Volume 20
No.2
December 2021

BRAINCHILD

The Official Publication of HKCNDP
Special Issue on Child Protection

香港兒童腦科及體智發展學會
The Hong Kong Society of Child Neurology and Developmental Paediatrics

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Website : www.hkcndp.org

Printer : Printhouse Production Center Limited
Flat A, 15/F, Gee Luen Hing Industrial Building, 2 Yip Fat Street,
Wong Chuk Hang, Hong Kong

Our appreciation of thanks to Jonathan Ng for the cover drawing "Flying with Chagall"

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www.hkcndp.org
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The Hong Kong Society of Child Neurology & Developmental Paediatrics

EDITOR'S NOTES for the December 2021 Issue

BrainChild on Child Protection – Editorial

Dr. Kwing Wan TSUI

In this issue of BrainChild, our Society will bring you articles on updates of Autism Spectrum Disorder (ASD).

I am most happy to present to you articles on various aspects related to child protection in this issue of BrainChild. Dedicated health care workers, namely paediatricians, clinical psychologist and social work officer contributed excellent articles to share their work, experiences and knowledge in this area. As most of us are frontline health care workers, we will inevitably encounter families which may involve in psychosocial difficulties or parents with mental health problems, and it is our primary objective to provide safeguarding for the children. With the equipped knowledge and skill as well as awareness of available resources in the community, we should be more confident in providing the best welfare for these unfortunate children, their parents and families.

There are four categories under the Hong Kong child abuse registry, namely physical abuse, neglect, sexual abuse and psychological abuse. One should not overlook the importance of illicit substance use in parents and other family members. We have a few articles in this issue emphasized on the adverse effects of prenatal substance use on developing brain, neonatal drug screening and holistic program for drug abusing parents. With better knowledge in this area, health care workers will be able to provide timely intervention by prompt identification of the affected children and anticipation of potential effects on neurodevelopment.

Comprehensive Child Development Service(CCDS) established in 2005 is one of the important steps forward to provide prevention and early intervention of child maltreatment in high risk groups, including teenage mothers, mothers with substance abuse and mothers with mental illness or postpartum depression. Through holistic approach under a multidisciplinary team, the mothers are engaged from early stage of pregnancy and their children are follow up during the early years. Thanks to our authors and their teams, CCDS has done extensive works for abstinence of illicit substance to prevent harmful effects on foetal brain during pregnancy, optimizing mental health of mother for a nurturing parent-child interaction, early detection developmental issue of the children and early identification and intervention of child maltreatment.

I would like to thank all the authors who contributed to this issue of BrainChild and members of the editorial board who spent their valuable time and efforts to make publication of this issue successful.

Dr. Kwing Wan TSUI

President
The Hong Kong Society of Child Neurology and Developmental Paediatrics

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Comprehensive Child Development Service (CCDS): Effective Handling of Infants of Substance Abusing Mothers and their Families – From Early Identification and Intervention to Child Protection

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Introduction

Comprehensive Child Development Service (CCDS) was started off as a Hong Kong Government Child Development Pilot Project as mentioned in the Policy Address 2005. The aim of CCDS is to reduce intergenerational poverty by early identification and holistic management of at-risk children and families in order to improve the developmental outcome of those at-risk children so as to break the vicious cycle of intergenerational poverty.

CCDS was firstly piloted in PMH in 2005. It is an integrated, interdepartmental, multidisciplinary service for children of high risk families. CCDS is characterized by being child-centered and family-focused.

The high risk groups served by CCDS includes children of: (1) substance abusing (SA) mothers, (2) mothers with history of mental illness or postnatal depression, and (3) teenage mothers

The departments involved in the integrated service of CCDS include:

- Hospital Authority: Department of Paediatrics, Obstetrics and Psychiatry
- Department of Health: Family Health Service
- Social Welfare Department: Integrated Family Service Centre (IFSC)

It was a traditional belief that babies born by substance abusing mothers were at high risk of congenital abnormalities, delayed development (due to in-utero exposure of developing brain to illicit drug) and suboptimal child care (due to the chaotic lifestyle of the mothers). Therefore, the initial service model of CCDS involved the integration of service from Obstetricians and Paediatricians to take care of the antenatal health and postnatal health and support for development of the infants; while IFSC were supposed to provide social and child care support to the high-risk families. However, due to limited information and data about the characteristics and service needs of this group at-risk children and families in Hong Kong before the pilot of CCDS, substance abuse treatment service and child protection service were not included as formal service partners of CCDS.

With the rollout of CCDS for more than 10 years, more and more outcome data had shown that the initial service model for CCDS may not be comprehensive enough to match all the service needs of these high risk families. This article will try to bring us through the evolution of service models, from 'Maternal-and-Child-Welfare Service Model' to the

new 'Child Protection Service Model', used in CCDS services for infants and families with substance abusing (SA) mothers.

Adverse effects of maternal drug abuse on their babies

According to literature review, there has been a major change in conceptual model about the adverse effects of maternal drug abuse on their babies from the traditional 'teratology model' to the current 'multiple-risk model'[1]. It has been shown that, in fact, not many of drugs-of-abuse are directly associated with congenital anomalies of the babies. But, instead, it is the multiple risk factors of the mothers and families that contribute to the poor developmental outcome of the children. Those multiple risk factors include: type, amount, and timing of drug abuse during pregnancy; postnatal caregiving environment; medical complications in neonatal period; and, social and lifestyle disadvantages of the mothers such as: poverty, poor family support, cigarette smoking, alcoholism, polysubstance abuse, poor nutrition, multiple sex partners, sexual transmitted disease, unplanned and repeated pregnancy, and comorbid mental illnesses[1].

How do maternal risk factors affect developmental outcome of their babies?

Recent studies showed that early childhood brain development can affect the trajectory for long term cognitive and social-emotional outcomes[2]. On the other hand, it has been well-known that responsive parenting is the most important factor leading to healthy early childhood brain development[3]. Therefore, a mismatch between multiple negative experience and maladaptive behaviours of the SA mothers and the frequently confusing constellation of signs and symptoms of abstinence and neurobehavioural dysregulation of the infants, will lead to later developmental, behavioural and emotional problems of the children[1].

Strategies of CCDS

Since most of the adverse psychosocial factors are modifiable and pregnancy is a window of opportunity for change, early identification and provision of multidisciplinary and user-friendly services to these high-risk families will theoretically lead to a better developmental outcome of their children.

The birth of a new community paediatric service model for CCDS

BEFORE the establishment of CCDS

Infants of heroin abusing mothers were followed up in the neonatal clinic for growth and development. In addition, they were also enrolled in the universal child health and vaccination program of Maternal and Child Health Centre (MCHC). However, according to the statistics review for the period between Jan 2002 to Dec 2004 by Clinical Data Analysis and Reporting System, the follow-up rate for those infants of heroin abusing mothers in the neonatal clinic in Princess Margaret Hospital (PMH) was 46.8% only.

On the other hand, a Pre-CCDS surveillance for health and developmental conditions of children of methadone using women in SARDA was conducted in Sham Shui Po methadone clinic. Results showed that this group of children had vaccination rate of only 77% and

around 25% of them had developmental problem[4].

From the limited data of these statistic review and surveillance, the service gaps for infants of SA mothers were identified as follows:

1) High default rate of child health services
2) Incomplete or delayed vaccination
3) Developmental or behavioural problems

The establishment of CCDS

Targeted to the above mentioned service gaps, CCDS adopted a 'New Community Paediatric Service Model' which is characterized by community-based, child-centred, family-focused, integrated, and multidisciplinary services. High-risk families are identified by midwives in antenatal clinic. Then, the families will be followed up by multidisciplinary team including: midwives, psychiatric nurses and psychiatrists, paediatricians , and social workers. After the babies are born and discharged from hospital, they will be followed up by paediatricians in the CCDS clinics located in MCHCs. This service model improves the accessibility and acceptability of the service with the aim to improve the engagement and compliance to follow-up of these families.

In summary, the objectives of CCDS are:

1) Early identification of pregnant women with substance abuse habit and provides early intervention and support
2) Improve engagement in follow-up
3) Modify high risk behaviour of the mothers and empower them for proper parenting
4) With the ultimate objective of improving the developmental outcome of infants of substance abusing mothers

Integrated multidisciplinary services for infants and families with SA mothers

The Society for the Aid & Rehabilitation of Drug Abusers (SARDA) was the first NGO to collaborate with CCDS in providing 'Integrated Services for methadone using pregnant women and their infants'[4]. With the recent increase in prevalence of soft drug abuse, CCDS has also liaised with Counseling Centre for Psychotropic Substance Abusers (CCPSA) to provide similar kind of integrated service for soft drug abusing mothers and their infants since 2013 in PMH CCDS.

One of the very important elements within this integrated multidisciplinary service is the multidisciplinary welfare meeting for the child which may take place before or after the child is born. This multidisciplinary welfare meeting involves the participation of Paediatrician, CCDS midwife, paediatric nurse, medical social worker, family social worker, social worker for drug abuse treatment service, and parents and relatives. Thorough investigations, discussion, risk assessment and welfare planning for the child will be made. And a clear multidisciplinary follow-up plan will be drafted up for comprehensive and coordinated follow-up of the family.

What did we learn from the past experience of CCDS?

A review was done in PMH CCDS for children born before CCDS and after CCDS (children born in 2006-09 and born in 2011-14) comparing the outcome of infants of SA mothers before and after the introduction of CCDS[5]. Results showed that there was a significant improvement in the engagement of families in the service with a much higher follow-up attendance rate; almost all children completed their childhood vaccination; a continuous improvement in developmental outcome; and nearly 80% of the SA mothers were detoxified after enrolling in CCDS service. The review also showed that children of SA mothers who were detoxified can achieve a close-to-normal developmental outcome.

Service gaps for families with Problematic SA mothers leading to a change in service model from 'Maternal-and-Child-Welfare Service Model' to 'Child Protection Service Model'

However, about 20-30% of the SA mothers were unable to detoxify even after intensive counseling services of CCDS. This group of problematic SA mothers is classified as 'Severe Substance Use Disorder' according to DSM 5 (Fig. 1)[6]. These problematic SA mothers have different help-seeking behaviour with poor insight, denial of their problems, refusal of treatment and social support, and high default rate. Their undesirable behaviour and chaotic lifestyle pose a very high risk of exposure of their infants/children to dangerous drug, child neglect and domestic violence, all of which will lead to poor health and developmental outcome, physical injuries, poisoning and even death of their children.

Figure 1: DSM 5 Criteria for Substance Use Disorder

DSM 5 – Substance Use Disorder

1. Using for longer periods of time than intended, or using larger amounts than intended;
2. Wanting to reduce use, yet being unsuccessful doing so;
3. Spending excessive time getting/using/recovering from the drug use;
4. Cravings that are so intense it is difficult to think about anything else.
5. People may continue to use despite problems with work, school or family/social obligations. This might include neglect of children, or failure to meet household responsibilities.
6. Continues substance use despite having interpersonal problems because of the substance use.
7. Important and meaningful social and recreational activities may be given up or reduced because of substance use. A person may spend less time with their family.
8. Repeatedly uses substances in physically dangerous situations. For instance, using alcohol or other drugs while operating machinery or driving a car.
9. Continue to use addictive substances even though they are aware it is causing or worsening physical and psychological problems.
10. Tolerance
11. Withdrawal

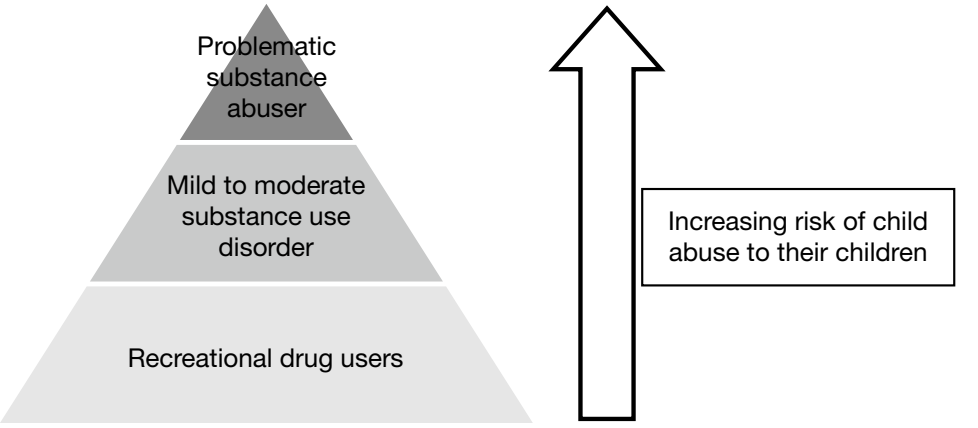
Diagnosis:

Mild substance use disorder: 2-3 criteria met

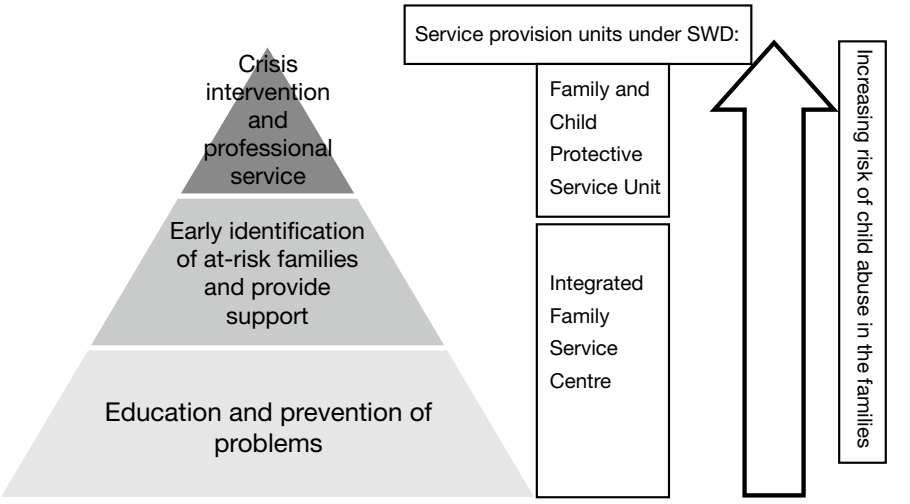
Moderate substance use disorder: 4-5 criteria met

Severe substance use disorder: 6 or more criteria met

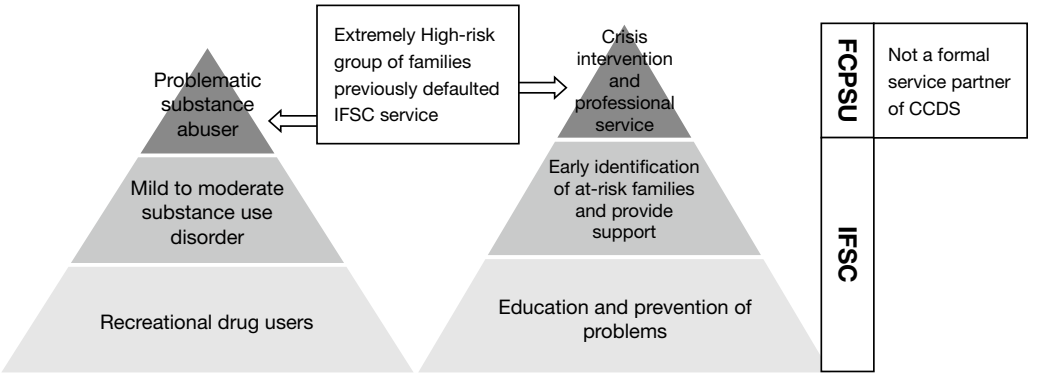
The prevalence and risk of this group of mothers with substance use disorder can be well represented by a pyramid diagram:



In fact, there is a comprehensive child protection service in HK[7] which is based on the level of risk of child abuse in the families, which can also be well represented by a pyramid diagram:



This risk-based child protection service of Social Welfare Department (SWD) matches well with the different service needs of families with SA mothers with difference in risk of child abuse.



