Research Study on
"Validation and Standardization of Indicators/Markers of Penetrative CSA in Children's Draw-A-Person-Test (DAPT)"

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Commissioned by- NATIONAL COMMISSION FOR PROTECTION OF CHILDRIGHTS (NCPCR)

ABBREVIATIONS

NCPCR…..National Commission for Protection of Child Rights

AIIMS…….All India Institute of Medical Sciences

DAPT…….Draw-A-Person Test

CSA………Child Sexual Abuse

CCI...........Child Care Institution

IQ................Intelligence Quotient

PTSD.........Post Traumatic Stress Disorder

CPSS ....Child PTSD Symptom Scale

CWC ....Child Welfare Committee

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INTRODUCTION

Mental health assessment of a Child Sexual Abuse (CSA) victim demands sustained efforts over time than simple history taking or applying objective tools of assessment. Difficulty in application of objective tools across age groups, depending upon the mood of the children willingness to verbalizing their experiences, and language limitations in expressing thoughts and emotions in young children could be real challenge in eliciting presence of CSA. Therefore, less directive forms of assessment such as clinical drawings as a nonthreatening tool (Stember, 1980 and Naumberg, 1987) could be clinically useful. As drawing is perceived to be a fun activity by most children, clinically it is ventilation medium for children's self-expression (Tielsch & Jackson- Allen, 2005; Wong, Wilson, & Ahmann, 1999). In the context of psychological assessment or psychotherapy, drawings allow unconscious motivation to present themselves in safe ways for client processing (Miller & Veltkamp, 1989). Hence, drawings that express problems and difficulties proves to be   as effective tools of assessing children's emotional states (Evans & Reilly, 1996; Malchiodi, 2001; Rollins, 2005).

Multiple methods of interpretation exist to evaluate the drawings of children in context of CSA. Amongst the most well-known approaches, it is to obtain the information about the emotional status of children using the interpretation system of Buck (1948) and Machover (1949). Though widely used by clinicians, researches till date are not very conclusive about the association of a specific indicator with a specific meaning, therefore, wide variability exists in interpretation(Roback, 1968; Swensen, 1957,1968) of such drawings in case of child sexual abuse. Later on, deriving from the work of Machover and Hammer along with incorporating own clinical experience, Koppitz (1968) proposed a list of 30 emotional indicators (EI), which reflects the emotional maturity of children. The method was subjected to rigorous research thereafter where researches disproved the system validity of EI, especially in distinguishing specific indicators pertaining sexual abuse and non-abuse cases (Hibbard and Hartman, 1990a).

As an alternative to interpretation system, another effective approach analyses the drawings by comparing the number of times graphic indicators appear in the drawings of children with sexual abuse and without it (Naglieri & Pfeiffer, 1992). This revised method of quantification andinterpretation helps in identifying statistically accurate list of indicators obtained in drawings of children with abuse and without abuse effectively. This approach may specifically find applicability in the context of CSA, where clinicians either suspect CSA or have insufficient evidences to confirm the case, or there is dilemma in validating the allegations of sexual abuse and is in a need for corroborating evidences to ascertain the same. However, legal validity of such interpretations is still in question, although in many

important cases, drawings have been used in legal context for delivery of judgment in CSA cases.

India has specifically witnessed 3 major works on assessment of children's drawing till now (Pathak, 1966; Mishra, 1970; Srivastava et al., 2008), however none of these looked into sexual abuse markers. Research investigations in the context of CSA or abuse in general either on children is absent till now. Though, increasing recognition for the significance of test led to landmark case of CSA at Delhi court where a 10-year disclosed CSA only through scribbles and doodles of her drawing and it was taken as evidence in the court (Times of India Report, 2017). Mental health professionals, either in the court or a clinic, are in dire need for a framework to guide the interpretation of drawings to reach to a conclusion in alleged sexual abuse cases.

