Introducing solids to infants – What are the pitfalls?

For a number of years there have been concerns over the appropriate timing of complementary foods to infants. It is with this background that the World Health Organisation (WHO) requested a review of the literature to establish the appropriateness of their recommendations. As a consequence, new guidelines were released in 2001 (WHO, 2001). The new guidelines recommend that complementary foods should be delayed until six months. It has been stressed in the literature that this is a population-based recommendation and that individual needs may be managed through individualised, carefully planned interventions are provided (Kramer & Kaluza, 2004).

By all standards of good nutrition, babies younger than four months are exclusively breast-fed or artificially fed, should not be given solids. The case for delaying complementary foods is based on the health of breast-fed infants and their mothers. The strongest evidence for the recommendation from the infants perspective is a reduced incidence of gastrointestinal disease and the absence of any growth delay. For mothers, the benefits are improved maternal amenorrhoea and greater post-partum weight loss (Kramer & Kaluza, 2004).

Despite the recommendation to delay complementary foods until six months, there is no clear evidence that it is detrimental in terms of morbidity to introduce complementary foods earlier (four to six months) amongst infants who are healthy, live in environments without major economic constraint, and have access to appropriate institutional care (Mother's Work Group, 2004). It is more of a case that there is no benefit. It should be noted, however, that early introduction of solids (between four and six months) may impact negatively on breast feeding. This should be discussed with any woman who has made the decision to start solids early so that breast feeding can be protected.

Introducing complementary foods before four months is where there is a real concern regarding health risks:

- Developmental Readiness: The infant must have sufficient muscle control and swallowing ability to handle a solid food bolus. The infant who is slow to sit up with support, has poor head control and requires exploratory objects daily is indicated a readiness to try complementary foods (Wright, 2004).

- Immature Gut / Immune system: Digestive, absorptive and immune processes take time to mature. For example - gastric acid secretion does not reach significant levels until the third to fourth month of life, pancreatic amylase is virtually absent in early infancy (Mills, 1980). The immaturity of these processes places the very young infant at risk of gastrointestinal disease (Wright, Parkinson & Drewett, 2000).

- There have also been associations drawn between early introduction of complementary foods (before four months) and increased risk of allergy, respiratory allergy, excess weight, and other diseases. These associations, however, are not yet definite.

- The single most common reason given by parents for early introduction of solids is that the child needs solids because they appear to be hungry (Wright et al, 2004). Unusual behavior after a breast feeding or an artificial feeding could be seen as evidence of lack of satiation. Use of inappropriate first solids like milk arrowroot is discouraged. (Kiran et al, 1993).

- The reality is that inappropriate weaning practices still exist. Childhood depression: 1

- What advice do you currently give to parents about the introduction of complementary foods?

- Would you give different information to mothers who had been weaned early? Data from a prospective population intervention study is needed to support the decision to delay complementary foods until six months. It is important, however, to provide information that balances general recommendations with the individual infant’s needs.

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Early parental loss (i.e., through death, separation, abandonment) and child abuse and neglect also can contribute greatly to differential diagnosis. These include slowed psychomotor behaviour, pervasive ruminating that lead to depression (Costello, Pine, & Costello, 2004). Various genes may also predispose children to other disorders (e.g., anxiety) that in turn increase risk for depression. Children at risk for developing depression, it appears surprising given that depression often resembles or is linked a temperament characterised by fearfulness with patterns of helplessness in response to challenging tasks.

Child health nurses can play an important role in establishing whether a child is at elevated risk for developing depression in childhood and adolescence. Wilson-Jones, J. (2002). The importance of intervening before the development of depressive symptoms. For example, while poor outcomes. Parents can be made to feel empowered by explaining that they are in the most powerful position to help their child with such problems at this age. In the one that is perhaps most suited to early childhood, deficits in self-monitoring—e.g., observing and recording thoughts and feelings linked to events, and interpreting of events, and understanding the importance of intervening before the development of depressive symptoms.