According to the original 'Maternal-and-Child-Welfare Service Model' in which family support and follow-up were mainly provided by IFSC, the only designated social service partner within the CCDS program was IFSC. However, as shown by the past experience of PMH CCDS, those families with very high risk of child abuse (families with problematic SA mothers) commonly defaulted the service of IFSC. Therefore, the work of Family and Child Protective Services Unit (FCPSU) should properly fill up this service gap of the 'Maternal-and-Child-Welfare Service Model'.

Since the previous 'Maternal-and-Child Welfare Service Model' cannot tackle the problems of these extremely high risk families, a new 'Child Protection Service Model' was first introduced in Princess Margaret Hospital in 2015. The features of this new 'Child Protection Service Model' include: (1) risk-factors-based newborn urine test for drug-of-abuse for early identification of problematic SA mothers; (2) referral of newborns with urine positive for drug-of-abuse for multidisciplinary case conference for child protection (MDCC); (3) application of Care or Protection order for extremely high risk infants with uncooperative parents; (4) multidisciplinary professional services with inclusion of drug abuse treatment service for SA mothers[8].

One of the important elements of the new 'Child Protection Service Model' is the introduction of formal MDCC and the possibility of application of Care or Protection Order (child protection law) to ensure proper child care arrangement for those high risk parents who are uncooperative to medico-social follow-up.

Our experience of close relationship between children's developmental outcome and detoxification status of the mothers led us to include drug abuse treatment service for the mothers in the welfare plan of the children. Drug abuse treatment service became one of the compulsory requirements for assessing the mother's fitness for child care during the whole process of integrated management of these high risk families.

Review of outcome of infants of problematic SA mothers before and after the change to Child Protection Service Model

CCDS in Princess Margaret Hospital (PMH CCDS) is unique in a sense that it was the first hospital to pilot the CCDS. Therefore, it was also the first hospital which identified the new service gaps that required modification of service model. That is why the 'risk-factors-based newborn urine test for drug-of-abuse for early identification of problem SA mothers' was first piloted in PMH in 2013. At that moment, substance abuse during pregnancy was not yet regarded as a risk factor that justified MultiDisciplinary Case Conference for child protection (MDCC). Therefore, in PMH, there was a group of children of problematic SA mothers (identified by newborn urine toxicology testing) who were managed by the old 'Maternal-and-Child-Welfare Service Model' in 2014, before the formal introduction of the new 'Child Protection Service Model' in 2015 in PMH.

A Review was done in PMH CCDS comparing the outcome of infants of problematic SA mothers before and after the Child Protection Service Model[8]. The outcome parameters for comparison included: (1) Early adverse outcomes: global developmental delay or death within first year of life, and (2) Detoxification rate of the mothers. Results showed that infants of problematic SA mothers who were managed by old service model had a high

chance of early adverse outcome (33%) as compared to 0% in the new service model group. The detoxification rate of the mothers was also much higher for families managed by the new Child Protection Service Model (42% in old model group vs 73% in new model group).

As a conclusion, with the evolution from 'Maternal-and-Child-Welfare Service Model' to the new 'Child Protection Service Model', children and families with problematic SA mothers have a much better compliance to follow-up, safer child care arrangement, higher detoxification rate of mothers, and improved outcome of the children.

Conclusion

Since the introduction of service in 2005, CCDS has accumulated a lot of experience about the health and developmental outcomes of infants and families with SA mothers. Reviews on the service outcomes have shown that CCDS has achieved all the objectives set out during introduction of CCDS. On the other hand, CCDS encountered a lot of difficulties especially when dealing with a group of mothers with 'severe substance use disorder'(Problematic SA mother). Infants born in these very high risk families are in extremely high risk of child neglect and poor health and developmental outcomes. To tackle these problems, more service partners have been involved in CCDS services for these very high risk families, especially the child protection service and those services with special focus on pregnant-women-specific drug abuse treatment. Moreover, a major change in service model has been made in order to achieve a proper coverage of child protection for the very high risk infants of problematic SA mothers. Hopefully, this kind of continuous quality improvement in CCDS can prove to the government that there is a pressing need for a formal expansion in the structure and funding for CCDS so as to include the important components of child protection and substance abuse treatment service for families with substance abusing parents.

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Prenatal Substance Use on the Developing Brain – How Addiction is Affecting Attachment and Maternal Behaviour

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Substance use by women in pregnancy has adverse effect on the mother, mother-infant attachment, parenting capacities and child development. Co-existing risk factors are maternal psychiatric disorders, poverty, social isolation, domestic violence and history of trauma in the mother. Majority of women struggling with substance use disorders are of reproductive age[1]. Polydrug use is common among drug abusers[2]. Although some women may abstain from substances during pregnancy, many resumes in the postpartum period. Research suggested that the stress associated with parenthood may become a risk factor for relapse in substance-using parents[3-5]. Even though the mother may cease to use substance after confirming pregnancy, the fetus invariably has been exposed to the effect of the drug(s) in-utero for varying duration and dosage. Emerging scientific evidence have identified major pathways in the brain that are affected by addictive substances[6]. Intriguingly, these pathways are also highly pertinent to attachment formation.

1 Barker's Fetal Origin Hypothesis

Barker's Fetal Origin Hypothesis proposes that the gestational environment strongly influences future outcomes[7]. The effects of fetal origin are marked by three characteristics: latency, persistency and genetic programming. Firstly, the effect of prenatal substance use may not be apparent until much later in life. Secondly, the effect to a child's health and development can remain for many years. Thirdly, substance may alter the prenatal environment experienced by a fetus and affect the genetic programming of a fetus by "switching on" or "switching "off" of genes[8]. Barker suggests that the intrauterine environment prepares a fetus to adapt to the extrauterine world. Essentially, all matter entering the placenta act as clues to the fetus about the outside world, preparing its physiology appropriately. Importantly, it is of survival advantage to the fetus if fetal conditions accurately represent the world of birth; however, if fetal conditions do not match the real world, the maladaptation, depending on the duration of exposure, can be harmful in the long run.

2 Prenatal substance exposure and child development

According to the statistics from the Central Registry of Drug Abuse in 2018, the most frequently used substances in Hong Kong women were cocaine, methamphetamine and heroin1. Methamphetamine and cocaine are potent stimulants of the central nervous system. In general, stimulant use during pregnancy increases obstetric complications for the mother, increases the rate of preterm birth and decreases birth weight, length and head circumference for the exposed infant. No consistent signs of neonatal abstinence syndrome requiring pharmacological treatment have been identified for methamphetamine or cocaine. However, infants exposed to one or both drugs exhibit disorganized neurobehaviour at birth[9,10].

2.1 Methamphetamine (MA)

In earlier studies, MA use in pregnancy has been associated with an increased incidence of congenital anomalies. These initial reports were limited by reliance on hospital records, retrospective analysis, small sample size and lack of adjustment for confounding factor[s11]. In a meta-analysis of eight studies, MA use during pregnancy was associated with earlier gestational age at delivery, lower birth weight and smaller head circumference[12]. Studies in preclinical model suggested that the timing of MA exposure during gestation influences outcome[11].

Several studies using neuroimaging to assess structural brain development of children 7-15 years old with prenatal MA exposure have demonstrated alterations in striatum and frontal lobes with sex differences. Prenatal MA exposure may lead to 1) rewiring of cortico-striatal networks, 2) a differential effect in male and female, 3) changes that persist into late childhood and adolescence and 4) structural differences that are correlated with cognitive and functional differences[13].

The Infant Development, Environment, And Lifestyle (IDEAL) Study was the first prospective, longitudinal controlled study examining effect of prenatal MA exposure on children. The covariates included race, socioeconomic status, insurance, partner status, maternal education, gender, prenatal exposures including alcohol, tobacco and marijuana, maternal age, birth weight, birth length, birth head circumference and gestational age. The study design allowed for the use of multivariate statistical techniques, and it also accounted for context of home environment and characteristics of the primary caregiver[11].

Exposed children were documented to have more difficult temperament at one year old[11] and higher emotional reactivity at three years old[14] At five years old, they had higher risk of ADHD[15] and were 2.8 times more likely to have parent-reported cognitive problems[16].

Children with more responsive home environment to developmental and emotional needs demonstrated lower risks for internalizing and externalizing behavior. Increased psychological symptoms and parenting stress in primary caregivers were associated with increased child behavioural problems. These findings highlight the importance of interventions that address both the child and primary caregiver needs in order to optimize child outcome[11].

2.2 Cocaine

The most compelling finding to date of the adverse effect of fetal cocaine exposure on infant development is that of intrauterine growth retardation. Apart from the direct cocaine exposure in utero, exposed babies are often born prematurely as a result of cocaine induced constriction of uterine blood vessels, producing acidosis and possible asphyxia, which is further complicated by contraction of the uterus. Abrupt uterine contractions are considered one reason for the higher rate of spontaneous abortions and placental abruptio. In addition, the fetus might also suffer from serious complications like cerebral infarction.

Neuspiel and Hamel(1991) have outlined five potential mechanisms for cocaine's effects on infant behaviour. Down-regulation of neurotransmitter receptors may result in defective synaptic development. Cerebral hypoxia, can bring about aberrant neurological development. Vascular disruption prenatally has been related in some cocaine studies to malformations in offspring. Fetal malnutrition, mediated by prematurity or maternal malnutrition, may result in growth retardation or microcephaly. Specific areas of the fetal brain may be affected by cocaine exposure, instigating alterations in cerebral activity or structure that negatively affect development[17].

Maternal Lifestyle Study(MLS) evaluated the effect of prenatal substance exposure on childhood behavioral problems using the Childhood Behavioral Checklist at ages 3, 5 and 7. After controlling for confounders (including other drug use), internalizing, externalizing and total behaviour problem score were significantly higher for exposed children. The effect persisted to at least 7 years old. Mediation analysis revealed child's living environment was a significant mediator for the relationship between prenatal cocaine exposure and behavioural outcomes[18].

Singer et al showed that prenatal cocaine exposure(PCE) was not associated with lower full-scale, verbal, or performance IQ scores, but was associated with an increased risk for specific cognitive impairments such as poorer visual-spatial skills and arithmetic skills, and lower likelihood of IQ above the normative mean at 4years old. More importantly, a better home environment was associated with IQ scores for cocaine-exposed children that are similar to scores in non-exposed children. Foster or adoptive care was also associated with a lower occurrence of mental retardation despite heavier prenatal exposure, suggesting early environmental intervention can prevent mental retardation for some cocaine-exposed infants[19].

In school-aged children above 6 years old, association between PCE and growth, cognitive ability, academic achievement, and language function were small and attenuated by environmental variables. PCE had significant negative associations with sustained attention and behavioural self-regulation even with covariate control. Consistent with findings among preschool-aged children, environmental variables play a key role in moderating the effects of PCE on school aged children's functioning[20].

In a longitudinal study of PCE till 10 years old, first trimester cocaine exposure predicted decreased weight, height, and head circumference at 10 years. First trimester cocaine use also predicted maternal ratings of less sociability and more withdrawn behavior problems[21].

3 Adverse Childhood Experiences (ACEs) and addiction: the story that repeats itself

There is evidence that substance abuse in mother may affect infant development both directly, via in utero exposure, and indirectly via alterations in maternal care. Habitual pattern of drug-seeking and drug consumption absorb a large amount of time and attention in substance-using mothers, leading to significant functional impairment in meeting responsibilities at home, school and work. Psychosocial risk factors like poverty, maternal

depression, single parent status, parent's own traumatic past, domestic violence and child maltreatment almost always occur in combination to complicate the situation. Problematic parenting styles--abusive and neglectful, ambivalent and incoherent, passive and permissive, or intrusive, can aggravate the insecure attachment between the mother-child dyad[5]. The need to satisfy adult's expectation and mother's inability to fulfill parental role may lead to role reversal in mother-child dyad[5]. Out of home care, be it multiple foster homes or small group home placement, might be the eventual option for these children. Children with prenatal substance exposure had a much higher frequency of child protective services referrals (OR 48.9)[18]. Between 43-70% of children victims of maltreatment have at least one parent with addiction problems, and mothers who abuse substances are two or three times more at risk of maltreating their children or losing custody[5].

Accumulating evidence from both preclinical and clinical laboratories indicate that early failures in parental care have a compromising and enduring impact on the stress regulatory capacities of children. Children become more vulnerable to stress and a range of psychopathologies including substance abuse.

