFSEI).

2.   Predicting adjustment from emotional and behavioral disturbance (SDQ and PAAS).

4.8.1. Predicting Self- esteem from Emotional and Behavioral Disturbance of children)

Simple linear regression was calculated to predict the Self-esteem based on Internalizing and externalizing behaviours of the SDQ. In the SDQ, summated scores of the Internalizing and Externalizing scales were used, rather than individual scale scores. The findings are presented in the tables below.

Table 4.18
Regression analysis for Academic self-esteem based on SDQ Internalizing and Externalizing behavioural disturbance scales

Independent Variables	Dependent Variable- CFSEI-Academic		
	β	t 'value'	Significance
SDQ Internalizing	-.202	-2.445	.016*
SDQ Externalizing	-.168	-2.044	.043*
	F =7.539**	R= .302	Adjusted R^2= .091

*p< .05, **p< at .01

The F ratio in the table 4.17 shows that the independent variables significantly predict academic self-esteem. Looking at the β values it is clear that Internalizing and Externalizing behavioral scales of the SDQ both significantly predicted Academic self-esteem. 9% of the variance in academic self-esteem can be attributed to Internalizing and Externalizing behavioral disturbance. The negative scores suggest that there is an inverse relationship between the Internalizing or externalizing behavioral disturbances and academic self-esteem. As disturbance increases, it predicts a decrease in Academic self- esteem. Conceptually, we can understand that children with internalizing problems tend turn their conflicts inward leading to excess control and a loss of interest in social, academic and other activities. This would naturally contribute to decreased academic self-esteem. The concept of externalizing disorders indicates that children who fall in this category are likely to throw their conflicts outward on to the environment by being argumentative, overactive, getting into fights etc. Such behaviours too are likely to impact academic performance and consequently, academic self-esteem.

Table 4.19
Regression analysis for General self-esteem based on SDQ Internalizing and Externalizing behavioral disturbance scales

Independent Variables	Dependent Variable- CFESEI-General		
	ß	t 'value'	Significance
SDQ Internalizing	-.111	-1.291	.199
SDQ Externalizing	.018	.251	.830
	F =.858	R= .106	Adjusted R^2= .011

The F ratio in Table 4.19, shows that internalizing and externalizing disturbance scores together did not predict General self-esteem significantly (Table 4.18). The R^2

adjusted scores show that these two scales account for only 1% of variance in the General self-esteem. However, when individual test scales of the SDQ were taken up, it was seen that two SDQ scales Emotional and Peer problems were significantly able to predict General self-esteem, β=-.283,.178, t(152)=-3.255,1.984 p<.01 and p<.05 respectively. This suggests that Internalizing behaviour scores individually explained a small but significant proportion of variance in General self – esteem scores, R^2=.072, F (1.148) =2.891 p<.05. This implies that when children have a tendency to withdraw, be depressed or anxious it is likely to impact their general self- esteem.

Table 4.20
Regression analysis for Parental self-esteem based on SDQ Internalizing and Externalizing behavioral disturbance scales

Independent Variables	Dependent Variable CFSEI-Parental		
	ß	t 'value'	Significance
SDQ Internalizing	-.0182	-2.138	.034*
SDQ Externalizing	-.015	-.172	.864
	F =2.715	R= .187	Adjusted R^2= .035

Note: *p< .05

The insignificant F ratio in table 4.20 shows that Internalizing and Externalizing behavioral scale scores did not significantly predict Parental self-esteem. The internalizing and externalizing scales together account for about 3% of variance in parental self-esteem scores. Looking at the β values, we can see that the direction of the predictive relationship between internalizing/ externalizing scales and Parental relationship is inverse i.e. as disturbance increases there is a decrease in Parental self-esteem. Though the combined predictive impact of these scales was not significant. The SDQ Internalizing score predicted parental self-esteem significantly (p<.05). This suggests that children who internalize their conflicts are also likely to feel that their parents evaluate them negatively.

Table 4.21

Regression analysis for Social self-esteem based on SDQ Internalizing and Externalizing behavioral disturbance scales

Independent Variables	Dependent Variable CFSEI-Social		
	ß	t 'value'	Significance
SDQ Internalizing	-.165	-2.032	.044*
SDQ Externalizing	-.255	-3.147	.002**
	F =10.226***	R= .346	Adjusted R^2= .120

Note: *p< .05,** p< .01, ***p< .001

Analysing the relationship between emotional disturbance and self-esteem further, it is seen that the significant F ratio suggests that SDQ internalizing and externalizing scores can successfully significantly predict social self-esteem of the CFSEI. Together they account for 12% of variance in social self-esteem scores and the β values show that as disturbance increases, social self-esteem decreases. To explain further, as disturbance increases, the way a child conceptualizes him or herself in context of others becomes more negative. Internalizing and externalizing behaviours together and individually significantly predict social self- esteem. As both scales have significant impact on social interaction, it is understandable that they have a direct negative impact on the social self-esteem of a child.

4.8.2. Predicting Adjustment from Emotional and Behavioral disturbance

Table 4.22

Regression analysis for Home Adjustment based on SDQ Internalizing and Externalizing behavioral disturbance scales

Independent Variables	Dependent Variable PAAS-H		
	ß	t 'value'	Significance
SDQ Internalizing	-.168	-2.055	.042*
SDQ Externalizing	-.229	-2.795	.006**
	F =8.867***	R= .325	Adjusted R^2= .106

Note: * p< .05, ** p< .001

Looking at the predictive relationship between the SDQ Internalizing/ Externalizing scales with Adjustment as measured by a self-report questionnaire, it is clear from the F ratio, that emotional and behavioral disturbances are significant predictors of home adjustment. The R^2 values show that Internalizing and Externalizing behavioral disturbances explain about 10% variance in the scores for Home adjustment. The β values show a negative direction of the relationship between these variables, indicating that as disturbance increases home adjustment decreases. Given the nature of the two scales it is expected that externalizing behavioral problems would predict poorer home adjustment. Children with internalizing problems, which generally are hard to detect by others, also perceive their home adjustment to be poor which suggests multiple areas for intervention are likely to be necessary in both groups of children.

Table 4.23

Regression analysis for School Adjustment based on SDQ Internalizing and Externalizing behavioral disturbance scales

Independent Variables	Dependent Variable PAAS-S		
	ß	t 'value'	Significance
SDQ Internalizing	-.061	-.726	.469
SDQ Externalizing	-.181	-2.143	.034*
	F =3.446*	R= .210	Adjusted R^2= .044

Note: *$p<$ at .05

In the context of school adjustment, the F ratio shows that internalizing and externalizing behaviours successfully predict School adjustment within which Externalizing behaviours play a more significant role. It is seen that together, these scales account for about 4% of the variance in the school adjustment. Conceptually, problems in behaviour are likely to disturb adjustment in different spheres of functioning regression analysis will reveal if this is indeed so. Adjustment at school was found to be predicted more successfully by externalizing behaviour problems in children. As children with externalizing behaviours are likely to be more talkative, extroverted, verbally or physically aggressive it is likely that they come to attention more easily at school and come in the way of good school adjustment.

Table 4.24

Regression analysis for Peer Adjustment based on SDQ Internalizing and

Independent Variables	Dependent Variable PAAS-P		
	ß	t 'value'	Significance
SDQ Internalizing	.035	.405	.686
SDQ Externalizing	-.015	-.178	.859
	F =.083	R= .033	Adjusted R^2= .001

Externalizing behavioral disturbance scales

The F ratio in the above table was not significant showing that internalizing and externalizing behaviours do not successfully predict peer adjustment. It is seen that internalizing and externalizing scores accounts for less than 1% of variance in the scores for peer adjustment. The β values show a negative trend between Externalizing behaviour and peer adjustment suggesting that as children act outward on their conflicts their peer relationships and adjustment are affected.