AIM & OBJECTIVES

Aim: The aim of the proposal was to validate and establish penetrative CSA markers in DAPT for children between 5-12 years

Specific objectives: The specific objectives of the study were to:

1. Identify the graphics indicators of penetrative sexual abuse that are generally considered by clinicians and make a comprehensive list of the same
2. Compare the graphic indicators associated with the drawings of children in an effort to establish commonalities and differences in obtaining sexual abuse indicators across children with and without sexual abuse.
3. Establish the reliability and validity of the clinical indicators for CSA in DAPT

METHODOLOGY

Sample universe: Children

Setting: Child Care Institutions (CCIs) in Delhi, Gurgaon, Alwar, Rewari

Profile of Funding and Partnering Organization: National Commission for Protection of Child Rights (NCPCR) has a strong link with all Govt. run child-care institutions across the country. They facilitated the data collection process therefore; the project duration was for 6 months.

Inclusion:

Male and female

Children between 5-12 years

Registered under POCSO for penetrative SALiving with parents or in any CCI institute Informed consent/assent/LAR

Children above 12 years

Children with intellectual disability or any other disability,

Chronic medical illness (largely on available medical record for disability & chronic illness.

Clinical assessmentthrough IQ tool in case of any doubt of intellectual impairment but no medical record isavailable)

Sample size:

- ✓ **Sample Proposed**- 300 (100 CSA + 200 non-CSA) children. Non-CSA control could include childrenw/h/o other forms of abuse but not CSA and children without/any/h/o abuse.
- ✓ **Sample Completed**: 100 POCSO and 200 non-POCSO cases
- ✓ 15 professional clinical/child psychologists

Sampling Method: Convenient sampling

Tools to be used:

- ✓ Draw-a-person-Test (DAPT).
- ✓ MSCSA-62 (Investigators' own scale psychometrically tested and published, so need for permission)
- ✓ CPSS, and CITES-13 (In public domain)

Project Team:

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Children's drawings:

Good enough (1926) is typically credited with being the first to develop a drawing technique for

psychological purposes. Later researchers began asserting that personality and emotional factors were also evident in the human figure drawings of children (Hammer, 1958; Koppitz, 1966), leading to many revisions of the initial Goodenough technique. The most popular of these protocols include the Draw-A-Person (DAP; Koppitz, 1968) and House-Tree- Person (Buck,1948) tests. Both are free drawings with one-line simple instruction. Although each of these approaches is different from the others in some way, they all share a common procedure of havingthe child draw a human figure.

Child PTSD Symptom Scale (CPSS)

Developed by Foa, Johnson, Feeney, Treadwell (2001) is the child version of Posttraumatic Diagnostic Scale (PTSD) developed by Foa, et al. (1997) for adults, used for children in the age range of 8 to 18 years old. This self-report measure, assesses the frequency of all PTSD symptoms

within the past month for a child who has experienced a traumatic event. There is one question for each of the DMS-IV PTSD symptoms in the three criteria clusters (re-experiencing, avoidance, and arousal). The response format is a 4-point Likert scale and results in a total PTSD symptom severity score; severity scores for each of three symptom clusters can be calculated. The scale has satisfactory internal consistency and test-retest reliability along with good convergent validity.

Children's Impact of Traumatic Events Scale –Revised (CITES-R)

Developed by Wolfe, Gentile, Michienzi, Sas, & Wolfe (1991), the purpose of this instrument is toassess PTDS, sexualization and mediating factors in children in the age range of 8 to 16 years old, who have been sexually abused. The CITES-R is comprised of 78 items that fall into 11 scales along four dimensions: 1) PTSD symptoms, 2) Eroticism, 3) Abuse Attribution and 4) Social Reactions. Its reliability is moderate, with an overall alpha of .69 for the 11 scales. However, thereis some variability, with a range of .56 to .79. Construct validity was highest for the symptom scales (PTSD and Eroticism), but the predicted correlations were more modest than predicted. Construct validity for both the abuse attribution and social support domains was mixed (Wolfe, Gentile, Michienzi, Sas & Wolfe, 1991).