The Adverse Childhood Experiences (ACEs) Study has examined retrospectively recalled traumatic experiences that occurred during the first 18years of life. ACE categories include multiple forms of abuse (physical, emotional, and sexual), neglect (physical and emotional), parental separation or divorce, household violence, substance use, mental illness, and incarceration. An examination of the relationship between illicit drug use and ACEs found that each ACE experience increased the likelihood of early initiation of drug use 2 to 4-fold, while people with≥ 5 ACEs were 7 to 10-fold more likely to report illicit drug use, addiction to illicit drugs, and drug use by parents[22].

4 Attachment and addiction

According to Bowlby's attachment theory, humans are inherently predisposed to form attachment relationships to their primary caregivers, particularly the mother. These attachment relationships serve to protect the child. According to the Dynamic-Maturational Model of Attachment and Adaptation, the organization of attachment continues across one's lifetime as a means of (1) adapting to adverse environments and strategically protecting oneself from danger; and (2) ensuring reproductive success[23].

Many factors can hamper attachment formation between substance-using mother and their infant. Firstly, physical absence due to significant higher risk of medical complications such as placental abruptio, psychiatric and emotional disorders[18]. Secondly, reduced emotional availability due to comorbid or acute onset of mental health issues such as depressive or manic episodes in the postpartum period. Thirdly, reduced opportunity to breast feed the infant as many substance using mothers are advised against breast-feeding. Breast-feeding is a very potent mechanism to facilitate attachment. In addition, substance using mother, compared to non-using mother, are observed to be less responsive to infant cues[24].

Swanson et al showed that insecure attachment patterns are common in groups of drug-abusing women's children with rates of 68% higher than what has been found in groups of

children exposed to other maternal psychopathological disorders(55%), poverty(45%), and prematurity(39%)[25].

Virtually all drugs of abuse have common effects, either directly or indirectly, on a single dopamine-activated pathway deep within the brain—the mesolimbic reward system[6]. Activation of this system appears to be a common element in what keeps drug users taking drugs. The brain of addicted person differs with normal individual in metabolic activity, receptor availability, gene expression and responsiveness to environmental cues[6] Chronic drug use induces pervasive alterations in brain function that persist long after the individual ceases to take drug.

Data indicated that addiction mechanisms involve same neural circuitries responsible for the initiation and expression of maternal behavioral cues. Specifically, addiction is associated with dysregulation of the balance between reward and stress neurobiological systems, which both undergo significant changes during transition to parenthood[5].

Recently, advances in neuroimaging have shown that attachment cues stimulate neuroendocrine response systemically that facilitate attachment forming between mother and infant dyad. The attachment cues can be as simple as the baby's smiling and crying face. Such neural and endocrine responses involve activation of three neurobiological systems: (1) dopamine-related reward system, (2) oxytocin-related affiliation system, and (3) glucocorticoid-related stress-response system, which pathways are also implicated in the neurobiology of drug addiction[23].

The mechanism for cocaine involves similar dopaminergically regulated reward systems in the brain that overlap with those identified as key to the initiation of adult parenting behaviors (e.g. amygdala, hippocampus, striatum)[26].

Oxytocin plays an important role in facilitating the onset, rather than maintenance of maternal attachment[27]. In postpartum mothers, cocaine exposure during pregnancy was associated with decreased oxytocin in plasma relative to mothers not using substance during pregnancy.

Kim et al has demonstrated that mothers with unresolved trauma and/or substance abuse show a different brain response pattern in both dopamine reward and oxytocin-associated affiliation pathways, when viewing pictures of their infant's face[28].

In humans, decreased responsiveness and sensitivity in early caregiving have been correlated with prolonged or exaggerated increase in cortisol in response to stress, whereas secure parental attachment has been associated with lower cortisol levels in response to stress[23].

Altered glucocorticoid and hypothalamic-pituitary-adrenal (HPA) responsiveness may contribute to etiology of mental disorder like anxiety disorder, post-traumatic stress disorder and addictive disorder. Numerous studies connect stress dysregulation and HPA dysfunction to substance addiction[3,23,29-31].

5 Intergenerational transmission of risk in substance abuse families

Epigenetics refers to the study of the behavior of genes, and how gene expression can be altered by the environment without changes made in DNA. This is believed to be particularly possible during prenatal development, and stress can cause changes to a fetus. Once the gene expression is altered in an individual, the gene can be passed down generations[8].

There is growing evidence to suggest that parental addiction may be transmitted intergenerationally, where the child of parents with addiction problems is more likely to experience addiction as an adult. Animal and human studies examining how compromised early experience, including insecure attachment, early abuse/neglect, and unresolved trauma, may influence the development of neurobiological pathways associated with addictions, ultimately increasing one's susceptibility to addictions later in life[24,32-34].

6 The way forward

Current treatment strategies for substance use disorder tend to focus on the individual and the cessation of substance use, rather than the developmental and social processes that may perpetuate addiction. Contrary to the common belief that motherhood and drug use are incompatible, empirical evidence attest that drug addiction does not fully or always compromise parenting. A healthy caregiving relationship can be preserved despite the addiction. Several studies highlight that lack of association between substance use and poor parent-child interactive style[17,35,36]. As a matter of fact, pregnancy and motherhood may act as motives to seek treatment5.

Attachment-based parenting intervention model for substance using women, which targets the quality of relationship between substance using mother and their young children, has been showed to be effective in reducing substance use[37]. Attachment-based intervention models have two main goals: to reconstruct dysfunctional parent-child attachment and improve child's developmental trajectory. The rationale lies in recognition of children's role in facilitating their mother's treatment, rather than assuming children as indirect benefactors from treated parents[24]. Such developmental approach shifts the focus in addiction treatment from an intervention to a preventive model. It provides a novel way to consider how to break the cycle of addiction for the next generation.

7 Conclusion

Substance abuse alters the brain. The different brain state in a mother, compared to a non-substance using women, affects attachment, maternal behavior and caregiving capacities. The understanding of the neuroendocrine pathways involved in maternal behavior and addiction drives interventional models that help substance abusing mothers and their infants. The acceptance of the fetal origins hypothesis idea would have radical implications for individual decisions and policy alike. The optimal time to intervene to improve children's life chances may be before they are born, and perhaps before mothers even realize they are pregnant[38].

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A Holistic Parent Counselling Education and Support Program for Drug-abusing Parent

Comprehensive Child Development Service in Kowloon East Cluster in collaboration with local resources

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Infant and childhood development:

There is increasing recognition that infancy is a foundational developmental period during which crucial neurological and psychological competencies are established.

Parents with risk factors such as mental disorders*, substance abuse*, teenage pregnancies* and other social adversity such as family violence* are a group warranting increased support and attention to their parenting capacity and understanding of the emotional and developmental needs of the infant. A positive reciprocal parent-infant relationship is the foundation from which infants learn to modulate affect, soothe themselves and relate to others.[1] Supporting parents/carers to be attuned, sensitive and responsive in their caregiving promotes secure attachment. The Attachment Theory describes how these early relational experiences shape a child's concepts of self, others and the world in positive and negative ways.[1,2,3]

*These are the at-risk pregnancy groups to be recruited in Comprehensive Child Development Service in Kowloon East Cluster.

Drug-abusing parent:

Maternal substance use can cause and does cause serious harm to children from conception to adulthood. The harms are multiple and cumulative, depends on the frequency, timing and type of substance used by pregnant women, co-occurring environmental deficiencies and the prenatal care received; and the impacts vary according to the child's growth and developmental stage.[4] Substance- abusing mothers are preoccupied with drugs which compromise her ability to provide consistent, warm and emotionally responsive parenting to their children. Their children are more likely to suffer from child abuse and neglect, affecting their normal physical and emotional growth. Parental substance abuse has also shown to be related to disorders of psychological and behavioral development in children.[5,6]

Comprehensive Child Development Service (CCDS) in Hong Kong

In order to address the developmental needs of young children from 0 to 5 years old and align the delivery of health, social and education services, CCDS was first piloted in July, 2005 under the Policy Address to offer an integrated community-based child and family service using Maternal and Child Health Centres (MCHCs) as the platform.

The initial pilot sites were Sham Shui Po, Tin Shui Wai, Tseung Kwan O and Tuen Mun. The service was then extended to Tung Chung and Yuen Long, Kwun Tong, Kwai Chung in March 2009 and fully implemented to the whole territory of Hong Kong in 2013. CCDS aims to early identify the children and family in need and integrate the medical and health, social and education service sectors to provide timely intervention to the vulnerable families.

CCDS in Kowloon East Cluster (KEC) in collaboration with Hong Kong Lutheran Social Service and Department of Social Work, The Chinese University of Hong Kong

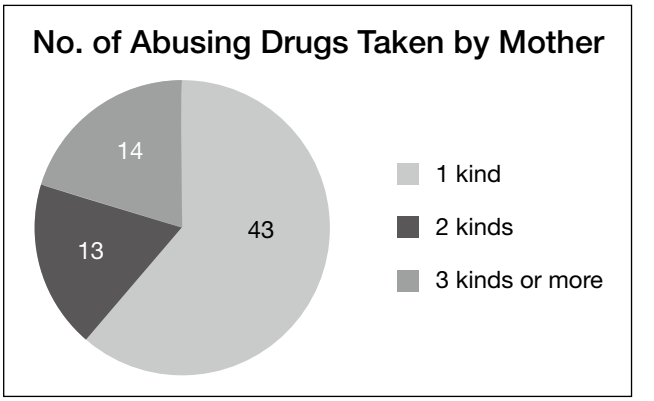
The collaborative program:

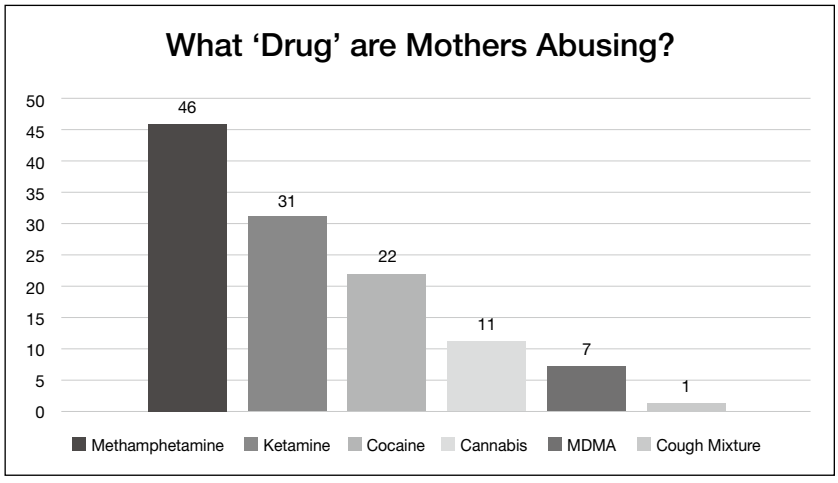
With collaboration with Hong Kong Lutheran Social Service and the Department of Social Work of the Chinese University of Hong Kong, Comprehensive Child Development (CCDS) in Kowloon East Cluster offered an integrated program with the emphasis on parent counseling, parent education groups and parent support network for the pregnant women with illicit drug use within one year of expected date of delivery. Expectant mothers were engaged in antenatal period by CCDS midwife and the growth and development of born child were continuously assessed by CCDS Paediatrician coincided with his vaccination appointment in Maternal and Child Health Center. Psychiatric team of CCDS offered ongoing assessment and treatment of the mother with psychiatric co-morbidity. An existential approach, a narrative approach and a transformative approach were the interventions to assist parenting in the recruited group by the social worker of Hong Kong Lutheran Social Service under the supervision of the Department of Social Work of the Chinese University of Hong Kong.

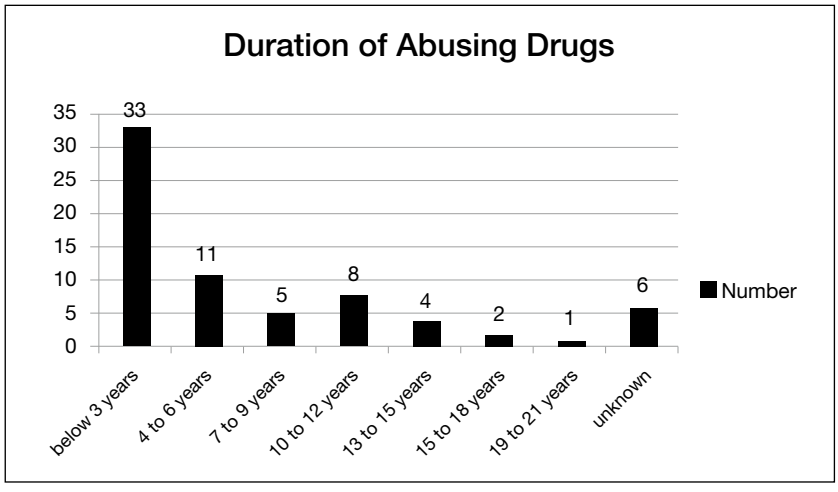
Descriptions of recruited mothers

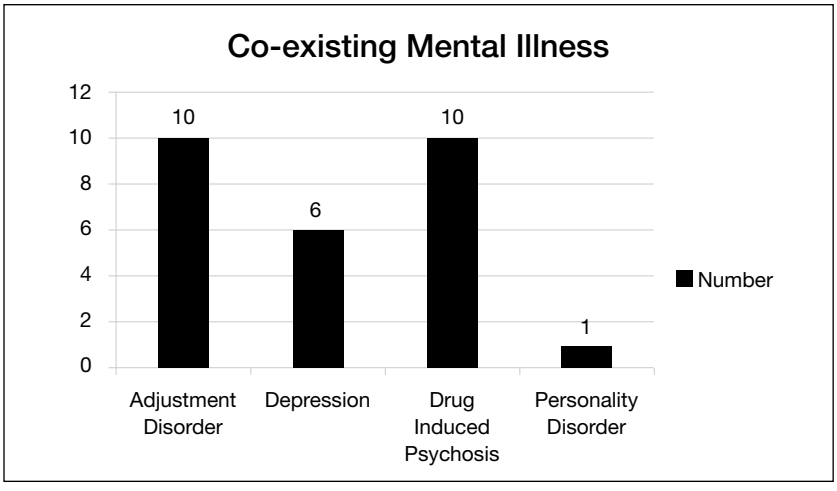
70 mothers were recruited initially but only 65 mothers were successfully retained in the program from September 2015 to June 2018.