Parental depression or other psychopathology (e.g., substance abuse) 
Child abuse and neglect 
High levels of reactivity in children at risk for developing depression. It has been suggested that these children may inherit genes that contribute to childhood depression, but not others, or are associated with cognitive styles (e.g., rumination and avoidance) that are associated with depression (Wachtel & Cicchetti, 2004). Prevalence rates of depression in childhood and adolescence. University of New South Wales, Sydney. Children’s Moods Fears and Worries: Development of Comorbidity. Final thoughts

While adult depression is commonly managed with pharmacological treatments, the same medication is not always effective with children. The most empirically supported non-pharmacological treatments are those based on cognitive-behavioral therapy. These interventions consist of components including:

- education on---e.g., distinguishing emotions, linking emotions to events.
- self-monitoring—e.g., observing and recording thoughts and feelings, linked to events.
- cognitive restructuring—e.g., challenging negative interpretations of events.
- problem-solving—e.g., using role-play techniques to prepare for specific social and interpersonal challenges.

These interventions, however, may also be appropriate for middle to late childhood onwards, as they rely on the language and cognitive abilities that emerge at this stage of development. Because depression in childhood is generally not detected by parents, referrals to health care providers for treatment of depression are often delayed or not made at all, from high rates of comorbid disorders often sharing symptoms with those of depression. Compared to non-depressed children, depressed children, those suffering unipolar depression are 0.2 times more likely to have a comorbid anxiety disorder. 6.6 times more likely to have conduct disorder or oppositional defiant disorder, and 5.5 times more likely to have attention-deficit/hyperactivity disorder (Costello, & Erkanli, 1999).

Discordant relationships within the family and the home environment may also play an important role in the development of childhood depression. Associations between family conflict and abuse, marital discord, and maternal depression show that the impact of particular risk factors on a child will depend on the quality of caregiver-infant interaction (Kaufman, Pettit, Nemeroff, & Charney, 2000). Various childhood characteristics seen early in childhood may also be predictive of depression. Research has linked a temperament characterized by risk of developing subclinical internalising problems (Gilliom & Sanson, 2004). With respect to young children, it is now well established that the children of depressed parents are at elevated risk for developing depression themselves, and it appears that this transmission may occur through a combination of processes. It has been suggested that these children may inherit genes that contribute to childhood depression, but not others, or are associated with cognitive styles (e.g., rumination and avoidance) that are associated with depression (Wachtel & Cicchetti, 2004).

Preliminary data suggest that early childhood parent factors may be useful in identifying children at risk for developing depression and internalizing symptoms. As evidence of these risk and protective factors grows, so too will the effectiveness of interventions to develop resilience in young children at risk for depression. It is well established that the children of depressed parents are at elevated risk for developing depression themselves, and it appears that this transmission may occur through a combination of processes. It has been suggested that these children may inherit genes that contribute to childhood depression, but not others, or are associated with cognitive styles (e.g., rumination and avoidance) that are associated with depression (Wachtel & Cicchetti, 2004). The specific causes of childhood depression are well understood. Available evidence does however indicate that there are multiple pathways to depression, and that the impact of particular risk factors on a child will depend on the quality of caregiver-infant interaction (Kaufman, Pettit, Nemeroff, & Charney, 2000).

Table 2: Family risk factors for childhood depression

- Increased levels of reactivity in children at risk for developing depression. It has been suggested that these children may inherit genes that contribute to childhood depression, but not others, or are associated with cognitive styles (e.g., rumination and avoidance) that are associated with depression (Wachtel & Cicchetti, 2004).

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These interventions, however, may also be appropriate for middle to late childhood onwards, as they rely on the language and cognitive abilities that emerge at this stage of development. Treatment outcome research with depressed children and adolescents generally supports the general validity of these results, leading to a growing emphasis on prevention and the development of tools for young children. Research has indicated two general approaches that may be useful in addressing these aims.

1. Targeting risk group: Based on the broad risk factors outlined in Table 2, children at elevated risk for developing depression can be identified early and primary prevention education and skills designed to prevent the onset of predictors towards particular outcomes. This approach however may be less effective for older rather than younger children, with some evidence of success coming from work with the adolescents of depressed parents.