Table 4.25
Regression analysis for Teacher Adjustment based on SDQ Internalizing and Externalizing behavioral disturbance scales

Independent Variables	Dependent Variable PAAS-T		
	ß	t 'value'	Significance
SDQ Internalizing	-.040	-.459	.647
SDQ Externalizing	-.032	-.367	.714
	F =.256	R= .058	Adjusted R^2= .003

The findings in the above table show that the F ratio is not significant suggesting that Internalizing and externalizing behaviours do not successfully predict adjustment with teachers. The scores account for less than 1% variance in teacher adjustment. The β values show a negative trend in the relationship again suggesting that increase in disturbance lowers adjustment with teachers. This seems to indicate that at lower levels of disturbance the children are able to maintain good adjustment with the teachers.

Table 4.26

Regression analysis for General Adjustment based on SDQ Internalizing and Externalizing behavioral disturbance scales

Independent Variables	Dependent Variable PAAS-G		
	ß	t 'value'	Significance
SDQ Internalizing	-.032	-.377	.706
SDQ Externalizing	-.163	-1.910	.058
	F =2.391	R= .176	Adjusted R^2= .031

Looking at the relationship between internalizing/ externalizing scales and General adjustment the F ratio was not significant. This shows that internalizing and externalizing behaviour problems did not successfully predict general adjustment and accounted for only 3% variance in the adjustment scores. The direction of the relationship is however negative as seen in the β values. This indicates that as disturbance increases, general adjustment is lowered.

To summarize the findings of this section we can see the following: -

1. Internalizing and externalizing emotional and behavioral disturbances can successfully predict self-esteem, specifically academic and social self- esteem in a sample of school going and clinically refereed children in the age group of 8-15 years.

2. Internalizing and externalizing emotional and behavioral disturbances also predict a child's adjustment in the areas of home and school functioning.

This shows that the quantitative measures have a stronger relationship among themselves rather than with projective drawing measures. This also indicates that

there is a better relationship between subjective self-report measures than with objective ratings conducted by teachers or parents.

4.9 Group-wise qualitative analysis of scoring indicators of HTP and DAP and their effectiveness in identifying emotional disturbance:

In this section an attempt is made to analyze the different scoring indicators of emotional disturbance across both the HTP and DAP across the different groups tested. The purpose of this is three-fold.1. To see which scoring indicators were more useful in identifying disturbance particularly in the clinical context. 2. To see if which scoring indicators proved least effective in identifying emotional disturbance in each scale. 3. To see if there are any age specific patterns in use of the scoring indicators. Supportive tables for this section are attached in the appendix (i).

4.9.1 House Tree Person test:

To arrive at a deeper qualitative understanding of these drawing techniques, we shall fist understand the HTP scales. At a cursory glance one feature stands out across the graphs that the indicators used or not used, across all groups are similar but they differ in the extent of use. Looking at the scale of Sexually relevant concepts, when the findings of group 1 and 3 are taken together, we can see that the following indicators were more useful in discriminating between the ED group of the clinical sample and the Non-ED group of the Reference group: Figures drawn more mature than the child's age, under clothed or nude figure, long neck, body part cut off and figure not child's own sex.

The following items did not contribute significantly in the scoring. In fact, most of them had not been marked by even a single child. Palm tree, Hair on body, cupid bow

mouth (by girls), emphasis on bedroom, breasts emphasized, tie emphasized, omission of hands, unusual cosmetic emphasis, elongated feet, hands covering genitals, genitals, shading on body part, figure not specifically male or female. (fig 4.4)

In the group 2, which had children aged from 12-15 years, it is evident that the differences in each item between the ED and Non-ED groups is minimal, and only one item, namely, "figure drawn more mature than child's actual age" contributed to a significant gap between the two groups. It is also seen that the percentage of users for each indicator has increased with age, implying that there may be specific age differences.

Graphs 4.6 and 4.7 show that while the number of users for this scale of scores increases, there are no noticeable differences in trends of use of indicators across the 4 groups on the AH scale with marginal exceptions. The indicators of 'large talon-like fingers' and 'chin unusually emphasized' were more visible in group 2, as compared to the younger group. No indicator came out to be especially effective in discriminating between the groups. The following items were found less discriminatory due to negligible use across all 3 groups in the AH scale: Nostrils emphasized and short heavy line for mouth. In group 1 and 3 the following items were negligibly used: Leaves sharply pointed, scars, teeth, nostrils emphasized, chin unusually emphasized, fingers without hands.

In the 12-15 years' age group, the following items appeared additionally less useful: disproportionately large arms, wide stance, and overemphasis of facial features, short thick neck or absent neck, massive shoulders.