90% of these mothers were below 32 years of age and 44% were unmarried. Methamphetamine was the commonest type of illicit drug being used. Around 40% were having mental disorders.





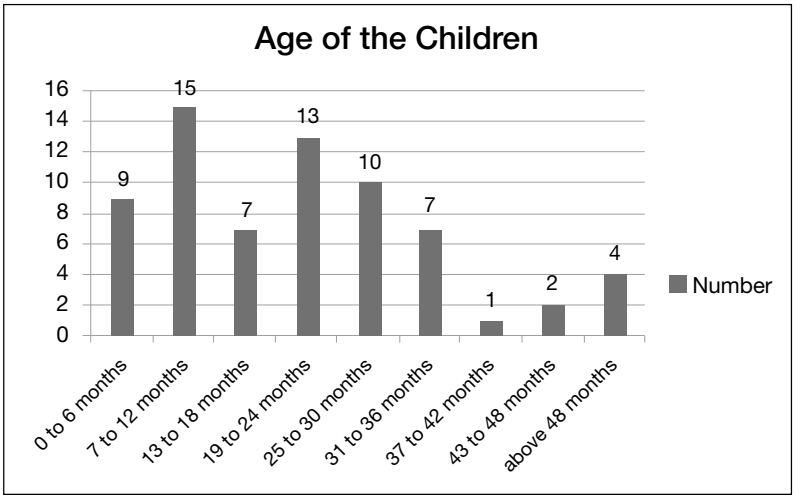




Description of recruited children

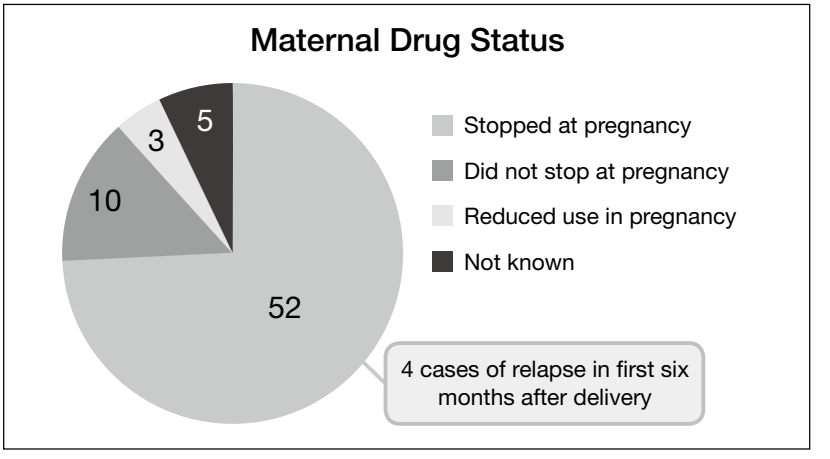
68 children were born to 65 mothers, around 90% were under the age of 3 during the period of study.

13% of children were born with low birth weight and 13% were preterm delivery.



Outcomes and results

80% of mothers abstained from drug use in their pregnancies.

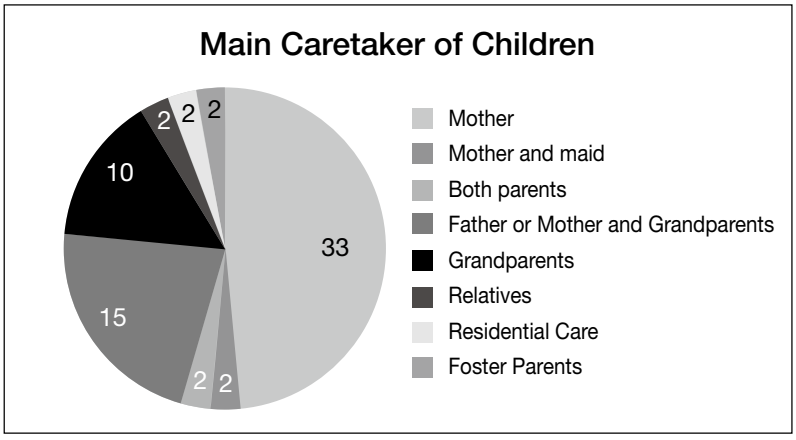


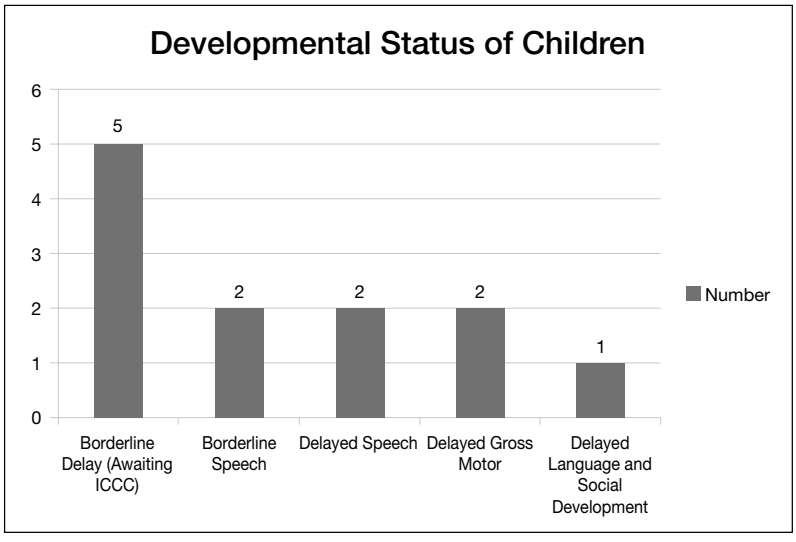
A single group pretest-posttest design was used to assess parental stress, parental satisfaction and parental efficacy. 57 cases were evaluated. The post-test mean score of parental efficacies (M= 34.21) was found to be significantly higher than pretest mean score (M= 31.86), $p< 0.01$ using the validated Chinese version of the parenting sense of competence scale in Chinese mothers.[7]

Among the participants who had completed at least 4 sessions of the parent support and education groups, the posttest mean score of confidence in parenting (M= 46.71) was found to be significantly higher than the pretest mean score (M= 35.29), $p=0.01$ using the Chinese version of Hereford's parenting attitude.[8,9,10]

98% of their children received their immunization at MCHC as scheduled time. 90% of the children could return home and cared by parents or grandparents.

17.6% of children were identified to have developmental issues requiring further assessment or intervention.





Conclusion

Abusing drugs can compromise parents' motivation and ability to perform the parental role. With critical psychological components for effective treatment and supportive programs for drug-abusing parents on good-enough parenting, parents can be facilitated to actualize their inherent potentials to maintain healthy and meaningful relationships with their children. From an existential point of view, as a parent is being involved in a life project that provides life transforming experiences for both parents and children.[11,12] This deepens the parent-child attachment and this positive orientation towards parenting can build up parents' competence to "say no to drugs".[13] CCDS in KEC coordinates the targeted service to mother, child and their family, identify the child's developmental problems and provide timely assessment and referral to Child Assessment Centre for the value-added management. This collaborative and multidisciplinary intervention can enhance the developmental and psychological outcomes of these vulnerable children. Continue supporting services and network for these families are crucial to sustain a nurturing environment for these children and longer follow up is needed to assess the psycho- behavioural outcomes of these children.

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Disclaimer: The research was funded by the Beat Drugs Fund, the Narcotics Division, HKSAR. The authors declare that there are no conflicts of interest on the material discussed in the article.

Substance Abuse in Pregnancy and the Role of Neonatal Toxicology Screening

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Introduction

Over the past decade, the incidence of substance abuse has risen significantly, especially amongst the younger generation[1,2]. The variety and availability of illicit drugs has also increased to include heroin, methamphetamine, Ketamine, Cocaine, Ecstasy and the hallucinogens[1-4]. Meanwhile, the problem of substance abuse in pregnancy has become more widespread in many developed countries. There is also accumulating evidence in the literature of detrimental effects of substance abuse to the mother and fetus, in both short and long term[1,5,6]. In Hong Kong, urine toxicology screening was introduced in 2014-2015 for neonates from mothers who were at risk of substance abuse in pregnancy under the Comprehensive Child Development Services (CCDS) programme. The aim of toxicology screening is to identify mothers who are active drug users and offer intervention, support and counselling. It also serves to protect the infant against further exposure to the harmful effects of illicit drugs in the home environment.

Epidemiology

Epidemiological studies in USA have shown that 5% of pregnant women use one or more addictive substances. A survey conducted by the National Institute of Drug Abuse (NIDA) has shown that the incidence of substance abuse in pregnant women aged 15-17 years is 16%; whilst those aged 18-25 years is 7.4% and those in the older age group (26-44 years) is 1.9%. Overall, the rate of substance abuse in pregnant women 15-44 years old has risen from 3% to 4.4% [7]. Studies in UK have shown a similar trend 4. There are no population studies in Hong Kong for pregnant women, but local studies in 2015 have shown that 76% of all female drug abusers are of childbearing age (age 12-40)[8].

The illicit substances abused differs between different countries. In USA and UK, cannabis and cocaine are the commonest substances abused, apart from alcohol and nicotine. Of note, the incidence of narcotics abuse has increased sharply in the past decade in USA, due to prescription of opioid containing medications for chronic pain and misuse of these drugs by patients[3]. In Hong Kong, there is no data on substance abuse amongst pregnant women. However, a sharp rise in neglect cases in children age under two is noted since 2014 as a change in practice of adopting newborn urine toxicology screening born to drug-abusing mothers. Local statistics from the Department of Health Central Registry on drug abuse (CRDA) reveals that the most commonly abused drugs (all ages included) are methamphetamine (“Ice”) and cocaine. In 2018, 23.2% of all drug abusers used methamphetamine and 17.8% used cocaine. Ketamine use has decreased in the past 3 years, whilst cannabis use is on an increasing trend, which mirrors the increase in western countries[8].

Pathophysiology and effect of substance abuse to the fetus

Substance abuse by the mother can affect the fetus in many ways. Drugs taken early in pregnancy can impact on embryogenesis and cause fetal malformations[5]. Later on, drugs can have direct effect causing abnormal growth and alterations in neurotransmitters in the brain. Specific drugs exert different effects on the growing fetus. For example, Cannabis can alter brain neurotransmitters and brain chemistry, resulting in decreased protein, nucleic acid, and lipid synthesis[9-11]. Opiates rapidly cross the placenta, which explains the narcotic withdrawal syndrome which commonly occurs in the neonatal period[12]. It has also been shown to decrease brain growth in animal models. Cocaine has been shown to affect cortical neuronal development[13,14]. Methamphetamine alters neurotransmitters in the brain and affects brain morphogenesis[15,16]. These effects on the developing fetus can lead to long term structural and neurodevelopmental sequelae in the infant. **Table 1** is a summary of the effects of different substances on the mother and the infant. In addition to the direct effect of drugs, an infant's development is also influenced by multiple factors, including home environment, parental socioeconomic and educational status and their parenting capacities. Therefore, it is very important to help mother to be abstinent from drug use and provide a drug-free and nurturing home environment for infants who were exposed to drugs in utero so that they can achieve their potential.

Tables and Diagrams

Table 1 Maternal and fetal effects of drug exposure *(Adapted from References[4,5])*

Substance	Maternal effects	Long term effects on infant
Cannabis	• Paranoia, amnesia • Preterm delivery	• Preterm • Impaired executive function noted after age 3 years • Impulsivity • Poor attention • Poor problem-solving skills • Subtle defects in learning and memory
Opioids	• Respiratory depression • Complications of intravenous drug use • Postpartum haemorrhage	• Preterm, IUGR • Narcotic withdrawal syndrome • Aggressiveness, impulsivity • Poor memory • Poor perception • Poor self confidence • Increased temper
Cocaine	• Hypertension • Psychiatric symptoms • Placental abruption • Uterine rupture	• Preterm, IUGR • Microcephaly • Impaired language development • Attention deficit (males) • Poor cognition • Inhibition deficit (males) • Poor visual-motor ability, attention and working memory
Amphetamines	• Psychiatric disorders	• Increased risk of oral clefts Increased risk of: • Emotional reactivity • ADHD • Depression • Anxiety • Aggressiveness
Hallucinogens (Phencyclidine, LSD)	• No data	**Phencyclidine:** • Microcephaly, intracranial abnormality • Attachment disorder **LSD:** No data **MDMA ("Ecstasy"):** • Impaired motor function

Toxicology screening

Toxicology screening is important in the neonate as it serves to evaluate in-utero drug exposure during pregnancy. Specimen from the mother may include urine, blood, hair, body fluids, sweat and breast milk whist specimens from the neonate includes meconium, urine, cord blood and hair. Each type of biological specimen has its own window for detection, as well as sensitivity and specificity, and these must be taken into account during results interpretation. **Figure 1** shows the approximate timeframe for detection for different specimens[17-20]

Figure 1 Window of detection for biological specimen for drug testing

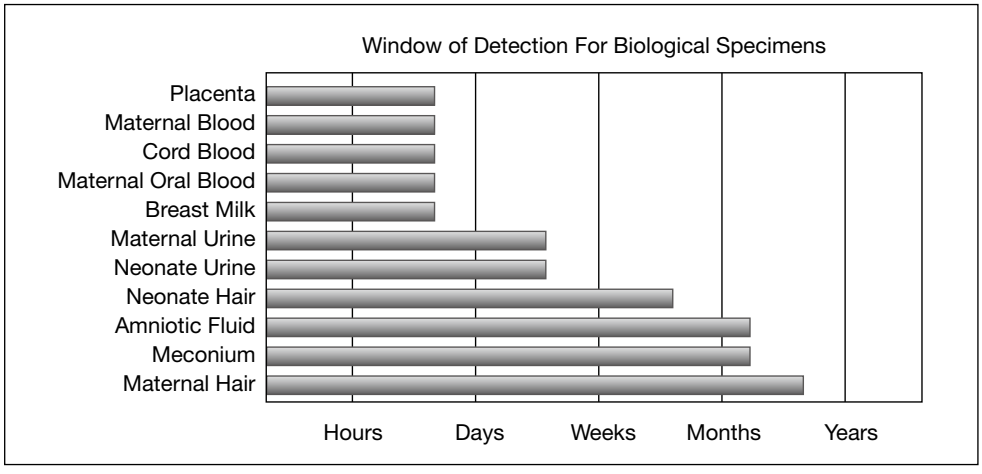


Diagram from Ref (Cotton), adapted from Lozano J, Garcia-Algar O, Vall O et al, Ther Drug Monit 2007;29:711-34

There are pros and cons for using each type of specimen for analysis. Neonatal hair can capture drug exposure during the final 3-4 months of pregnancy. Despite this advantage, the procedure of hair collection in neonates is difficult and partially invasive, and neonatal hair testing is not commonly used. Meconium forms during the 12th week of gestation and accumulates till birth. Therefore, meconium analysis offers a wide window for detection over the last two trimesters and reflects longer term drug use in the mother[17,18,21]. Meconium collection is also non-invasive, and this method of drug detection is used in some overseas centres. Currently, the most commonly used specimen for toxicology screening in USA and UK is urine. This is probably because urine collection is easiest, and its method for laboratory assay is also relatively simple. However, despite its convenience, urine samples have drawbacks in that they provide only a short window of detection (a few days), and there is a higher risk of false negative results due to the dilute nature of neonatal urine[11,20]. In Hong Kong, almost all neonatal units use urine for newborn toxicology screening. These limitations should be considered in the analysis of result. Maternal urine toxicology screening is also sent at the same time in most units.