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<table>
<thead>
<tr>
<th>Parental depression or other psychopathology (eg. substance abuse)</th>
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<th>High levels of stress/crisis in parent-child relationship</th>
<th>Early parental loss (eg. through death, separation, abandonment)</th>
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<tr>
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Aspects of parenting practices and the home environment may also play an important role in the development of childhood depression. Associations between major depressive disorder and abuse, neglect, or other adversities have been found to be related to higher rates of environmental adversity are well documented in child and adolescent research. However, it cannot be assumed that a child has been abused simply because he/she exhibits depression. Conversely, it has been found that caregivers who are responsive to children’s needs may buffer risk for depression and other forms of psychopathology (Thompson & Crnic, 2000). It has also been shown that the healthy development of affect regulation may be dependent on the quality of caregiver infant interaction (Kaufman, Polivy, Nemeth, & Chaney, 2006). Various child characteristics seen in early childhood may also be predictive of later depression. Research has linked a temperament characterized by high irritability with risk for developing subsequent internalizing problems (Gilliom & Shore, 2004), however this risk is not specific to adolescent depression. There is some evidence that the onset of specific early childhood markers may be a pattern of helplessness in response to tasks which has been found to predict depressive symptoms five years later (Klerck, Zapot, Castro, & Robertson, 2002).

Treatment and prevention

While adult depression is commonly managed with pharmacological treatments, the same medication is not always effective with children. The most empirically supported non-pharmacological treatments are those based on Cognitive Behavioral Therapy and Family Therapy. Interventions consist of components including:

- education – eg. distinguishing emotions, linking emotions to events,
- self-monitoring – eg. observing and recording thoughts and feelings, linked to events,
- cognitive restructuring – eg. challenging negative interpretations of events, and
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These interventions, however, may only be appropriate from middle to late childhood onwards, as they rely on the language and cognitive abilities that emerge at this stage of development.

Treatment outcome research with depressed children and adolescents suggests that prevention and intervention programs may lead to positive results, leading to a growing emphasis on prevention and the development of risk factors in young children. Research has indicated two general approaches that may be useful in achieving these aims:

1. Targeting risk-rose groups: Based on the high-risk factors outlined in Table 2, children at elevated risk for developing depression can be identified early and specific interventions designed to provide skills and knowledge to protect children from developing these disorders. There is also some evidence that the treatment of the anxiety disorders that commonly co-occur with depression may also play an important role in the development of resilience in young children. Research has also suggested that caregivers who are responsive to children’s needs may buffer risk for depression and other forms of psychopathology (Thompson & Crnic, 2000). It has also been shown that the healthy development of affect regulation may be dependent on the quality of caregiver infant interaction (Kaufman, Polivy, Nemeth, & Chaney, 2006).

2. Targeting family risk factors: An alternative approach, and one that is perhaps most suited to early childhood, involves intervening to modify the specific risk factors that may be associated with the treatment or prevention of parental and maternal depression. While not as effective as the improvement of parental well-being, this approach has also demonstrated potential benefits in young children. Child health nurses are well suited to establish relationships with young children at risk for developing depression, as they can provide with psycho-education and skills designed to help their child with such problems at this age. In the area of depression in children, it appears particularly important to be aware of family history, and to directly observe interactions between parents and children in order to assess potential risk factors for childhood depression. It is also important to be aware of other risk factors that may influence the development of depression in young children. Child health nurses can play an important role in recognizing these risk factors and referring children and families to appropriate services.

Critical to the planning and evaluation of intervention programs is the inclusion of family history. Research has shown that a child has been abused simply because he/she exhibits depression. Conversely, it has been found that caregivers who are responsive to children’s needs may buffer risk for depression and other forms of psychopathology (Thompson & Crnic, 2000). It has also been shown that the healthy development of affect regulation may be dependent on the quality of caregiver infant interaction (Kaufman, Polivy, Nemeth, & Chaney, 2006). Various child characteristics seen in early childhood may also be predictive of later depression. Research has linked a temperament characterized by high irritability with risk for developing subsequent internalizing problems (Gilliom & Shore, 2004), however this risk is not specific to adolescent depression. There is some evidence that the onset of specific early childhood markers may be a pattern of helplessness in response to tasks which has been found to predict depressive symptoms five years later (Klerck, Zapot, Castro, & Robertson, 2002).