4.4 HTP: Itemwise distribution in ED / Non-ED for Groups 1 and 3 on the Sexually relevant concepts scale
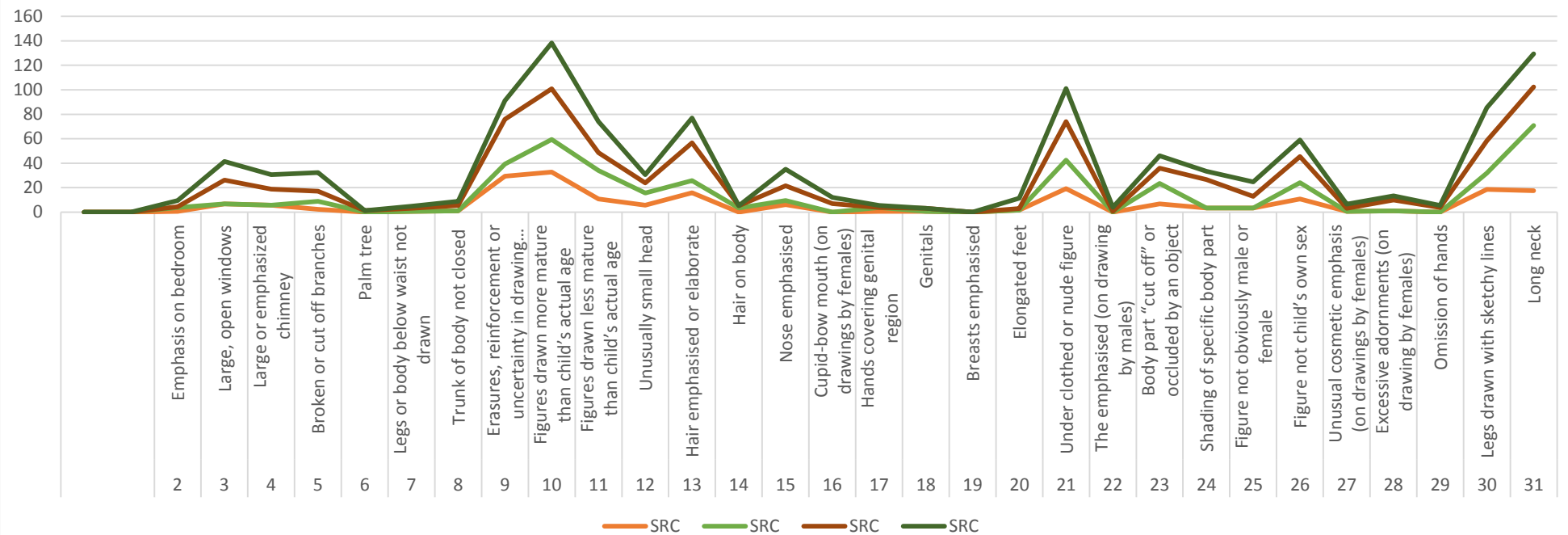
4.5. HTP: Itemwise Distribution in ED / Non-ED Group for Sexually releavant concepts subscale in Group 2
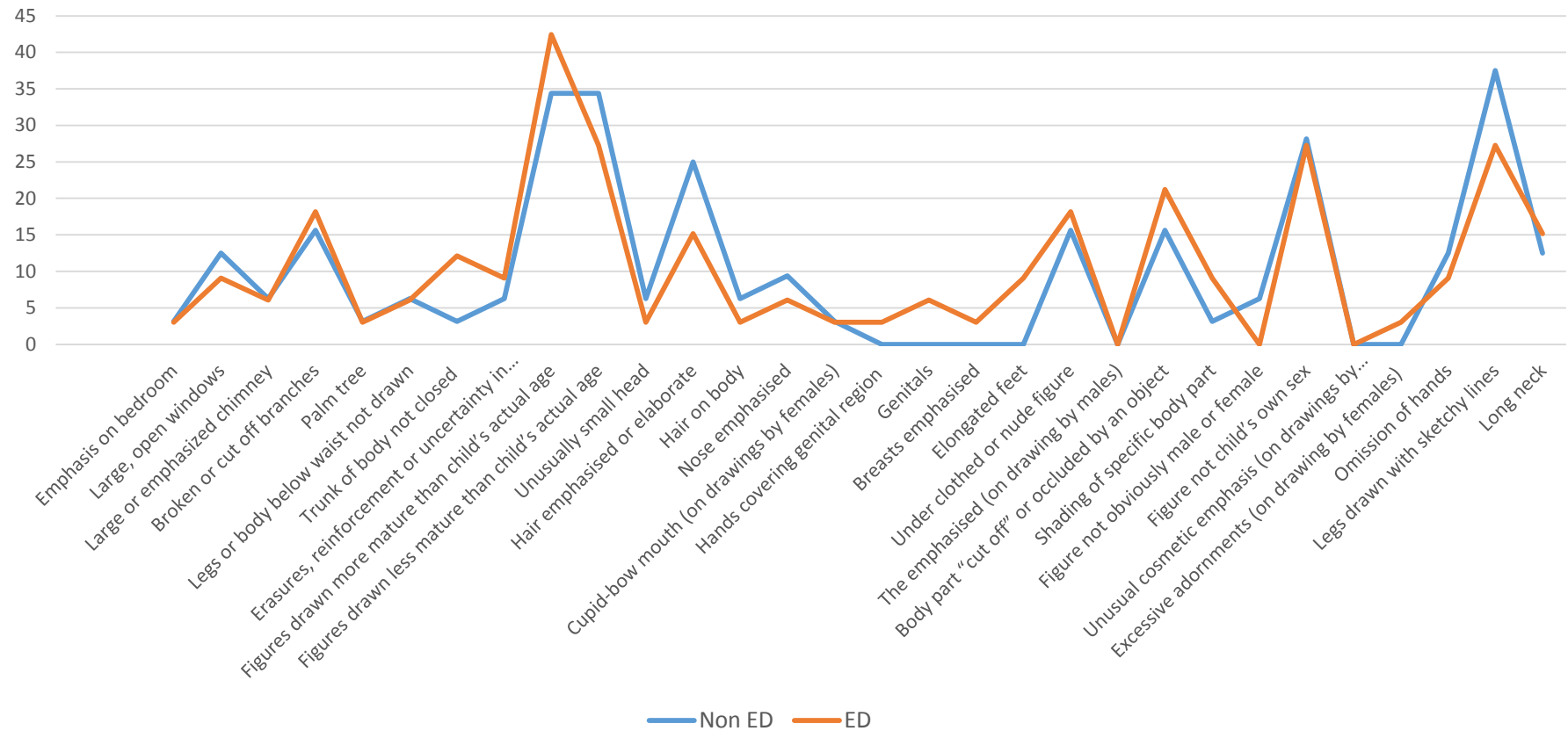
Figure 4.6 HTP Item-wise distribution for ED/Non-ED groups on the Aggression and Hostility Scale in Group 1 and 3
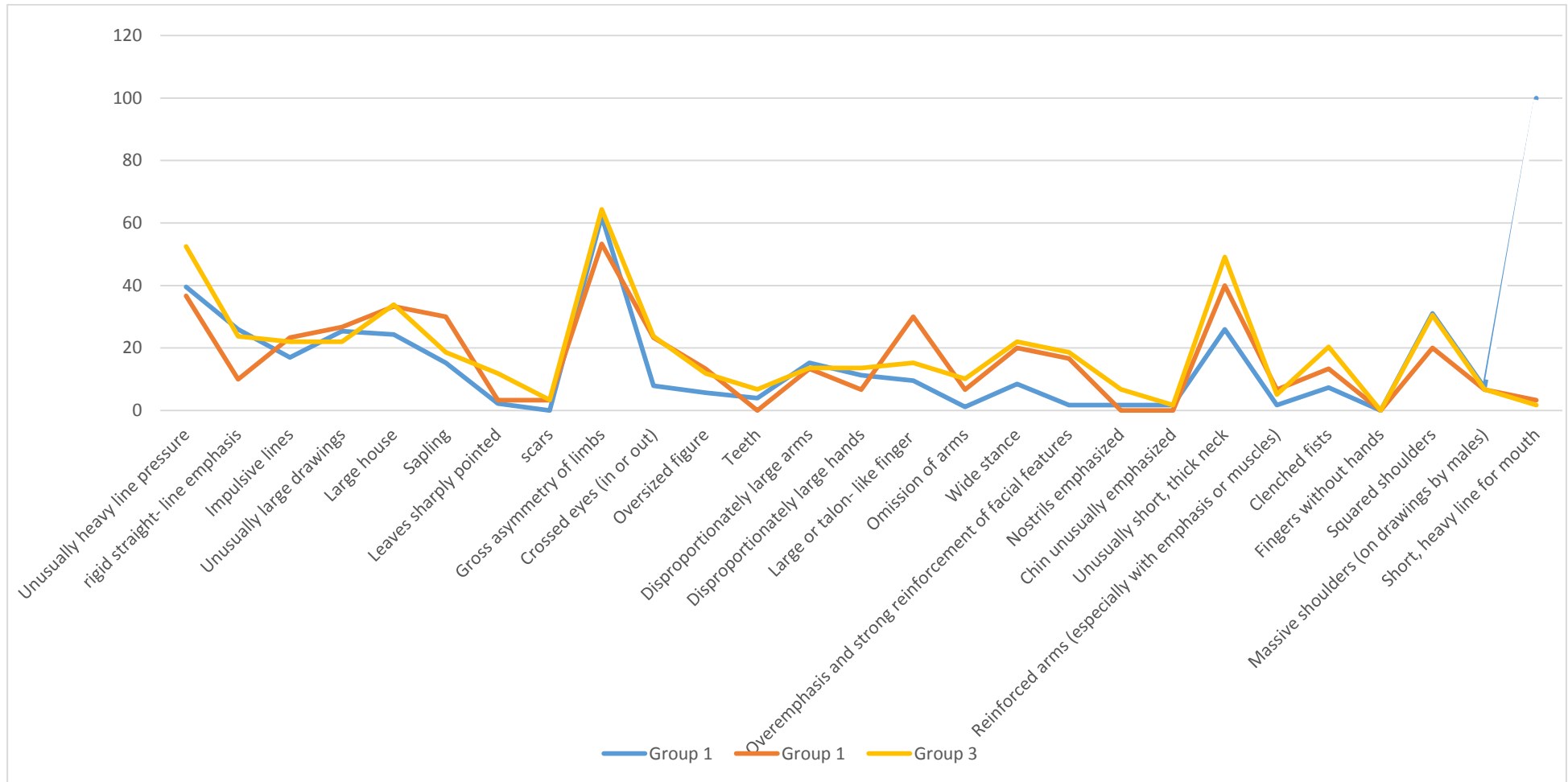
Figure 4.7 HTP Item-wise distribution for ED/Non-ED groups on the Aggression and Hostility Scale in Group 2