Multi-dimensional Scale for Child Sexual Abuse (MSCSA)-62 (2019)

Choudhary, Satapathy, and Sagar (2021). This scale consists of 62 items across five domains on a 3-point Likert scale. The scale catered to age group of 7-12 years). The scale has high internal consistency (0.97) and reliability along with good convergent and divergent validity. Published)

Scale Application/Administration

All scales were available in Hindi and were in free domain/permission from authors/purchased. Data collection duration for each child ranged from30 minutes (approx.). The total data collection duration was 3804 hours (approx.) or 160days.

Young children were tested individually and children aged 8 & above were tested in very small group constituting 2-3 children in each group. All were supplied with a A-4 size plain, white paper and were instructed to draw a whole person. They were instructed, "Draw a human figure. There is no right or wrong way to do it. You can draw it in any way as you wish" The children were allowed as much time as they wished to complete the drawings. All queries were answered in non-directive manners.

Drawings of children have been evaluated by first preparing a comprehensive checklist of indicators from the drawings of children based on review of literature and clinical experiences of the authors in an Indian setting. The checklist contained 3 categories of interpretation: gross features, features of upper body and features of lower body organized under 33 broad indicators and 129 specific indicators. The indicators were analyzed by calculating the frequency and percentage of its occurrence in the drawing of children across both groups. For inter-rater reliability, each drawing in the study was distributed to two more evaluators (licensed clinical psychologist/child psychologist practicing in a tertiary care hospital) and the results were compared. Evaluator reliability was then computed by dividing the number of pair agreements by the total number of agreements and disagreements. The average reliability between evaluators wasapproximately 70%.

Data Analysis and Statistics

Analysis of socio-demographic data and indicators of sexual trauma from the drawings of childrenacross children with and without CSA has been reported using descriptive statistics (frequency and percentages). The differences across groups have been analysed using chi-square statistics.
Additionally, post-hoc analysis of significant findings has been done using Bonferroni correction to identify if the specific features vary widely across 2 groups.

Ethical Approval of the Study

The study proposal has been approved by the AIIMS Institute Ethics Board. Commitment for assuring confidentiality, anonymity, informed consent (from parents and professionals and assent from the child) and the right to withdraw was assured to each participant.

RESULTS

The results will focus on the findings obtained from DAPT only for the study purpose.

Socio-Demographic Profile

Table 1 shows the comparative socio-demographic characteristics of children with and without history of sexual abuse. Mean age of children with CSA was 10.29 years with SD of 1.12 and all sampled cases reported history of penetrative sexual abuse by a male perpetrator. Mean age of children without CSA was 10.05 years with SD of 1.8. No statistically significant difference existed between the groups with regard to their age ($\chi2 = 8.62$, $P = 0.98 > 0.01$), socio-economic

status ($\chi2 = 7.62$, $P = 0.18 > 0.05$) or educational status ($\chi2 = 3.14$, $P = 0.08 > .05$). However, the two groups differed significantly in terms of gender where higher number of females (Female=81.37%; Male=18.63%) were there in the CSA group as compared to the non-CSA group (Female=38.71%; Male=61.29%).

Findings on Graphic Indicators

Graphic indicators of drawings were analyzed in terms of its gross features, features specific to upper body and lower body. The gross features included 14 broad indicators/features such as drawing of same gender figure first, age of the figure, size of drawing, introducing additional context to the figure, pencil pressure, shading, use of additional objects, distorted figure, stick figure, placement of drawing, disproportion body parts in the figure (disproportionate wasdefined in terms marked significantly out of proportion between the head and the body/upper and lower part of the body as perceived by the evaluator), rotation of the figure, use of eraser, and presence of clothing and button.