Principles of toxicology screening consist of a broader screening method for initial detection, followed by confirmation of results by a second method. For urine toxicology screening, immunoassay is normally used, particularly for adult's samples; targeting specific drugs of abuse (cocaine, amphetamines, cannabinoids, opiates, phencyclidine

etc.). Confirmation of positive results is by mass spectrometry together with liquid chromatography or gas chromatography. If other specimens are used (e.g. hair/ meconium), specific preparations and appropriate assay methods should be used to yield the most accurate results.

Situation in Hong Kong (example from United Christian Hospital)

Management of infants after toxicology screening

A Multidisciplinary Case Conference (MDCC) is compulsory for all neonates with positive urine toxicology screening. MDCC is attended by the case Paediatrician and Paediatric nurse, CCDS Paediatrician and midwife, family social worker (IFSC or FCPSU), hospital social worker, relevant parties including NGO workers from specific groups like SARDA (Society for the Aid and Rehabilitation of Drug Abusers) or Hong Kong Lutheran Social Service Centre, Counselling Centre for Psychotropic Substance Abusers (CCPSA), as well as the parents and other relevant family members. The aim of MDCC is to have an in-depth evaluation of the situation and design a Welfare Plan for the mother and infant. This Welfare plan aims to support and motivate the mother to undergo detoxification followed by continued abstinence from drugs; build up a strong social network for the family; protect the infant from further drug exposure; and ensure a safe home environment. Decisions made during MDCC are well documented in the minutes and are carried out with regular review as indicated.

For cases with negative urine toxicology screening, a Welfare Meeting may be held for risk assessment and to discuss the child-care plans for the family.

The Urine Toxicology screening programme in United Christian Hospital, Hong Kong

The urine toxicology screening programme was implemented in United Christian Hospital in 2016. Criteria for screening includes:

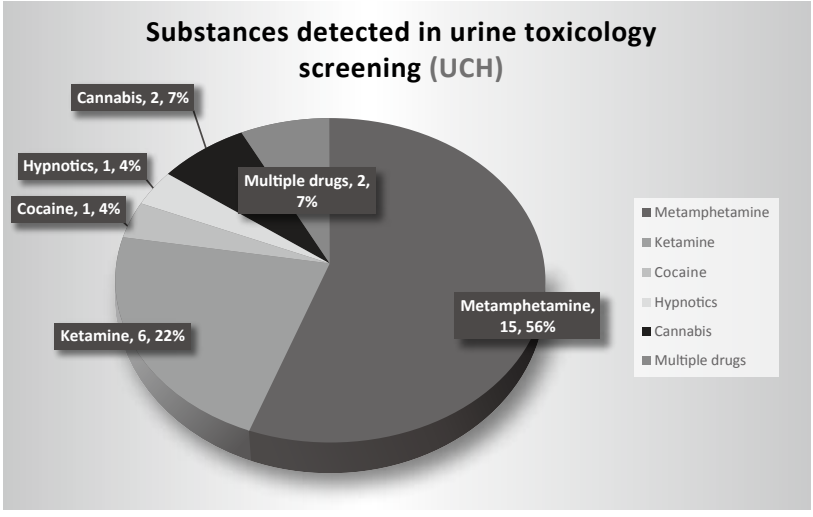
Mother has history of heroin or soft drug use within 1 year of expected date of delivery AND: (one or more of the criteria below)

- No antenatal (AN) care or defaulted AN care 3 times or more
- Mother declines social service referral
- Mother with previous children confirmed abuse/ neglect
- Mother has signs of drug use in postpartum period
- Symptoms of withdrawal in newborn
- Changes in behavioural state of newborn
- Requested by CCDS midwife (CCDS midwife will identify mothers at-risk during pregnancy, provide antenatal support, and make appropriate referrals for maternal detoxification)

At United Christian Hospital, 61 infants fulfilled the above criteria for urine toxicology screening in the period 1 January 2017 to 30 April 2019. 43% of neonates (26/61) had positive urine toxicology screening whilst 57% (35/61) screened negative. Substances

detected in urine included methamphetamine (ICE), ketamine, cocaine, cannabis, and opioids, whilst 2 infants had multiple drugs detected (see **Figure 2**). The most commonly abused substance in this cohort is methamphetamine, which was detected in 56% of all positive samples, followed by ketamine. Surprisingly, cannabis (marijuana) was only detected in 2 samples, which is different from other developed countries, especially in those where marijuana is commonly used. This is likely due to the availability of the drug, as well as influence by peers. With the increasing number of cities where marijuana is legalized, it will be useful and informative to follow on the changing trend of substance abuse in Hong Kong and worldwide. Opioids (e.g. Heroin), which was a commonly abused drug in the previous decade, is not detected in any of the samples. This reflects the changing pattern of drug abuse in the younger, childbearing generation.

Figure 2 Substances detected in urine toxicology screening at UCH, Hong Kong from 1 Jan 2017 to 30 Apr 2019

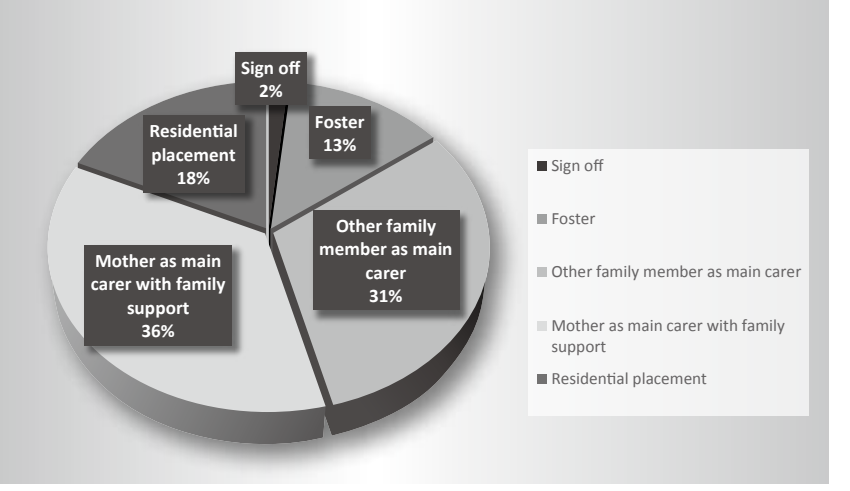


MDCC was arranged for all infants who had positive urine toxicology screening. Those who screened negative also had a detailed family assessment by social workers, with welfare meeting arranged. The characteristics of those infants with positive screening are shown in Table 1. In agreement with the literature, mother with substance abuse in pregnancy has a significantly higher incidence of preterm delivery and small for gestation infants compared to the general population. Most of these women are multiparous and there is a higher incidence of psychiatric disorders including drug induced psychosis, adjustment disorder and suicidal ideation. These mothers also have a lower CCDS follow up rate during pregnancy and is more likely to miss antenatal follow up. These results again illustrate the need for multidisciplinary care and support for these families. From the UCH experience, the care of the other children in these families will also be taken into account in the comprehensive assessment leading to MDCC.

The final outcome of MDCC is shown in **Figure 3**. As illustrated in the diagram, only 16% (5/32) of the mothers opted to sign off the baby, indicating that most mothers had the good intention to stop substance abuse behavior and take care of the baby in the future. Of

these, other family members (mostly the grandparents) took up the role of main caretaker in the short term in about one-third of the cases. For another one-third, temporary placement or foster care was arranged. In a small number of cases where mother is already actively engaged in detoxification programme and there is good family support, the mother could still take up main caretaker's role with close supervision and support from other family members and social workers from CCPSA and Social Works Department.

Figure 3 Outcome of MDCC



Implementation of urine toxicology screening and guidelines for management of neonates with positive results has been a great step forward in our care for families with substance abusing mothers. Previously, substance abuse in pregnancy is likely to be under-estimated and under-detected, as many pregnant women may try to hide their drug taking behaviours for various reasons. Whatever the cause, urine screening has helped us to identify mothers with substance abuse behavior so that timely intervention and support can be offered. Non-punitive approach is adopted to ensure expectant mother's engagement in CCDS and hence better neonatal outcome and optimal developmental trajectory of her child.

The successful implementation of the programme depends on a number of factors. First of all, laboratory support for specimen analysis is very important. The results of neonatal urine toxicology screening should ideally be highly accurate and efficient so that appropriate actions could be initiated. At UCH, the Clinical Biochemistry, Paediatrics and Obstetrics teams are working closely together for processing of neonatal urine specimens. Specimens testing positive for any drug is sent to another (separate) laboratory for confirmation to ensure accuracy. With the increasing number of requests, efforts are made to streamline the procedure for early diagnosis and intervention

Another essential factor is communication and collaboration between disciplines including Paediatrics, Psychiatry, NGO's, CCPSA, IFSC and FCPSU to provide the most optimal welfare plan for each unique case. This involves good rapport and in-depth discussions between welfare workers and the family; multiple home visits; Psychiatry assessment; enrolment of the mother/ family in detoxification programmes etc. At times, temporary placement or foster family may be activated for out of home care if indicated.

Care or Protection Order (C or P order) to protect the infant also needs to be applied. After MDCC, social workers (IFSC/FCPSU) and CCPSA workers play an essential role in the follow up of families during detoxification, particularly on assessing the childcare and safety. Workers need to establish a firm rapport to guide families through difficult periods and to ensure adherence to the initial welfare plan. The Maternal Child Health Centre (MCH) also provides another platform for monitoring the child. The child will attend MCH regularly for follow up of growth and development, as well as childhood vaccinations. The CCDS Paediatrician takes these opportunities to continue supporting the mother on detoxification, and to identify any parenting issues or Paediatric medical problems; so that a proactive approach can be taken. Children with specific medical or neurodevelopmental problems will be referred early to the Paediatrics Specialist Outpatient (SOPD) Clinic or Child Assessment Centre (CAC) for further evaluation and management. Close monitoring of urine toxicology at UCH SOPD can also be arranged for indicated Paediatric cases, further liaison or review with the partners of the team in overall monitoring of the progress of the family is ensured by the in-charge CCDS Paediatrician.

Challenges, opportunities and the way forward

At the beginning of the programme, the area where the greatest difficulty is encountered is in placement or temporary foster. Due to the increasing need and limited spaces in institutions and foster families, the waiting time for placement may be long. However, with good communication between the Paediatrics team and social workers, every effort had been made to expedite the process so that these infants could be taken care of in a home environment by loving and dedicated caretakers. Secure attachment to a constant caretaker is essential for their growth and development. The Government has pledged to increase the number of foster family in Hong Kong. In the future, we hope to work closely with the social work department and NGO's to apply for resources from the Government to facilitate placement and to further improve the scope of service. We also hope to motivate more suitable families to take up foster service in the short or long term.

Reunion to the child's family is the ultimate goal of the intervention. Resources to enable mother's early detoxification together with the introduction of evidence-based approach parenting to these drug-abusing mothers are deemed necessary to achieve better outcomes in their children. Meanwhile child-care support for families are also needed as many mothers with substance abuse come from broken families with little social support, they will also benefit from community inputs like Family Aide, Day Centre and Day Crèche to provide help in child-care and appropriate stimulation for development. As children from substance abusing mothers are at risk of developing neurodevelopmental, learning or behavioural problems, services like early training with physiotherapy, occupational therapy, speech therapy and sensory integration is also important. The Early Education and Training Centre (EETC) provides training for children with neurodevelopmental delay from the pre-Kindergarten period till the time they start Primary School. In future, early childhood stimulating center in supporting these at risk children to develop various developmental skills, especially for those between 2 to 3 years old should be considered to be available in the community. We should act proactively to facilitate normal development in these children rather to just provide remedial training to them.

A comprehensive, multidisciplinary approach is needed to manage infants born from substance abusing mothers. A safe, caring and nurturing environment is essential for them to grow and develop. Input from paediatricians, developmental paediatricians, social workers and teachers are very important to the social workers and NGO workers need to build up good rapport and trust with the mother (and family) so that the mother can be motivated to comply with the detoxification programme and stop substance abuse behavior permanently. Regular, long term follow up and communication is essential to support the family through difficult periods and to prevent relapse.

Conclusion

Substance abuse in pregnancy has both short and long term effects on the mother and the infant. The urine toxicology screening programme in Hong Kong helps us to identify mothers with substance abuse so that early intervention involving the CCDS team, neonatologists and social workers from various departments can be implemented. We hope that this service can benefit more families and enable these at-risk infants to grow up in a safe environment. Collaboration from different departments, community services in various sectors, as well as recognition and support from the Government is essential for the sustainability and continued improvement for the programme.

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Hidden-Harm and Child Protection in Paediatrics

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Plasticity and human brain development

1. The developing human brain has an ability to change in response to external experiences. Such ability is termed brain plasticity and it can be both beneficial and problematic[1]. Optimal early childhood development depends on nurturance in a stimulating environment while being protected from excessive stress. Stress that is excessive or prolonged is termed toxic stress. Examples of toxic stress include child abuse, exposure to domestic violence, household substance abuse or mental illness, parental separation or divorce, and household member incarceration. Absence of buffering in a supportive adult relationship activates toxic stress response in the human brain[2]. Research has shown that toxic stress leads to changes in the structure and functionality of the developing brain, and in the emotional and behavioural functioning of the child[1]. Further, the Adverse Childhood Experiences Study has demonstrated that toxic stress leads to subsequent health problems from risk behaviours to chronic diseases, poor mental health, social problems, cancer and early death[3].