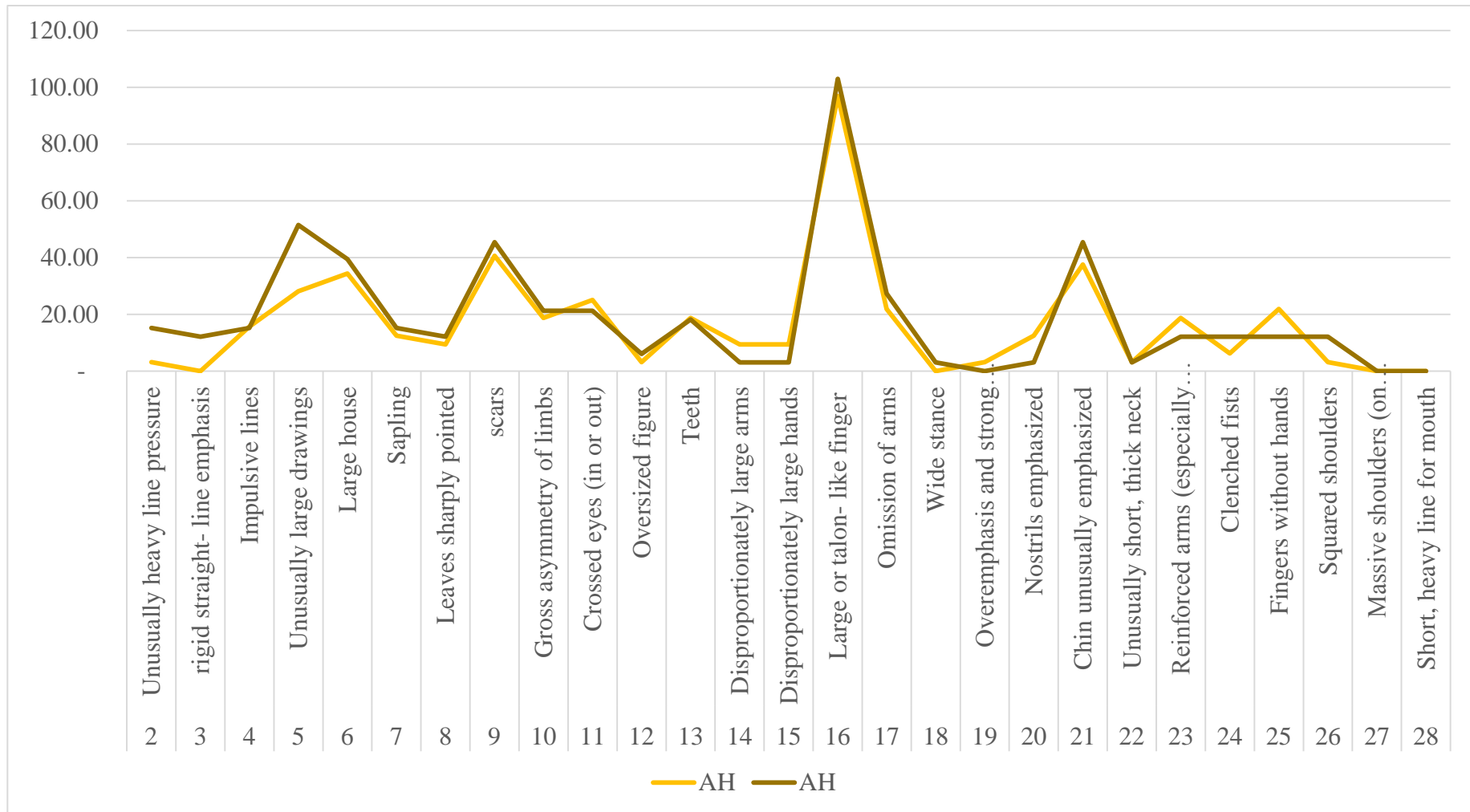
Analysing Fig 4. 8 and 4.9, we see that, the users for scoring indicators of the ADST category have been low and figures mostly below 25% use are obtained. Hardly any difference in the use of indicators is seen across the different groups. Items like: door has a peep hole, Picasso eye, and large reinforced ears are rarely used in groups 1 and 3. The item 'Emphasis on barriers and fences' discriminated to some extent between the clinical and Reference groups.