i) Gross Features

A total of 82.26% of non-CSA children drew figures of the same gender as theirs, whereas only 58.82% drew same gender in CSA group. The difference is statistically significant ($\chi^2=11.73$, $p<0.01$). Interestingly, 14.71% children were silent on the gender of the figure drawn by them. Further, 26.47 % of total females in CSA group drew opposite gender as compared to no male in the same group drew an opposite figure and result was statistically significant ($\chi^2 = 15.61$, $P <$

.00). Size of the drawing was usually small (30.39%) for CSA group, whereas in the non-CSA group, only 14.52% drew small figure. The difference was statistically significant ($\chi^2 = 10.30$, $P <$

.00). Significantly higher number of children in CSA group introduced additional context of the drawings ($\chi^2 = 5.79$, $P < .05$) as compared to the non-CSA group. There was marked distortion of the figure ($\chi^2 =$

5.45, P < .02) between two groups. And most children of the CSA group drew stick figures compared to non-CSA (χ^2 = 4.78, P < .03).

Placement of the drawings was either at left or top of the paper in the CSA group compared to non-CSA (χ^2 = 19.73, P < .00). Disproportionate body parts in the drawing were significant between two groups (χ^2 = 8.95, P < .05). Bonferroni correction indicated higher number of

disproportionate figures in the CSA group. Further children in CSA group drew the clothing but could not elaborate on the details of clothing (χ^2 = 36.20, P < .00). Transparency of the clothes and buttons on the clothes were significantly higher in the CSA group than non-CSA group (χ^2 = 11.13, P < .00; χ^2 = 9.70, P < .00). Thus, out of 14 broad gross indicators, CSA and non-CSA group differed significantly on 10 indicators.

ii)   Broad Features of Upper-Part of the Body Drawn

The broad upper part body features included 14 indicators such as upper body missing, headshape, eyes broad shape, eye structure, eye activity, eye lashes, ears, nose, mouth, neck, arms, hands, fingers, and   naval. Significant differences on five features were obtained between CSA and non-CSA while drawing the upper body.

Upon analysis, it was found that significantly higher number of children drew circle with dot for eyes in CSA group compared to non-CSA (χ^2 = 8.29, P < .05). Mouth was drawn by significantly higher number of children as straight horizontal line or convex line in CSA compared to non-CSA group (χ^2 = 13.51, P < .05). Neck was drawn either normally shaped with no anomalies and adequate size or too thin by children in case than controls (χ^2 = 11.76, P < .00). Arms have been drawn as a stick by significantly higher number of children in the CSA group (χ^2 = 10.54, P < .05). Omission of hands and fingers was significantly high (χ^2 = 6.31, P < .05) among CSA than non- CSA children.

iii)   Broad Features of the Lower-Part of the Body Drawn

Five broad indicators such as lower body missing, waist drawn, legs drawn, feet drawn, presence of genitals were included. Three significant differences were obtained. Firstly, depiction of waist, which was mostly by putting either a belt or drawn as line in CSA group as compared to the non- CSA (χ^2 = 9.04, P < .05). Secondly, length of the leg was disproportionately longer for most children in CSA group than children in non-CSA group (χ^2 = 8.24, P < .05). Thirdly, the distance between 2 legs was

disproportionately wide in CSA group ($\chi^2 = 15.60$, P < .00). Interestingly, however, no significant difference was found on presence of genital in the drawings of two groups.

Comparison between CSA and Non-CSA group indicated that only 1.8% of the total children explicitly drew genitals. Another interesting finding was the way genitals was depicted, where most children preferred to indicate genitals by round figures or flowers or some other design than anatomy itself. A total of 9.8% of children in CSA group and 4.84% in the non-CSA group drew these implicit indicators of genitals, although not differed significantly.

Thus, out of 33 broad indicators, the CSA and non-CSA group of children differed significantly on 19 indicators, i.e., more than 50% of indicators.