Response to child abuse

2. Newly registered child abuse cases was at a record high in 2018. The number has continued to be above 1,000 in 2019[4]. (Figure 1)

Data source: Child Protection Registry, Statistical Report, Social Welfare Department Figure 1

3. 2018 was a disturbing year for Hong Kong when the child protection system spared no mercy on the vulnerable. A 5-year-old girl was hurled in the air and poked with scissors. She subsequently died[5]. A few months later, a mother was sentenced to a 15-year jail term for abusing her 7-year-old daughter in a most grotesquely shocking manner[6].

4. The 2018 response to these tragedies by the authorities included a new reporting guidance by the Education Bureau, creation of new social work positions by the Labour and Welfare Bureau, and again the many sessions of public and professional education by bureaus, etc.

5. History tells us that when tragedy strikes, response by the community as a whole is prompt. However, motivation for change is short-lived and cases are quickly forgotten until another one strikes.

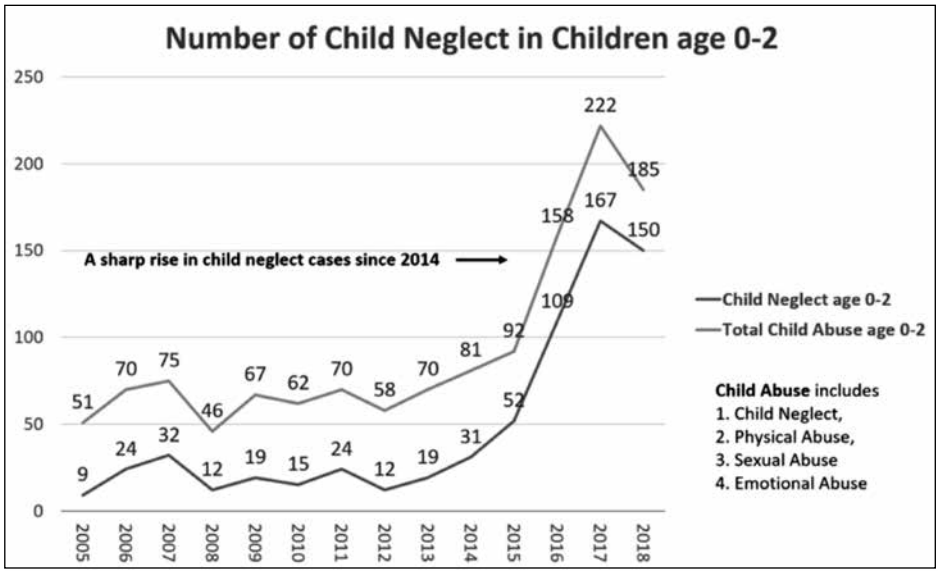
6. The child protection system in Hong Kong is riddled with holes not addressed quickly enough[7], not to mention the important call to review the system at its foundation. This call to action is urgent but it falls into remits of nobody. Children first is a slogan, but inertia is detrimental.

Parental problem drug use

7. Parental problem drug use is challenging. It causes serious harm to children at every age from conception to adulthood - a core message in a report from United Kingdom titled "Hidden Harm" as these children often display no apparent physical signs or symptoms[8]. In the United Kingdom, with an estimated 300,000 children of problem drug users, the report called for changes in policy and practice, and stressed the importance of working together.

8. 2013 in Hong Kong, a 5-year-old boy with disabilities suspected to have been abused was sent back home because out-of-home placement was not available. He subsequently died from methamphetamine overdose in the home of his adult drug-abusing care-minders[7].

9. Data on children harmed or at-risk of parental problem drug use in Hong Kong is lacking. However, a sharp rise in neglect cases in children age under two is noted in the four years since 2014[9]. (Figure 2)



Data source: Child Protection Registry, Statistical Report, Social Welfare Department Figure 2

10. Such a rise was the result of a change in clinical practice amidst a movement among professionals who needed to come to terms with issues like working across sectoral and disciplinary boundaries, roles and responsibility delineation, handling of confidentiality and consent, etc.

11. Since 2014-2015, drug testing of new-borns of substance abusing mothers has been becoming more of a standard practice. A positive test leads to a Multi-Disciplinary Case Conference on Protection of Child with Suspected Abuse (MDCC), and a coordinated care plan is mandated.

12. Such an approach was later invigorated in a report in 2017 by the Child Fatality Review Panel (established in 2008) after its review of the death of a child under care of problem drug users[10]. To digress a little, the years of advocacy work by many non-government organisations for Hong Kong to establish a Child Fatality Review mechanism should be acknowledged.

Resolutions

13. There is no lack of professionals to take care of vulnerable children or the child-minders with drug use problems. A coordinated professional approach would help but it is not a solution. The problem is the inertia to approach child protection at its foundation which should be built on the best interests of the child and a child protection system from the child's rights perspective.

14. The working agenda for such a foundation includes establishing a child protection policy for Hong Kong, making prompt changes in child-related legislations, setting up a data bank to examine the current state of affairs affecting children, monitoring the trends, prompting remedial and prevention works, and many others. The importance of children's voices and participation in this process is enshrined in the United Nations Convention of the Rights of the Child in 1989, extended to Hong Kong in 1994. Some of these agenda have been written into the terms of reference of the Commission on Children. The Commission was established in 2018 after decades of advocacy work by many non-government organisations. It has yet to show its worth.

15. As for parental problem drug use, the authorities should prioritise to provide resources for deficient areas such as alternate childcare support, to motivate parents with problematic drug use to rehabilitation in the window of opportunity while in pregnancy-related healthcare, to drive for research-driven practices, enhance professional training, and mandate multi-agency training and clinical practices.

16. As aforementioned, innate interests among individual professionals and agencies invariably results in differences when role delineation and responsibilities are assigned. Under such circumstances, a model of collaboration and coordination of a common handling pathway must be worked out based on the principle of best interests of the child. Such is addressed somehow, though not comprehensively, in the review of the existing handling guide[11]. The new guide "Protecting Children from Maltreatment - Procedural Guide for

Multi-Disciplinary Co-operation", to be implemented from April 2020, covers a number of practical issues related to parental drug use – definitions, signs of abuse, case investigation, risk assessment, drug testing, multidisciplinary case conference, welfare plan and follow up, monitoring of parental problem drug use in relation to childcare, and new entries in the child protection registry.

Roles of paediatricians

17. Lastly, one should emphasize again the roles of paediatricians in protecting our children - identifying abuse, seeing referrals appropriately taken up, working together with stakeholders, supporting the child and family, participating in primary, secondary or tertiary levels of prevention work, and advocating for the child's best interests, all in our individual capacity.

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Psychological Abuse: Review and Local Scenario

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Abstract

Psychological Abuse of children has been a less known subject as compared to other types of child abuse in Hong Kong. The recently revised Procedural Guide for Multi-disciplinary Co-operation on protecting children from maltreatment by the Social Welfare Department has updated the definition of psychological abuse with six forms of psychologically abusive behaviour described. A review of the issue with reference to the local scenarios would be discussed. Suggestions on identification, management as well as intervention would also be highlighted with the aim to aid child/health care professionals be familiarize with the subject in working together towards child protection.

Introduction

In Hong Kong, psychological abuse (PA) of children has all along been a less known subject, both among public and professionals. Yet, it is gaining attention when people are giving more emphasis on one's mental health and protection of children in society. In this paper, an updated review on the subject would be presented and the implication on local scenario discussed.

According to the revised Procedural Guide for Multi-disciplinary Co-operation on protecting children from maltreatment[1], psychological abuse is defined as *'a repeated pattern of behaviour and/or an interaction between carer and child, or an extreme incident that endanger(s) or impair(s) the child's physical and psychological health (including emotional, cognitive, social and physical development'* (p. 28). There are 6 forms of psychological abusive behaviour considered to be harmful to a child's development as described in the Procedural Guide (p. 38). They are presented below:

1. **Neglect of emotional need and emotional unavailability in interactions with the child**: this refers to being emotionally detached, uninvolved, and inattentive to the child's emotional needs and victimization by others; or failing to express care and affection for the child.

2. **Spurning**: this refers to verbal or nonverbal acts that disdain, degrade, reject or dislike the child, e.g., shaming or ridiculing the child's physical, psychological or behavioural characteristics; singling out the child to criticize or punish him/her badly; or humiliating the child in public.

3. **Terrorizing**: this refers to acts that threaten to hurt, kill, abandon the child or place the child/child's love ones or objects (e.g., pets) in recognizably dangerous situations; or setting rigid or unrealistic expectations with threat of harm or danger if not met.

4. **Developmentally inappropriate interaction with the child**: this refers to acts that encourage or let the child to develop inappropriate behaviour such as adultification, parentification and infantilization; or acts that encourage the child to degrade or use other forms of hostile treatment to those in signification relationships with the child (e.g., parents, siblings, etc.)

5. **Unreasonably limiting child's opportunities to interact with others**: this refers to placing unreasonable limitations or restrictions on the child to interact with family members, peers, or others in the community. And

6. **Thwarting a child's socialization and social development within the child's context by cultivating improper or deviated social/moral values**: this refers to coercing the child to submit to extremely dominant parenting behaviour or manipulating or micro-managing the child's life, that disorientates his/her concept of rights and wrongs and/or induces guilt or anxiety.

Those described forms of abusive behaviour are defined according to the updated knowledge available in the field[2,3]. While there are slight differences in the definitions of PA or use of terms (such as psychological maltreatment and emotional abuse) among different countries, they are of great similarities as they are based on empirical research on caregiver behaviour that are harmful to a child's development. While the American Professional Society on the Abuse of Children (APSAC)[2], includes 'Mental Health, Medical, and Educational Neglect' as one form of psychological maltreatment, it is put under the category of Child Neglect in the Procedural Guide in Hong Kong. Detailed descriptions of the different forms of psychological abuse/maltreatment as defined by SWD and APSAC respectively can be found in their websites.

Local scenarios

Psychological abuse can occur apart from, co-exist with or embedded in other forms of abuse. In US, it is estimated that the prevalence rate of moderate level of PA is between 10-30% 4. While there is no local study on the prevalence rate of PA in Hong Kong, the figures on established child abuse cases in the Child Protection Registry can give a hint and are presented in Table 1. It can be noted that the number of psychological abuse cases are consistently much lower than other types of abuse. There are several possible reasons for this. The first one is that PA can co-exist with or embedded in other types of abuse against children and people may not be aware of it. For instance, a father who used cigarette ends to burn his child might have repeated prior incidences of verbal threats to burn the child with cigarette ends if he did not follow instructions. When the child's burn marks were discovered by a medical doctor, with medical evidence, the case would possibly be established as a physical child abuse case alone. The verbal threats might either not be disclosed by the family or, if revealed, be considered as inappropriate parenting or part of the physical abuse itself, rather than incidents of terrorizing acts, which is a form of psychological abuse. It has been argued that acts of psychological harm are common in co-existing with other forms of child abuse. Considering this argument, it is possible that the number of PA cases is higher than what we found. Related to this factor is the lack of clear indicators in differentiating

poor parenting and PA in the past. It is believed that the clear description of different forms of PA as stated in the revised Procedural Guide would help professionals in identifying parenting behavior that are psychologically abusive.

	Year		
Types of Child Abuse	2017	2018	2019
Physical abuse	374 (39.5)	493 (46.3)	430 (42.7)
Sexual abuse	315 (33.3)	297 (27.9)	305 (30.3)
Neglect	229 (24.2)	237 (22.3)	237 (23.6)
Psychological abuse	5 (0.5)	11 (1.0)	8 (0.8)
Multiple abuse	24 (2.5)	26 (2.4)	26 (2.6)
Total	947 (100.0)	1064 (100.0)	1006 (100.0)

Table 1: Figures (and Percentages) on Child Abuse in the Child Protection Registry

Another reason behind is that the impacts of PA on children may not be easily noticed in a child's early development, thus overlooked by professionals. When children are dependent on their parents for survival, both emotionally and physically, they would internalize the values and beliefs of parents as the basis of their self-concepts and belief systems. Such self-concepts and belief systems would only be noticed by people when they started to have chaotic interpersonal relationships or deviant behaviour later in life. Jane's parents had all along shown dislike and degrade towards her since she was born. They would call her names, degrade her as 'nothing', 'not deserve to be born', shame her in public, and once took her out on street in nude as punishment for obtaining a low grade in study when she was five. They also did not allow her to participate in peer activity or have phone contacts with schoolmates before she had graduated from high school. Jane had all along internalized their beliefs that she was 'nothing' and 'should not exist in the world'. She thought it was because she had bad nature that her parents did not love her. Thus, she worked hard to study well and to do housework at home in order to please them. As she was perceived as a well-behaved student in school, though lack of self-confidence, she was never considered a student needed help in the eyes of school personnel. It was only when she turned to be a teen, she started to see the difference between her and her schoolmates in interacting with families and friends. And she further confirmed that she was inferior and without value as compared to others, as said by her parents. She started to have self-harm behaviour, cutting her wrist secretly when such self-criticism, triggered by the feeling of being rejected in peer or love relationships, was so strong inside her that it became intolerable. With repeated self-cutting, she started to seek help from mental health professionals in her 20s and stories of PA such spurning and unreasonable control by her parents in her childhood and early teen was finally revealed in psychotherapy.