In the age group of 12-15 years (Fig. 4.9), the use of 'Unusually large eyes' increased and some more items faded into insignificance such as: Door is heavily locked or hinged and emphasis on outline of eyes.

For the WGA scale, again the pattern of scores across the groups follows similar trend of presence and absence. One item that discriminated to an extent between ED groups against Non-ED groups was 'door very small'. The item that discriminated against clinical and non-clinical groups in this category was: 'windows very small'. Items that were found to be used negligibly across all 3 groups and therefore non discriminating were: small drawings, drawing drawn distantly, bilateral symmetry, animals dawn bigger and better, door drawn last, dim facial features, unusually small or closed eyes, profile was drawn. In group 1 and 3 'small feet' and 'cartoon figures' were additionally absent. Some items that were seen more regularly in the Non-ED groups were: long walkway and steps leading to the house, windows excessively barred or shuttered. This implies that these features are more likely to seen and scored in well-adjusted students.

4.8 HTP: Itemwise Distribution in ED / Non-ED Group for Alertness to Danger, Suspiciousness and Mistrust in Group and 3
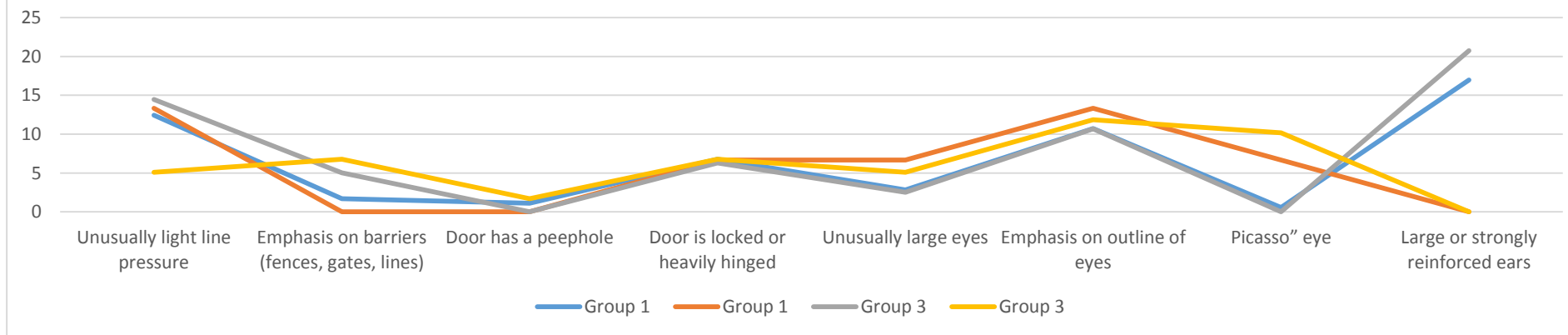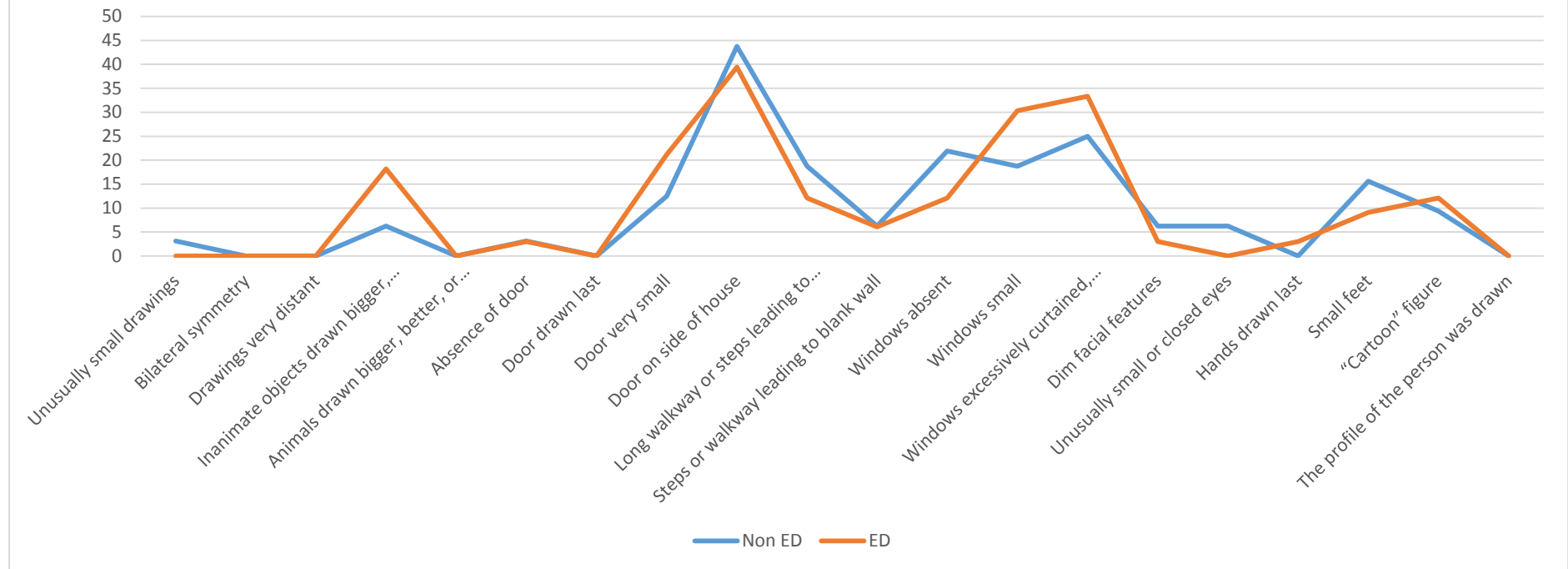
4.9 HTP: Itemwise Distribution in ED / Non-ED Group on Alertness to danger, suspiciousness and mistrust in Group 2
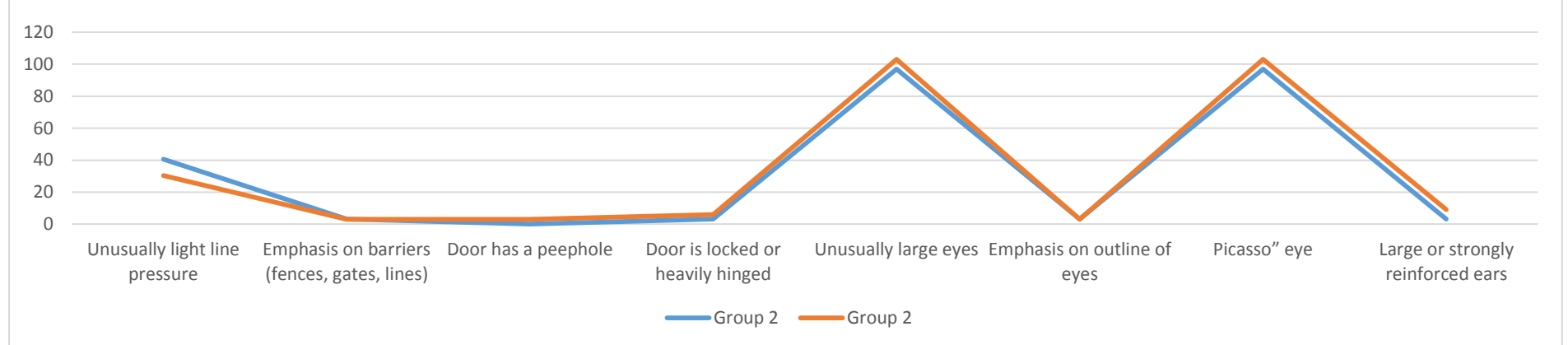
4.10 HTP: itemwise ditribution of ED and Non-ED groups on the Withdrawn and Guarded Accessibility scale in Group 1 and 3
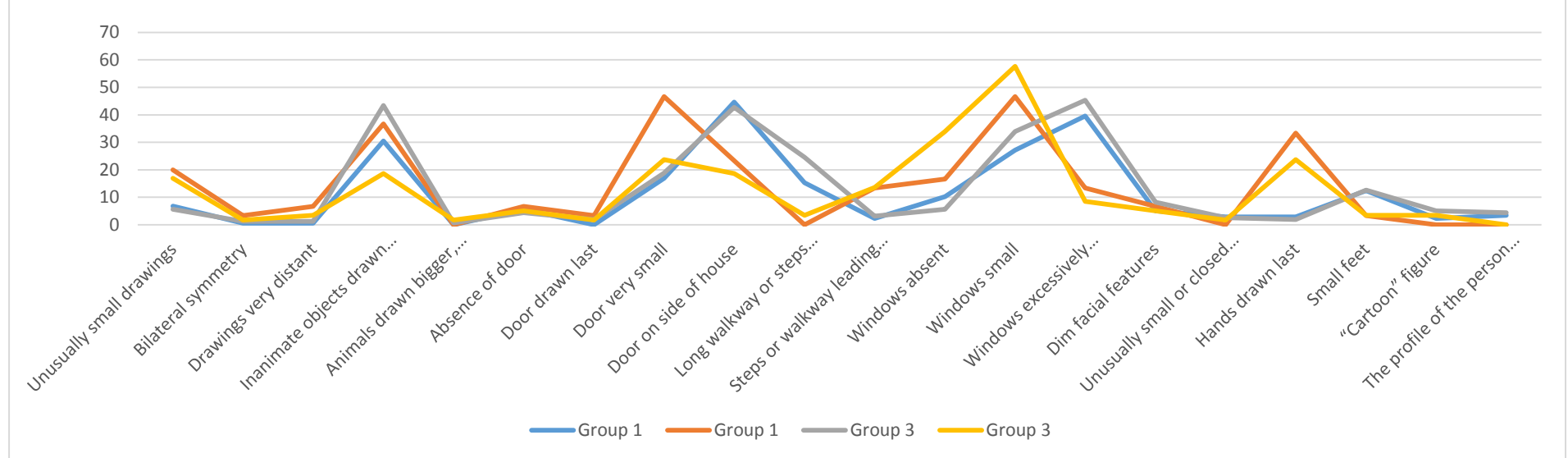
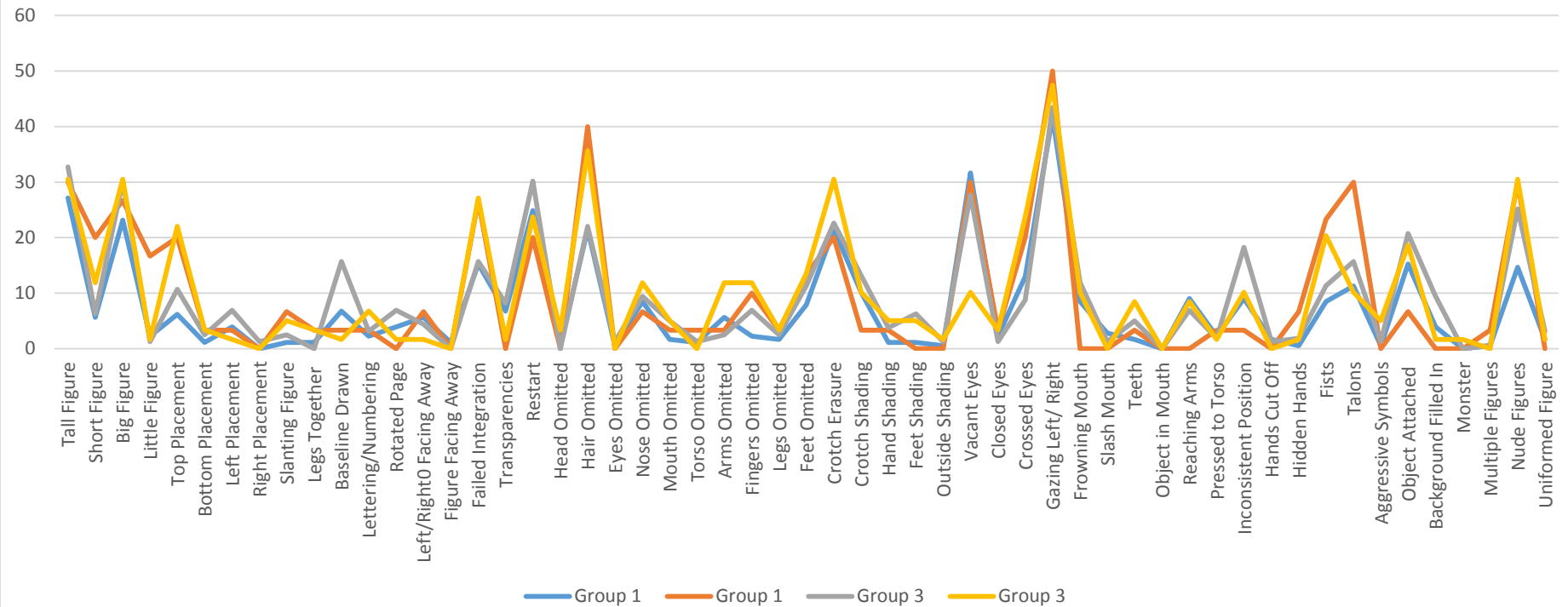4.11 HTP: Itemwise Distribution for ED / Non-ED Group on the Withdrawn and Guarded Accessibility scale in Group 2