DISCUSSION

Two major findings (significantly higher number of **stick figure and distortion of figure**) in type of drawings have particularly emerged to be significant indicators in CSA group. This could indicate its association with a tendency towards avoidance of sexuality in children (Faller, 1988). Some art therapist here also borrowed analytic interpretation of elongated objects and stick from Freud's interpretation of dreams (1953) as indicators of possible sexual abuse (Kaufmann & Wohl, 2013). Secondly, **distortion of figure** as a significant finding obtained from the present study, was generally found to be associated with poor adjustment under stress in children (Britain, 1970). Wohl & Kaufman, (1986) indicated that children with sexual abuse may engage in spurious reproduction of the usual shape or form of an element, figure or object is altered way leading to distortion of figure.

Transparency of clothing has often been associated with the **interpretation of impulsivity**, **concretism, immaturity and acting-out** (Koppitz, 1968 and Machover, 1949), while Wohl & Kaufman (1986) consider this as reflection of **anxiety or conflict in the region** where it manifests. In CSA literature, this has been commonly reported as one of the sexual abuse indicators (Cohen- Liebman, 1995). This study thus confirmed both explanations.

Our finding of children in **CSA group drew more frequently the buttons on the shirt and top** which may be attributed to their need for dependency (Machover, 1949) more at that particular point of time due to medico-legal social-familial issues. Further, placement of the figure indicates in general what happened during the incident, the child's self-image and how he or she felt about others (Miller, Veltkamp & Janson, 1987; Wohl & Kaufman, 1986). **Top placement** is associated with **feelings of**

insecurity while left placement is associated with **state of tension and self-orientation** (Machover 1949). Bothhave been obtained to be significant in the present research. As the sample was age and socio-economic status matched, it was assumed that presence of CSA and its absence perhaps resulted in this difference. This study corroborated the findings of all other authors reporting placement as an indicator of anxiety and insecurity among CSA children. In addition, **drawing fence or ground line** as indication of need for support or help and ground line as depicting **insecurity** (Machover, 1949; Hammer, 1958).

In the upper body, one of the first striking and significant findings pertains to **eyes which have been mostly drawn as circle with dot by the CSA group**. Though, Machover's system of interpretation considers the depiction of eye as either circle indicating immaturity and only a dot as ideas of reference, the combined depiction has been a novel finding and hence needs further exploration in a larger sample. Further, **depiction of convex line** indicating a happy face has been a striking finding in the present study and has not been explored much in the literature. The finding of **thin neck** was perhaps an indication of difficulty in maintaining control of sexuality. Lastly, **hand and fingers omission** were significant in drawings by the CSA group, which has been one of the most commonly reported sexual abuse indicator in the CSA literature (Abbenante, 1983). Multiple plausible explanations have been discussed for the same where victims of sexual abuse have been perceived to be feeling greatly stressed and guilty about the activities of their hands as well as the perpetrator's hands, thus accounting for the omission. In addition, Buck (1981), DiLeo (1983), Hammer (1981), Koppitz, (1968), and Urban (1983) have all suggested thatthe omission of hands and fingers indicated feelings of inadequacy and helplessness. Third, numerous researchers (Buck, 1981; DiLeo, 1983; Hammer, 1981; Koppitz, 1968; Urban, 1983) have linked the exclusion of hands and fingers in DAPs with poor self-esteem. Poor self-esteem has been identified as a residual characteristic in victims of sexual abuse (Burgress, 1974; Finkelhor, 1984; Herman, 1981; James & Meyerding, 1977; Lustig, Dresser, Spellman & Murray, 1966; Meiselman, 1979).