The story of Jane leads to another important issue about psychological abuse: it is not the assessment of the behavioural and emotional disturbance of the child that leads to the conclusion of psychological abuse. Not all children who are psychologically abused by their carers exhibit observable behavioural problems such as aggression or self-harm. Some impacts are observable such as vehement emotional expression; some are subtle, such as sense of worthlessness. Sometimes a child would appear symptom free on the surface. One important factor that would affect a child's disclosure of psychological abuse is their

ambivalent or disorganized attachment towards parents. Their fear of attachment loss would prevent them from telling what happened in the family. Besides, a child who was cultivated by his/her parents with distorted moral and social values would identify with parents' values as normal and thus appear distress free. For instance, John's mother involved John, a 6 year old boy, in stealing at supermarkets repeatedly with the reason that it was fine to take something back from shops for the poor. It was not stealing, but achieving fairness in an unfair society. And he was praised for success. In addition, he should not trust anybody, except her mother, as they may hurt him and his mother. John deeply believed in his mother's words and felt proud if he took things from supermarkets without being discovered as he was doing something right and good in the eyes of his mother. As a young boy, he would not realize the distorted morals behind and thus appear to be a normal kid, until he grew old enough to differentiate the social norms from what his mother taught him. He then started to exhibit intense conflicts emotionally and behaviourally. These examples illustrated that PA can exist at low level of intensity in a child's daily life for a period of time, the impact of which would not be easily noticed in early stage. Thus, it is not the distress or symptoms that the child exhibits, but the repeated pattern of parenting behaviour or an extreme action that endanger a child's development/safety by the caregiver that counts. The major determinant on whether there is psychological abuse of children is therefore not on the assessment of the child's condition, but the investigation of the alleged abusive actions by the caregiver. Child assessment is still indispensable as it helps professionals to understand the extent of impacts on the child and the intervention plan needed.

Impacts of PA on children

It has been acknowledged that all types of child abuse have detrimental impacts on children's development as they jeopardize the basic and essential needs of children for growth. Van der Kolk[5] proposed a diagnostic criteria of Developmental Trauma Disorder in 2005 to describe the impacts of chronic traumatic events on children's development (Table 2). Though it was finally not included in the Diagnostic and Statistical Manual of Mental Disorders (DSM–5), developmental trauma is now a widely adopted framework among mental health professionals in the fields of child protection and childhood trauma to describe how child abuse affects a child in different aspects of his/her life. In essence, it describes those areas of dysregulation that the child would exhibit when traumatic memories are triggered: cognition (such as confusion and dissociation), emotion (such as expression of intense anger), behaviour (such as aggressive acting out or self-harm), and interpersonal/world views (such as distrust of adults and institutions). The negative self-attribution, loss of trust in world views, and belief in future victimization are additional impacts one would find in abused children suffering from developmental trauma. Thus, it is argued that the diagnosis of Post-traumatic Stress Disorder (PTSD) alone is not reflective of the pervasive impacts of child abuse on a child's life. Although not on psychological abuse, a local study on child sexual and physical abuse by the author supported the application of developmental trauma to in understanding the problems of abused children[6]. It is believed that developmental trauma can be a good framework in screening/assessing children with suspicion of PA too. As children facing psychological abusive events would commonly experience repeated threats of harms on self or others they are emotionally closed to, children would thus be under constant activation of the sympathetic nervous system (SNS) in response to dangerous

or stressful situations in their lives. The constant activation of fight/flight/freeze/submission response mode to danger in a child's daily life is now well documented to have detrimental impacts on one's development, including the brain, leading to dysregulations in different aspects. Van der Kolk[7] made a very good summary of latest research in neuro-psychological impacts of childhood trauma on people. Those who are interested in the neuro-psychological perspectives can also make reference to Porges' work in Polyvagal Theory.[8] Although research that focus solely on the impacts of psychological abuse on children's development are not as extensive as studies in other types of abuse, more attention was given to this subject in the past decade. Most of which are retrospective studies with self-reports of adults reporting PA incidents in childhood. A good review can be found in Glaser's paper[3] and the APSAC Monograph on Psychological Maltreatment[4]. In short, different studies have shown that there are strong relationships between PA in childhood and later adult psychopathology. The author would describe here studies that highlight the impacts of PA among other types of child abuse.

A: Exposure - Multiple or chronic exposure to one or more forms of developmentally adverse interpersonal trauma (eg, abandonment, betrayal, physical assaults, sexual assaults, threats to bodily integrity, coercive practices, emotional abuse, witnessing violence and death). - Subjective experience (eg, rage, betrayal, fear, resignation, defeat, shame).
B: Triggered pattern of repeated dysregulation in response to trauma cues Dysregulation (high or low) in presence of cues. Changes persist and do not return to baseline; not reduced in intensity by conscious awareness. - Affective. - Somatic (eg, physiological, motoric, medical). - Behavioral (eg, re-enactment, cutting). - Cognitive (eg, thinking that it is happening again, confusion, dissociation, depersonalization). - Relational (eg, clinging, oppositional, distrustful, compliant). - Self-attribution (eg, self-hate, blame).
C: Persistently Altered Attributions and Expectancies - Negative self-attribution. - Distrust of protective caretaker. - Loss of expectancy of protection by others. - Loss of trust in social agencies to protect. - Lack of recourse to social justice/retribution. - Inevitability of future victimization.
D. Functional Impairment - Educational. - Familial. - Peer. - Legal. - Vocational.

Table 2: Developmental Trauma Disorder: Proposed Diagnostic Criteria

LoCascio, et al. in their study of women who were victims of intimate partner violence (IPV), found that only childhood sexual abuse and psychological abuse were significant predictors of IPV experience, while neglect, physical abuse and witnessing violence had no significant effect, after controlling for women's background such as age and educational level[9]. Zurbriggen, et al.'s study recruited 184 college men and women to explore the relationship between childhood abuse experiences and later sexual aggression and victimization experience[10]. The results showed that childhood emotional abuse (i.e. psychological abuse) was the strongest predictor of later sexual aggression and victimization

experience in college students. It was noted that after controlling for other types of childhood abuse, physical abuse experience was no longer a reliable predictor. However, sexual abuse and psychological abuse were still significant predictors after controlling other factors. These studies did not suggest that physical abuse had no negative impacts on survivors, but the harmful effect of PA was much stronger. As stated above, elements of psychological harm commonly co-exist with other forms of abuse, especially in chronic abuse. One should not ignore the possibility that it is the element of psychological harm that contributes significantly to the impacts they have on children.

Harvey, et al.[11] used a different approach in studying the impacts of childhood PA on adults' perception of self, others and relationships. They collected qualitative data by conducting semi-structured interviews with 6 adults with a history of childhood PA. Common themes were found: a) shame-based perception of self with tendency for self-blame; b) self-protection from emotional pain through self-inhibition, pleasing others, and withdrawal from interpersonal contacts; c) limited awareness of others with tendency of mistrust and dichotomizing people; and d) shame-based role in relationships with difficulties in emotional intimacy and maintaining relationships with others. The authors proposed that the internalization of parents' messages that were demeaning and rejecting with lack of self-worth and the need for self-protection from harm and pain were reflected in their perception of self and others in relationships. The authors proposed that the findings reflected the impact of insecure or even disorganized attachment relationships with the abusive parents (as reflected in childhood PA) on one's perceptions of self and others in later life. Such negative self-perception, mistrust and difficulty in interpersonal relationships echoed very much the framework of Developmental Trauma.

Most studies discussed are retrospective in nature that causal relationship between childhood psychological abuse and later psychopathology in life are difficult to draw, though they indicated a strong relationship between these two. One recent study named the Environmental Risk Longitudinal Twin Study in England can give a hint on the causal relationship[12]. By recruiting 2,232 same sex twins born 1994 – 1995, the authors conducted interviews with the twins and their parents at different developmental ages of the twins with assessment on different types of maltreatment (including emotional abuse). The twins were asked at age 18 of any childhood emotional abuse and neglect experience, victimization experience (including maltreatment and neglect) since the age of 12, and mental health problems in terms of internalizing, externalizing and thought disturbance at age of 18. Results showed that both childhood and adolescent victimization had unique contributions to early adult mental health problems. Though monozygotic (MZ) twins were more highly correlated in both their victimization and mental health problems than dizygotic (DZ) twins, significant association between victimization experience and mental health problems was present in both MZ and DZ twin sample. The co-twin who had more adolescent victimization had higher scores in mental health problems. Thus, the authors concluded that family background or genetic factors could not fully explain the association, *'suggesting the possibility of an environmentally mediated pathway from greater victimization exposure in adolescence to more psychiatric symptoms in early adulthood'*.

In sum, the impacts of psychological abuse on children can be overt or covert, immediate or long term. They shared common negative impacts on children's sense of self, interpersonal trust, emotional and behavioural dysregulations, and risks of future victimization and mental health problems in adulthood, as other types of abuse. The magnitude of which is no less than other types of abuse, or even higher in some studies.

Identification and Management

Children experiencing multiple forms of abuse are not uncommon. As PA can co-exist with or embedded in other forms of abuse, investigation of alleged abuse should be sensitive to signs of PA. For instance, in examining the wounds of a child in hospital, the doctor or other medical staff may heard from the child or mother that when the child was beaten by father, his/her younger sister at the side was asked to watch and threatened by the father that if she did not behave, she would receive the same punishment as her sibling (Terrorizing). Psychological abuse can exist in a very serious single event, such as use of knife to threaten to kill the child if he/she does not complete the homework as instructed, or in a repeated chronic manner over a child's life, such as insulting and humiliating the child at home and in public that he/she 'is a shame to parents and better dies than exists in this world'. Thus, in identifying whether there are signs of PA, health care professionals or child protective services should not just look into serious harmful incidents, but also patterns of parent-child interactions that are evidenced by multiple sources of information collection.

Perhaps the most challenging task in identifying whether PA exists is the differentiation between poor or inadequate parenting and psychologically abusive parenting acts. The following considerations may help to tackle such challenge: 1) information on the pattern of parent-child interactions and parenting behavior; 2) the developmental needs of the child in question; 3) collection of information from different sources such as family members, school personnel and medical/mental health professionals who are familiar with the child and/family, the parents themselves, and the child itself; and 4) having a team of professionals to discuss and determine the nature with the information collected. In the process of identification and decision-making, professionals that are involved may have to be alert to their own personal values in parenting or parent-child relationships which are shaped by our cultural beliefs and personal upbringing experience, and how such values subtly affect our perception and decision in whether child abuse, including PA, exists under question. No matter psychological abuse is established or not, whether the child continues to be at risk of harm has to be alerted as this would be one important factor in guiding the child protection and intervention that follow.

Once PA or risk of PA is established, a thorough plan on child protection and intervention service for the child and his/her family would be the next step. Intervention should be considered at individual, family, as well as system levels. For the individual, psychological assessment on any traumatic impacts, maladaptive functioning of the child as well as intervention strategy needed are indispensable. Depending on the developmental stage of the child, therapists have to be flexible in adopting different approaches to meet the needs of the child. Therapists not just have to be knowledgeable in trauma therapy, but also in systemic approach as the child does not live in isolation, but in relationship with significant others.

At family level, child protective service workers have to be alert of the service needs of other family members, whether they are also at risk of harm, and means to help the family to regain safety and protection. It is not just the abusive parent that needs intervention, but also the non-abusive parent, who may also suffer in the family dynamics, as a victim her/himself, or as an incompetent parent who blames her/himself for being unable to protect the child, or as a partner who shares similar value as the abusive parent. Siblings in family should also be interviewed on whether they are also affected by the demeaning or distorted family values upon chronic exposure to abusive behaviour in family towards the target child. If the child would be at risk of abuse if staying at home, out-of-home care has to be considered. At the larger system level, support from relatives, foster care, schools, and/or other medical/mental health professionals would help to stabilize the child's daily functioning, and rebuild the interpersonal trust and self-worth of the child that may have been destroyed before. Among these levels of intervention, Trauma-informed Care[13] is now a widely accepted framework in aiding child care services at different levels of intervention, especially out-of-home care. When a child is able to develop a secure attachment relationship with adult carer(s), he/she has taken a signification first step in the journey of healing and rehabilitation.

Prevention and Conclusion

Psychological abuse is a challenging concept in traditional Chinese society where parental rights and filial piety are highly regarded. With the recognition of children's right as promoted by UNICEF[14], advancement of knowledge on child development, and the accumulation of clinical knowledge in childhood trauma and its long term impacts on children, our society is gaining more awareness of the negative impacts of psychological abuse on children and the needs for intervention for children and families at risk. For prevention sake, psycho-education on children's psychological health and healthy (as well as awareness of harmful) parenting in our society is never too late. Training for professionals who work with children on knowledge of PA is also crucial. It is through working together at multi-levels of the child care system: prevention, training, and intervention, among people of different positions that we are contributing to the mental health of our young generation.

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Prevention and Early Identification of Child Maltreatment

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Abstract

Hong Kong has been adopting a 3-pronged strategy on prevention of child maltreatment and on safeguarding children's safety[1]. This paper introduces various levels of the strategies, viz. prevention of recurrence of child maltreatment (the third level), supporting families with higher possibility of child maltreatment (the second level) and public education (the first level). The significance and measures of early identification of possible child maltreatment and children with higher possibility to be maltreated are illustrated. Some enhancements made as set out in the "Protecting Children from Maltreatment — Procedural Guide for Multi-disciplinary Co-operation"[2] with a view to addressing certain concerns raised by professionals in recent years are also highlighted.

Introduction

Children have the right and need to be protected from maltreatment during their growth and development. They will be made vulnerable and even helpless when harm is inflicted on them by those who, by their characteristics (e.g. age, status, knowledge, organisational form), are in a position of differential power to them. Adverse effects on maltreated children can be severe especially when they are harmed by those who are supposed to be trustworthy and caring, and with whom the children should be able to build up their secure attachment. These adverse impacts may even pass on to the next generation if they are not dealt with properly.

Prevention – Strategy to Protect Children's Safety

Prevention is always better than cure. To avoid children from suffering or being traumatised by maltreatment, let alone the subsequent social costs incurred, prevention work is important and indispensable. Making reference to the public health approach proposed by the World Health Organization (World Health Organization, 2006)[3], Hong Kong has adopted a 3-pronged strategy to safeguard children's safety. It is also set out in the "Protecting Children from Maltreatment – Procedural Guide for Multi-disciplinary Co-operation" (Revised 2020) (the "Child Protection Guide")[2] (see Figure 1). The "Child Protection Guide" is a revised procedural guide jointly drawn up by various related sectors (including government bureaux and departments and other relevant non-governmental organisations (NGOs)) to provide guidance and reference to personnel engaged in social services, health services, educational services, law enforcement and those who work closely with children (personnel), with a view to protecting children suspected to have been or having been harmed/maltreated. Comparing with the previous versions of procedural guide, the "Child Protection Guide" has put more emphasis on the prevention of child maltreatment and prevention of recurrence of child maltreatment besides strengthening the content on handling procedures and multi-disciplinary co-operation.