4.9.2 Draw- A- Person: Screening Procedure for Emotional Disturbance (DAP: SPED):

Looking at the graphs from 4.12-4.16 we see that the graphs follow uniform patterns except in the case of 'myself drawings'. In the 'Man" drawings the items- top placement, head omitted, talons, nude figures were found to be more discriminatory between the clinical and non-ED groups. While in the 'Woman' drawings, 'top placement' 'figure facing away' and nude 'figure' was found to be discriminating while talons and head omitted were not. The following12 indicators were negligibly used on both drawings: right placement, legs together, rotated page, eyes omitted, torso omitted, feet shading, outside shading, slash mouth, hands cut off, monster figure, multiple figures, uniformed figure.

With respect to 'Myself' figures, it is seen that a number features were able to contrast between the ED group of the clinical sample against the Non-ED group from the Reference group. These are: Tall figure, big figure, failed integration, restart, hair omitted, nose omitted, fingers omitted, crotch erasure, vacant eyes, gazing left-right, fists, object attached, nude figures. The indicators that were negligibly used were largely the same as for 'man' and 'woman' drawings. Some unique features that were less useful for scoring 'Myself' drawings were: little figure, bottom placement, hand shading, pressed torso.
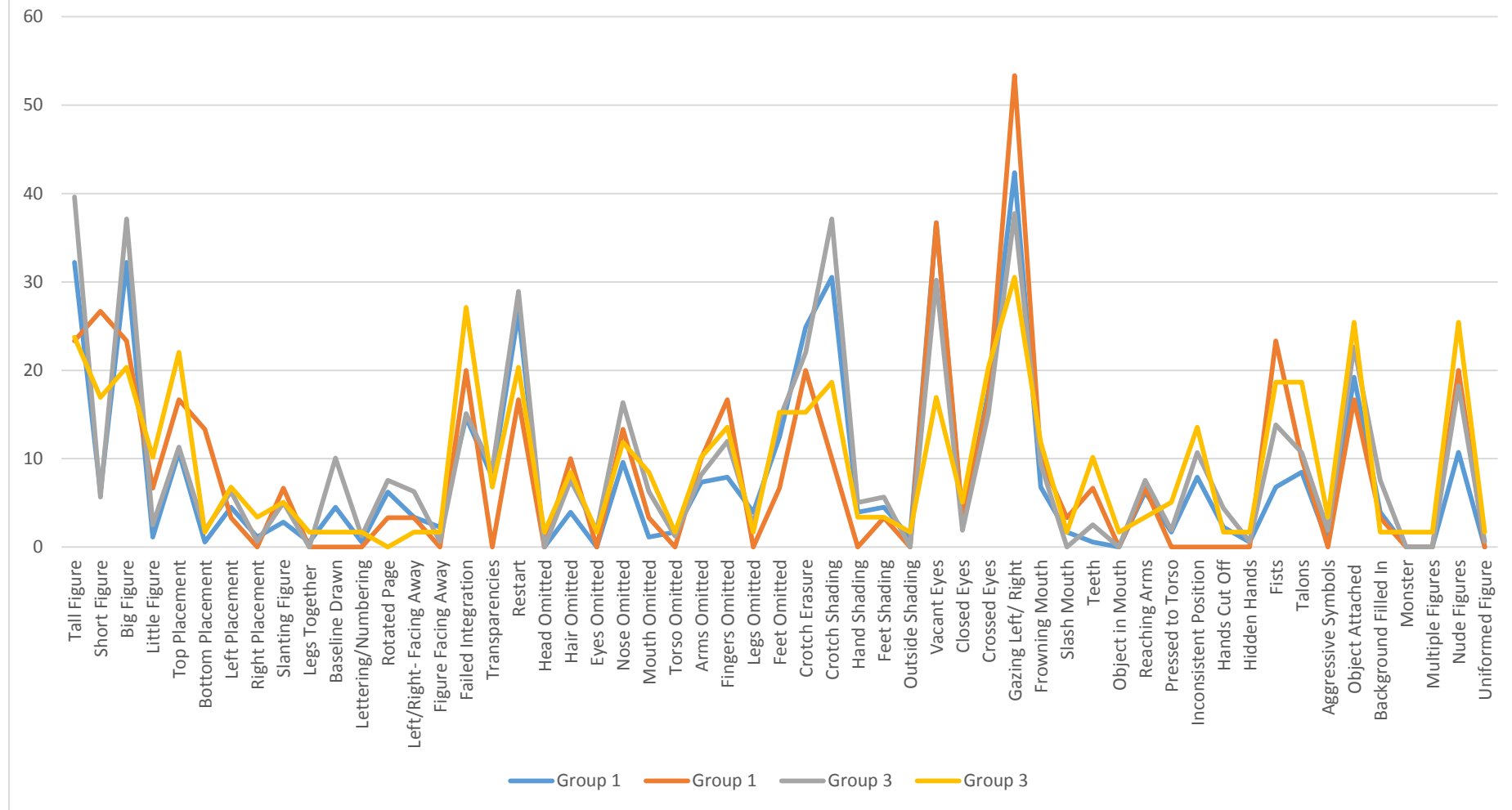
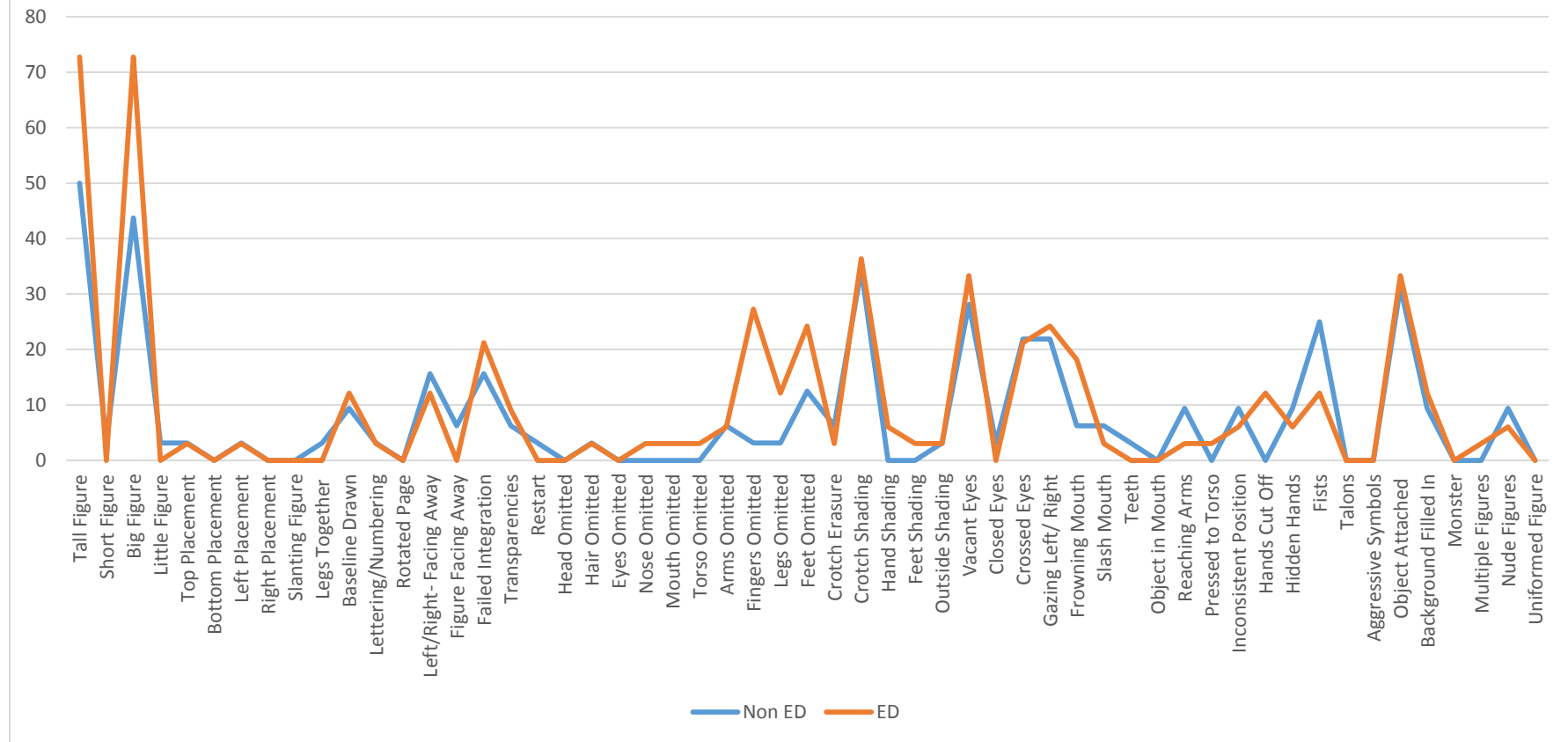4.12. DAP Itemwise Distribution in ED / Non-ED Groups for MAN drawings in Group 1 and 3