For the lower body, significant findings were obtained for two bodily features. First, the emphasized **waistline with a line or belt by most children in the CSA group**. Waistline emphasis has been associated with control over bodily impulses, primarily sexual in nature (Machover, 1949, Buck, 1966; Urban, 1963). This conflict between control and bodily drives is accentuated in children who have been sexually abused (Sgroi, 1982). The second finding pertained to the strikingly **long and disproportionate and widely spaced legs**. Long legs have been associated with a strong need or striving for autonomy

(Buck, 1948, Hammer, 1981; Urban, 1963). The interpretation of widely apart legs can also be viewed as one of the covert manifestations of sexual abuse. Upon enquiry from a child regarding a drawing and also keeping her legs with wide gap while drawing, she explained that since during abuse, father used to ask herto spread her legs as much as she can, she is doing the same whenever talking about the incident. Though, this observed behaviour in one child may be a rare case and was not manifested by other children with CSA, it emerged as a significant finding in contrast to non-CSA group and hence needs further exploration.

Clinical Implication of the Findings

The objective of the present research was to develop a list of bio-markers to sensitize professionals in identifying the indicators of CSA through drawings. Additionally, subjectivityand cultural differences occurs in interpretation of drawings such that what is considered usual for a child's sexual knowledge in one time period, geographic region, or socioeconomic division may have been considered to be unusual, years before, in a neighboring area, or different economic bracket (Hagood, 1992). Thus, it is most urgent to provide the culturally relevant list of indicators for CSA in India. However, many of these were novel findings and are in need for further exploration in India or outside. The authors also consider the possibility for false negative statistical inference and lack of rigorous inter-rater agreement (more than 2). Moreover, factors such as developmental ability and underlying mental health condition of each child were not closely considered in the present research. Hence, clinicians are warranted towards solely relying on occurrence of these indicators as definitive diagnostic decisions to ascertain CSA, but it must alert the clinician to the possibility of such abuse (Hibbard, Roghmann & Hoekelman, 1987; Malchiodi, 1990; Sidun & Rosenthal, 1987). Moreover, since the findings were preliminary, present research needs further extension of this with larger sample size to indicate or confirm definite presence of certain red flag indicators to confirm sexual abuse in young children in India.

CONCLUSION

In view of non-existence of any Indian culture specific study, the present study offers important clinical implications to the clinicians to consider possible 19 broad indicators in drawings of children with CSA. This brings forth various significant debates in the drawing literature like culture-specific meaning attached to each indicator, extent to which we can rely on these indicators as diagnostic, role of culture in determining the nature of drawings of Indian children and its clinical relevance.

IMPLICATIONs: RED FLAGS/WARNING INDICATORS FOR FURTHER CLINICAL EVALUATIONS TO RULE OUT SEXUAL ABUSE

The following mentioned broad indicators of penetrative sexual abuse in children is sample specific, hence should be clinically correlated:

1. Disproportionate body parts and distorted figure
2. Thin neck
3. Hand and fingers omission
4. Emphasized waistline with a line or belt
5. Transparency of clothing,
6. Strikingly long and disproportionate and widely spaced legs
7. A female child drawing a male figure,
8. Drawing fence or ground line or context to the figure

These are few suggested broad markers or indicators of penetrative sexual abuse in a child aged 5- 12 years. DAPT administration has to follow the correct instructions before we look for these indicators.

RECOMMENDATIONS:

Target Professionals: Psychologists/Social-Workers/Professionals working with children.

1) **Instruction for conducting DAPT test:**
Take a plain white A-4 sheet, pencil, and eraser. Ask the child to draw a human figure. If child the child asks boy/girl or child/adult, big/small etc. tell him/her anything you want to draw but draw a human being or a human figure. Tell the child that this is not a drawing test or test of your drawing skills, so feel free to draw any human figure.

2) There are 8 indicators mentioned above. And if multiple (at least any 5 out of these 8 indicators) indicators are there in the child's drawing (in absence of any mental and behavioural disorder/disability e.g intellectual disability or suspected low intelligence), then the child should be suspected for CSA.

3) If the child is above 5 years inappropriate touch can be explored and then should be clinically evaluated for sexual abuse.

4) DAPT test can also be repeated on other days to see the pattern in child's drawing and then if the indicators remain in all drawings, then CSA should be suspected.

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