Figure 1: Three-pronged Strategy to Safeguard Children's Safety (excerpted from "Child Protection Guide")

Third Level of Prevention

The third level of prevention is to **prevent the recurrence of child maltreatment** by managing crisis and protecting children through actions taken in handling suspected child maltreatment cases and following up child protection cases as recommended in the Multi-disciplinary Case Conference on Protection of Child with Suspected Maltreatment (MDCC). To enhance multi-disciplinary co-operation, the "Child Protection Guide" clearly sets out the scope of cases concerned, handling procedures and roles of various professionals in the handling process. There are also specialised units/personnel in relevant government departments and organisations to handle this kind of cases, like Family and Child Protective Services Units of the Social Welfare Department (SWD), Child Abuse Investigation Units of the Hong Kong Police Force and Medical Co-ordinators on Child Abuse of the Hospital Authority (HA). Other organisations are also advised to assign designated personnel to handle suspected child maltreatment cases. Relevant training has been organised to equip personnel with knowledge and skills to handle such cases.

According to the statistical reports of Child Protection Registry[4] administered by SWD, the number of newly registered child maltreatment cases from 2015 to 2020 had in general increased from 874 in 2015 to 1 006 in 2019 (with slight reduction to 940 in 2020 under COVID-19 pandemic). These registered cases were mainly those being considered as a harm/maltreatment to a child or where a child was considered of having a high risk of harm/maltreatment in future though the incident was not considered as a harm/maltreatment to a child in the MDCC or by all professionals concerned (where MDCC was dispensed with) after investigation.

Indeed, suspected child maltreatment cases have usually drawn much attention from professionals concerned and a lot of time and resources have been employed in investigating and handling these cases. Various specialised and support services have also been in place to assist these children and their families to address the negative impacts brought about by the maltreatment experience, reduce or eradicate the risk of harm to the children and to enhance

the families' functions and their capability in childcare and parenting so that the families can assume full responsibility to protect the physical and psychological safety of the children.

To prevent child maltreatment from recurrence, involvement and co-operation of family members of the maltreated child and their support networks in the formulation and implementation of the follow-up plan is one of the key success factors. Making reference to the Signs of Safety approach[5], which is a strengths-based and safety-focused approach to child protection work grounded in partnership and collaboration developed in Western Australia, a common goal on protecting children's safety and an agreed, concrete as well as achievable "safety plan" among professionals and with family members will facilitate all parties to work together for the best interests of children. While out-of-home placement and/or statutory supervision are required for certain children with higher risk of maltreatment, intensive and family-focused work under multi-disciplinary collaboration is to be rendered to the families so that permanency plan for the children can be formulated and carried out as soon as practicable.

Previously, there have been occasions that certain professionals had hesitation to term a case as "child abuse" in MDCC as they considered that the parent, who was the alleged perpetrator, did not have an intention to harm the child. Giving the parent such a label would ruin the working relationship rendering the follow-up work extremely difficult since the term "child abuse" in Chinese carries a general negative connotation of torturing a child and having an ill intention behind. Actually some parents have lodged complaints to SWD/NGOs responsible for the investigation against the decision on the case nature as "child abuse". Some parents have even lodged complaints to the Social Workers Registration Board as they opined that the investigating social workers or chairpersons had bias on them or had misled members of MDCC to make an incorrect decision.

Since the decision on the nature of incident (previously called "case nature") is a joint decision of MDCC, professionals should firstly have a common understanding that their primary consideration in the discussion should be the harm and the potential impact caused to the child's physical/psychological health and development by the behaviour of the alleged perpetrator rather than whether the latter who committed/omitted the behaviour had an intent to harm the child. Considering that some family members or children may have different understanding of the definition of child maltreatment as stipulated in the "Child Protection Guide" and adopted by professionals, the "Child Protection Guide" suggests that professionals may, subject to the impact of the incident on the child, consider using the term "harm" instead of "maltreatment". This is not to undermine the seriousness of the incident but to avoid the misunderstanding or miscommunication resulted from possible different understanding of the term "maltreatment" (especially in relation to the intention or seriousness of the behaviour) by parties concerned. Professionals are also advised to point out whether the child requires protection due to being/having been harmed (i.e. the impact of the incident on the child) but not whether the behaviour constitutes to "child maltreatment" when explaining their concerns and the nature of incident to the children and their families.

Early Identification of Possible Child Maltreatment

Early identification of possible child maltreatment is of paramount importance so that actions can be taken to protect children having been harmed and to assist families having been entangled in multiple difficulties. Very often, child maltreatment is only the presenting problem or one of the many problems in the family. It indeed can be an entry point for external assistance and intervention. The earlier these families are identified, the earlier the suffering of the children can be relieved and appropriate assistance can be rendered to these families.

Reference of possible indicators of child maltreatment is therefore of extreme significance in helping people from different disciplines to be more sensitive to the occurrence of possible child maltreatment. With advice given by professionals who have ample experience in handling child maltreatment cases, the reference list of possible indicators of child maltreatment has been strengthened in the "Child Protection Guide". In particular, behavioural/emotional indicators relating to various types of harm/maltreatment, especially some relatively common manifestations on infants/toddlers and carers which may not be easily identified, are added.

Despite so, personnel are to be reminded not to exclude the possibility of child maltreatment just because certain circumstances are not on the list of possible indicators. They should also not conclude prematurely whether an incident being or being not suspected child maltreatment without sufficient information. Otherwise, some maltreated children may not be able to get early assistance to protect them from further harm. Some children may, on the contrary, be found being required to undergo investigations, examinations or hospitalisation which may be unnecessary after due information has been collected and initial assessment, including risk assessment, on child maltreatment has been conducted. Personnel are hence advised to make reference to the points to note at Annex 11 to the "Child Protection Guide" on initial contact with children who may have been harmed/maltreated or their parents, the contents of which include questioning skills and observation during home visits. With such reference, personnel would not miss the information or cues that are significant for them to make the required and sound assessment.

There may be situations that a report of suspected child maltreatment, after initial assessment, is not regarded as child maltreatment according to the working definition adopted in the "Child Protection Guide" (e.g. consensual sexual activities between an adolescent and his/her lover of similar age). Nonetheless, personnel are advised to adopt the approach of multi-disciplinary co-operation, e.g. convening pre-birth conference/welfare meeting/case meeting as far as possible to proactively strengthen the support and assistance for the child and his/her family concerned so as to better safeguard the best interests of the child.

Second Level of Prevention

The mechanism of the third level of prevention in Hong Kong has been improving with the collaborative efforts of related disciplines. However, it is imperative that the second level of prevention can achieve its utmost purpose so that the number of children suffering from

maltreatment and requiring the third level of prevention can be much reduced.

The second level of prevention is to **identify children with higher possibility of maltreatment and to provide their families with appropriate and substantial support as early as practicable so that the children will not suffer from maltreatment**. It is not only to save the social costs but, more importantly, to assist the children at risk of maltreatment in a better and more effective way.

Early Identification of Children with Higher Possibility of Maltreatment

Professionals with opportunities of having contact with children and their families should be alert in identifying families with higher possibility of child maltreatment as soon as possible. These families may have certain characteristics in the parents'/carers' personal background/experience, attitudes and behaviour. There may also be certain features on the child concerned and the family as a whole. Very often, these families have experienced or been facing difficulties or stresses in life/various stages of family life cycle that affect their capabilities in parenting. Yet, many of them may not be ready to seek help or have adequate knowledge on where and how to seek help. Hence, the initiative taken by professionals in reaching out and offering assistance to these families is crucial. To heighten personnel's awareness of these families, Annex 1 to the "Child Protection Guide" lists out the characteristics which are often found in families with higher possibility of child maltreatment for reference.

In practice, there have already been a lot of programmes and services serving this purpose[6]. Taking some of the social services provided by SWD and NGOs as examples, Integrated Family Service Centres/Integrated Services Centres[7] provide a spectrum of services to address the multifarious needs of individuals and families of specific localities. Various day and residential child care services[8,9] assist families with children who cannot be adequately cared for by their families because of various reasons such as children's behavioural, emotional or relationship problems, or family crises arising from illness, death and desertion, etc. School Social Work Service in pre-primary institutions8 aims to early identify and assist pre-primary children and their family members with welfare needs so as to prevent the occurrence of child maltreatment and other family problems. In addition, Support Programme for Enhancing Peaceable Relationship[10], apart from providing an early and flexible intervention for batterers/potential batterers of intimate partner violence (IPV), provides support services for children who have witnessed or been exposed to IPV with a view to protecting them from harm.

Sectors other than social services have also been providing substantial support for families with children having developmental/mental handicap or undesirable behaviour, or families with parents/carers having mental/addiction problem such as substance misuse, etc., which pose risk of maltreatment to children with reference drawn from Family Assessment Risk Variables (Walker & Tabbert 1997)[11] listed at Annex 16 to the "Child Protection Guide". Here are some examples of the support in our local context. The Child Assessment Service[12] under the Department of Health (DH) provides professional assessment and follow-

up service for children under 12 years of age with developmental-behavioural problems or disorders, and also supports their parents through provision of information, advice and training. Substance Abuse Service under HA[13,14] provides comprehensive service for drug abusers, mainly those with both drug abuse and psychiatric problems which affect very much their capability in childcare. The Special Education Service under the Education Bureau (EDB)[15], on the other hand, identify children with special educational needs at an early stage so that intervention measures can be taken to prevent a mild problem from aggravating.

Above all, with an aim at identifying the varied needs of pregnant women at-risk, children and families at an early stage, the Labour and Welfare Bureau, EDB, DH, SWD and HA launched the Comprehensive Child Development Service (CCDS)[16] since 2005 by phases and has fully implemented in all districts of Hong Kong since 2012-13. CCDS makes use of the Maternal Child Health Centres (MCHCs) under DH as a platform to enhance cross-sectoral collaboration and communication. Through better alignment of existing health, education and social welfare services, CCDS facilitates timely referral of children and families with special needs to health and social service units so that appropriate services can be made available to them in a timely manner. In MCHCs providing CCDS, there are also visiting psychiatrists, paediatricians and psychiatric nurses from public hospitals to provide on-site specialised service and support for the families in need. Such a practice reduces stigmatisation and inconvenience and in turn increases service users' access to and acceptance of various health and social services. DH, HA and SWD have also jointly developed a Manual of Parenting Capacity Assessment Framework (for the 0 – 36 months old)[17] which is a usual reference for social workers and frontline personnel to early identify young children not being properly taken care of or at risk of maltreatment.

In fact, there is a large number of personnel involved in running programmes and providing services for assisting families with risk of child maltreatment. Nevertheless, not all of them are aware that their collective efforts, little by little, are working towards the ultimate goal of prevention of child maltreatment. If personnel have more awareness of the importance of their roles in preventing children from possible maltreatment, they will perhaps carry out their work with a more proactive attitude and endurance even when working with the "uncooperative parents". Paradoxically, the moment when the parents exhibit uncooperative attitude may be the moment they open up their feelings, albeit negative ones, at the prospect of help. Personnel are advised to recognise that a range of social, cultural, psychological and historical factors do influence the behaviour of parents (London Safeguarding Children Board, 2020)[18]. Empathetic understanding and persistence will therefore be the key to engage the parents in the family assessment and intervention.

First Level of Prevention

Like the second level of prevention, there have all along been a lot of programmes, services and resources in Hong Kong on family life education and primary health care, etc. which are contributive to the prevention of child maltreatment.

More specific and focused, public education and publicity on prevention of child maltreatment under the publicity campaign "Strengthening Families and Combating Violence" have been launched by SWD since 2002, through which territory-wide and

district-based programmes are organised to raise the public awareness on the importance of family cohesion and prevention of domestic violence (including child maltreatment), as well as to encourage people in need to seek early assistance. In recent years, SWD has produced various series of television and radio Announcements in the Public Interest as well as displayed banners and posters on public transports and popular websites with messages to protect children from corporal punishment, verbal abuse and neglect, etc. Such messages have also been delivered in various languages through leaflets, radio programmes and public education programmes to ethnic minority groups.

SWD has also provided subvention for NGOs to enhance public awareness on child maltreatment and parents'/child carers' knowledge and skills in looking after children through community education.

To examine the child maltreatment problem in Hong Kong, to map out strategies to address this problem, including prevention, public education and community participation, and to facilitate multi-disciplinary collaboration, SWD has set up various forums with members from multi-disciplines at different levels. At central level, there is a Committee on Child Abuse chaired by the Director of Social Welfare (DSW) and comprising members from various government bureaux/departments, related sectors and organisations. At district level, a District Co-ordinating Committee on Family and Child Welfare and a District Liaison Group on Family Violence chaired by the District Social Welfare Officer of SWD are in place in each of the 11 administrative districts of SWD.

Moreover, a Child Fatality Review Panel[19] (Review Panel) has been set up since 2011 after a Pilot Project on Child Fatality Review that lasted from 2008 to 2011. This non-statutory Review Panel, appointed by DSW with members from a variety of backgrounds, reviews fatality cases involving children below the age of 18 who died of both natural and non-natural causes, including child deaths due to assault by family members and relatives. Such review aims at facilitating the enhancement of social service systems pertaining to child welfare with focus on inter-sectoral collaboration and multi-disciplinary co-operation for prevention of occurrence of avoidable child deaths.

Way Forward

The above introduces the 3-pronged prevention strategy on safeguarding children's safety in Hong Kong with illustration on the significance and measures of early identification of possible child maltreatment and children at risk of maltreatment. Some enhancements made in the "Child Protection Guide" with a view to addressing certain concerns raised by professionals in recent years have also been indicated. While no system is perfect and every mechanism has room for improvement to meet the new challenges in the society and tackle the ever changing forms of child maltreatment, the most important issue is that all the personnel concerned should put the principles of child protection work, i.e. "Child-focused, Safety First", "Family Participation" and "Multi-disciplinary Co-operation", as highlighted in the "Child Protection Guide", into actual practice and exert the spirit of **WORKING TOGETHER** and **TRUSTING EACH OTHER** to achieve the common goal of **PROTECING THE VULNERABLE** and **FOR THE WELFARE OF CHILDREN**.

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