4.13. DAP:Itemwise Distribution in ED / Non-ED Group for MAN drawings in Group 2
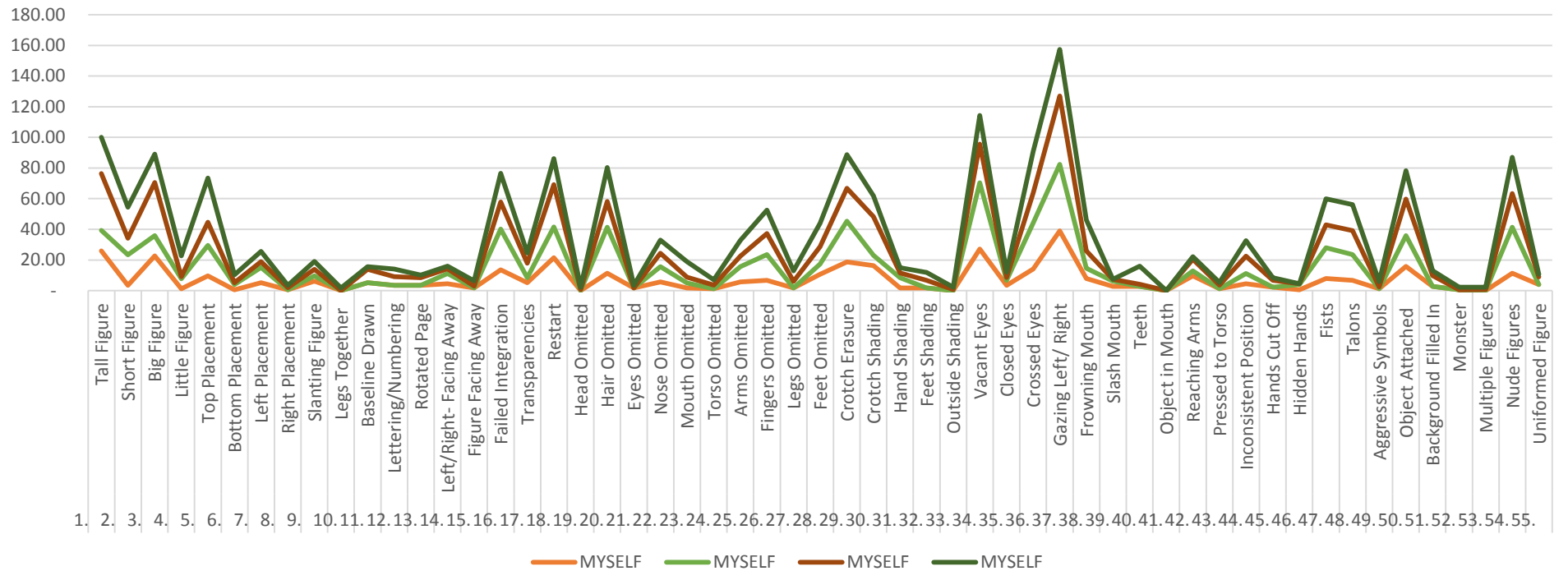
Legend: Non ED, ED
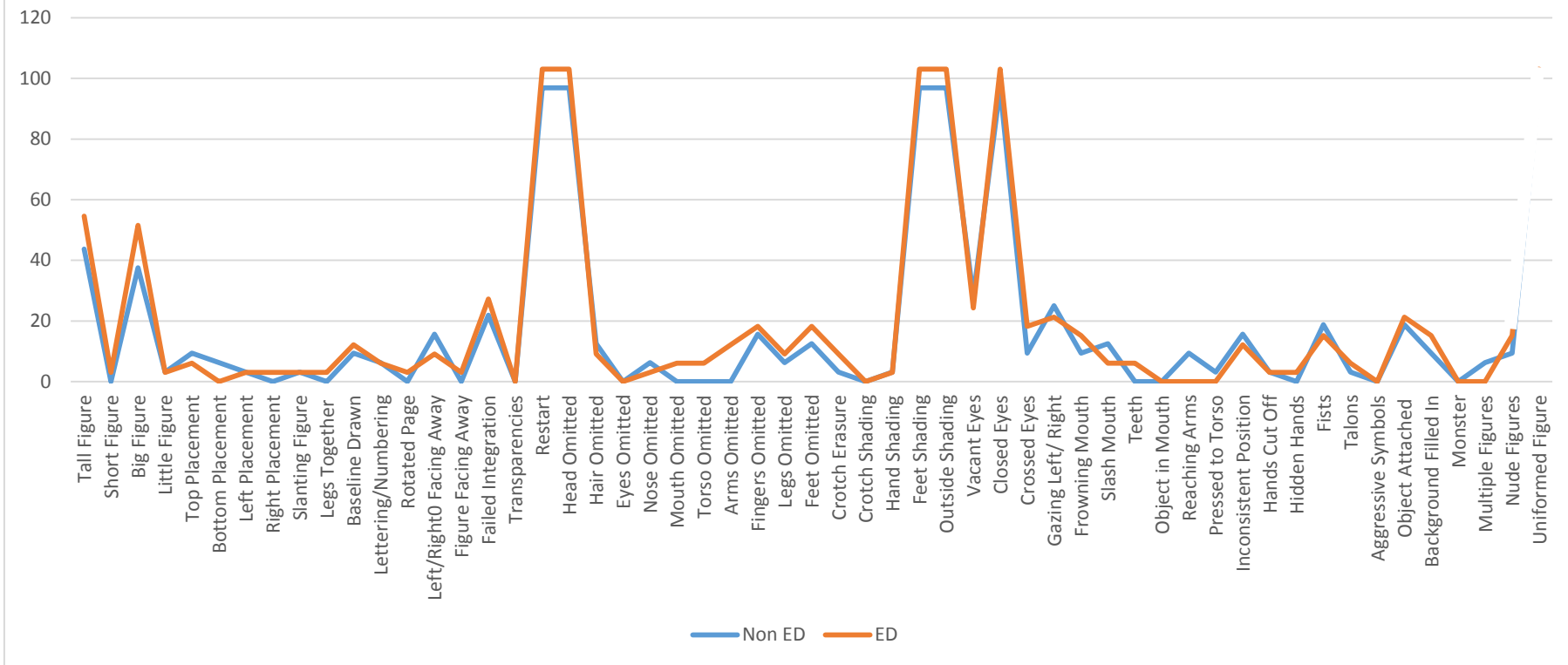
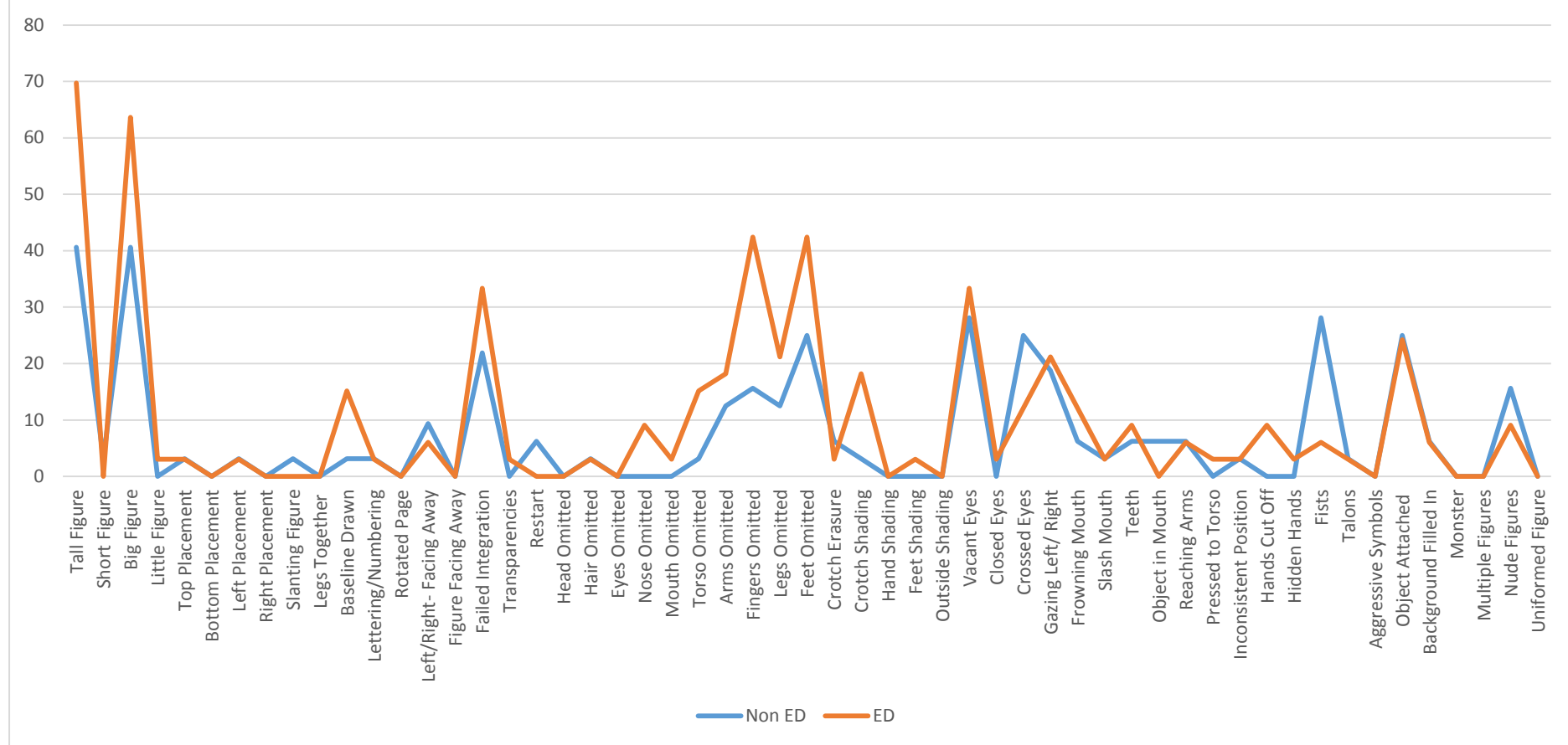4.14 . DAP: Itemwise distribution in ED/ Non-ED groups for WOMAN drawings of Group 1 and 3

4.15. DAP:Itemwise Distribution in ED / Non-ED Groups for WOMAN drawings in Group 2

4.16. DAP: Itemwise disribution for ED/Non-ED groups for MYSELF drawings of Group 1 and 3

4.17. DAP Itemwise Distribution for ED / Non-ED Group on MYSELF drawings for Group 2

From the above section we can see that the qualitative analysis gives deeper insight onto the findings related to scoring indicators and their use of the Indian context. The HTP lends an interesting pattern of scoring for identifying emotional disturbance particularly in the scale of SRC. There are significant age trends observed as well, giving directions for modified scoring possibility if the HTP were to be reliably used for identification of ED in the Indian context. In the DAP, Man and Woman drawings gave similar patterns across groups with little indication of effective and discriminating scoring indicators or age trends. The 'self' drawings, however, proved quite successful in identifying effective scoring indicators across the groups. The drawings had a common set of indicators that were negligibly used, which are highlighted through the graphs and are mentioned in the above section. These can give useful insights to modifying scoring of the DAP: SPED for our population.

After a detailed look at the quantitative and qualitative outcomes of the study, a discussion for these and their possible implications, with directions for future research are presented in the next chapter.