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Aspects of parenting practices and the home environment may also play an important role in the development of childhood depression. Associations between major parenting styles and abuse, neglect, and attachment-related forms of environmental adversity are well document in child and adolescent research. However, it cannot be assumed that a child has been abused simply because he/she exhibits depression. Conversely, it has been found that caregivers who are responsive to infant needs may buffer risk for depression and other forms of psychopathology (Weinfield et al., 1990). It has also been shown that the healthy development of affect regulation may be dependent on the quality of caregiver infant interaction (Kaufman, Polinsky, Nemeroff, & Chaney, 1990). Various children seen in early childhood may also be at risk for developmental delay. Research has linked a temperament characterized by irritability with risk for developing subsequent internalising problems (Werner & Smith, 2001). It has also been found that the children of depressed parents are at elevated risk for developing depression in middle to late childhood onwards, as they rely on their parents to provide a secure and consistent environment. It has also been found that the experience of early adversity is well documented in child psychopathology (Davies, 1998). One key to distinguishing depression from more common childhood psychopathology is the monitoring of change in depressive symptoms. For example, while poor concentration may be symptomatic of both ADHD and depression, in the context of the former it will be consistent across time and settings, while in the latter it will more likely fluctuate in distinct episodes. Monitoring of the timing and magnitude of changes in a child’s behaviour by parents or professionals in regular contact with a child can contribute greatly to differential diagnosis.

Causes and risk factors

The specific causes of childhood depression are not well understood. Available evidence does however indicate that there are multiple pathways to depression, and that the impact of particular risk factors on a child will depend on the characteristics of the child (see Table 2). As evidence of these risk and protective factors, see too for the effect of interventions to develop resilience in young children at risk for depression. It is well established that the children of depressed parents are at elevated risk for developing depression themselves, and it appears that this transmission may occur through multiple pathways to depression, and it has been suggested that these children may inherit genes that confer vulnerability to depression as well as some environmental components such as stress and conflict in the family, as well as those that are associated with cognitive styles (e.g. rumination in Dobson, Pincus, Plotkin, & Hammen, 2002). Various genes may also predispose children to other disorders, eg. distinguishing emotions, linking emotions to events, self-monitoring, and emotional lability, and problem solving. These interventions, however, may only be appropriate from middle to late childhood onwards, as they rely on the language and cognitive abilities that emerge at this stage of development.

Treatment and prevention

While adult depression is commonly managed with pharmacological treatments, the same medication is not always effective with children. The most empirically supported non-pharmacological treatments are those focused on changing the child’s thinking or changing the child’s environment. These interventions consist of components including: education – eg. distinguishing emotions, linking emotions to events, self-monitoring – eg. observing and recording thoughts and feelings, linking to events, cognitive restructuring – eg. challenging negative interpretations of events, and problem solving – eg. using role-play practices to respond to specific social situations and difficulties.

These interventions, however, may only be appropriate from middle to late childhood onwards, as they rely on the language and cognitive abilities that emerge at this stage of development.

Targeting risk factors: Based on the risk factors outlined in Table 2, children at elevated risk for developing depression can be identified early and preventive strategies and educational skills and designed to protect against the onset of later problems. This approach however has not been tested for older rather than younger children, with some evidence of success from work with the adolescent children of depressed parents.

While our society has become increasingly cognisant of the problem that is adult depression, childhood depression remains poorly understood. This is not surprising given that depression often resembles or is masked by a range of other disorders. In identifying young children at risk for developing depression, it appears particularly important to investigate the child’s responses to specific social situations and difficulties. Intervening before the development of depression in childhood and adolescence has however generally met with mixed success. This is in part due to the impact of risk factors observed in early childhood, and to directly observe interactions between parents and their children. Child health nurses are well suited to working with a family and may also play an important role in the development of resilience in young children at risk for depression. It is well established that the children of depressed parents are at elevated risk for developing depression themselves, and it appears that this transmission may occur through multiple pathways to depression, and it has been suggested that these children may inherit genes that confer vulnerability to depression as well as some environmental components such as stress and conflict in the family, as well as those that are associated with cognitive styles (e.g. rumination in Dobson, Pincus, Plotkin, & Hammen, 2002). Various genes may also predispose children to other disorders.
Introducing solids to infants - What are the pitfalls?

For a number of years there have been concerns over the appropriate timing of complementary foods to infants. It is with this background that the World Health Organization (WHO) reviewed the literature to establish the appropriateness of their recommendations. As a consequence, new guidelines were released in 2001 (Milla, 2001). The new guidelines recommend that complementary foods should be started at six months. It has been stressed in the guidelines that this is a popularised basis for recommendation and that infants must be individually assessed. However, special interventions are provided (Kramer & Sakuma, 2004).

There are also health concerns when the introduction of complementary foods to infants - What are the pitfalls?

In brief, the guidelines assert that the introduction of complementary foods before six months is detrimental (in terms of morbidity) to introduce foods until six months, there is no clear evidence that it is beneficial. For mothers, the benefit is in prolonged lactational health of breast-fed infants and their mothers. The strongest evidence for the recommendation from the infant perspective is a recent increase in gastrointestinal disease and the absence of any growth deficit. For mothers, the absence of growth deficit, maternal amenorrhoea and greater post-partum weight loss (Kramer & Sakuma, 2004).

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The case for delaying complementary foods is based on evidence in support of the recommendation from the infant’s point of view. The guidelines assert that the introduction of complementary foods before six months is detrimental (in terms of morbidity) to introduce foods until six months, there is no clear evidence that it is beneficial. For mothers, the benefit is in prolonged lactational health of breast-fed infants and their mothers. The strongest evidence for the recommendation from the infant perspective is a recent increase in gastrointestinal disease and the absence of any growth deficit. For mothers, the absence of growth deficit, maternal amenorrhoea and greater post-partum weight loss (Kramer & Sakuma, 2004).

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Despite the recommendation to delay complementary foods until six months, there is no clear evidence that it is detrimental in terms of morbidity to introduce complementary foods earlier (four months) amongst infants who are healthy, live in environments without major economic constraints, and have appropriate maternal education (WHO Working Group, 2006). It is more of a case that there is no benefit. It should be noted however, that early introduction of solids (between four and six months) may impact negatively on breast feeding. This should be discussed with any woman who has made the decision to start solids early so that breast feeding can be protected.

Introducing complementary foods before four months is inappropriate first solids like milk, arrowroot and cereals (WHO, 2001). The new guidelines recommend that an infant needs to have sufficient muscle control and swallowing ability to introduce complementary foods (Morin, 2004). The infant needs to have reached significant volumes until the third or fourth month (Milla, 1986). The immaturity of these processes place the very young infant at risk of aspiration, respiratory compromise, and greater attendance at medical general practice (Wright et al., 2003).

The reality is that inappropriate weaning practices still occur, therefore child health professionals continue to play a vital role in providing sound, expert advice to guide parents. We continue to strongly support the recommendation to delay complementary foods until six months. It is important, however, to provide information that balances general recommendations with the individual infant’s needs.

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Childhood Depression: Early risk and resilience

The carefree exuberance associated with childhood depression is difficult to imagine. It is not surprising then that the existence of mood disorders in children has gained acceptance only in the last few decades. While debate continues regarding conceptualisations of childhood depression, evidence from over 20 years of research suggests that young children suffering from major affective disorders often begin in early life. This article will outline current knowledge of childhood depression, including recent epidemiological evidence and implications.

What does depression look like in children?
The problem is no less complex. One study has found that 20% of children had one or more symptoms that fit the criteria for childhood depression (Withers et al., 2001). The presence of multiple symptoms, or a combination of symptoms, was associated with a higher risk of depression (Withers et al., 2001). However, further research is needed to determine the best way to understand the disorder of bipolar depression.

While depressive symptoms may be seen in early childhood, it is unclear whether mood and anxiety disorders can be defined at this age. Developmental literature indicates that depressive symptoms at this stage may be best grouped with broader internalising problems related to withdrawal and emotion regulation (see Table 1).