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Exploring the Experiences and Perceptions of Speech Language Therapists regarding Fussy Eating in children

Submitted in fulfilment of the Requirements for Degree of Master of Speech Pathology:

The Discipline of Speech Pathology

School of Human and Community Development

Faculty of Humanities

University of the Witwatersrand

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Abstract

Background: Fussy eating has become an increasing concern in paediatric care as a result of its far-reaching consequences for the developing child. However, there is currently a scarcity of published literature related to fussy eating internationally and even more so within the South African context, resulting in a lack of consensus regarding the definition of fussy eating.

Aim: To explore the experiences and perceptions of SLTs with regards to fussy eating in children.

Methods: The study was based on an exploratory, descriptive, qualitative research design. Data was gathered within semi-structured, in-depth interviews from 30 SLTs who consented to participate in the study. The data was analysed qualitatively, using thematic content analysis.

Results: Fussy eating was described as a multi-factorial and heterogeneous condition arising from a number of inter-related aetiologies. The role of sensory integration was noteworthy in the understanding of fussy eating in children, and extended to almost every aspect of the study. The nature of fussy eating described within this study therefore appeared to lend to a multidisciplinary approach to adequately address the needs of this population. The findings of the study further indicated that socio-economic status contributed to the causes of fussy eating.

Conclusion: Based on the findings of the study in conjunction with the literature pertaining to fussy eating, a working definition of fussy eating is proposed. The complexity of fussy eating calls for collaboration between healthcare professionals in dealing with this condition. All professionals dealing with fussy eating must therefore be adequately trained to deal with this condition adequately.

Key Words: Fussy Eating, Feeding Disorders, Sensory Integration, South Africa

Abbreviations

AIDS	Acquired immune deficiency syndrome
ARFID	Avoidant/restrictive food intake disorder
ASD	Autism spectrum disorder
CNS	Central nervous system
DC:0-3R	Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood: Revised Edition
DSM	Diagnostic and Statistical Manual of Mental Disorders
FDIGT	Feeding disorder associated with insults to the gastrointestinal tract
GORD	Gastro-oesophageal reflux disease
HIV	Human immunodeficiency virus
ICD	International Classification of Diseases
ICF	International Classification of Functioning, Disability and Health
P	Participant
R	Researcher
SFA	Sensory food aversion
SLT	Speech Language Therapist

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Introduction

Neophobia toward food is common in early childhood (Dovey, Staples, Gibson & Halford, 2008), with the majority of cases being transient and of short duration (Mascola, Bryson & Agras, 2010). Food neophobia relates to the need for children to develop safely within their environment without the risk of poisoning while learning what is edible and what is not (Dovey et al., 2008). However, in a small percentage of children these behaviours tend to persist for extended periods of time, extending beyond a rejection of unfamiliar foods to encompass the rejection of familiar foods based on their sensory properties (Dovey et al., 2008). Children that present with these difficulties, beyond what is developmentally appropriate, have been referred to as "fussy eaters" in the literature. Fussy eating has become an increasing concern in paediatric care as a result of its far-reaching implications for the developing child (Tharner et al., 2014) including medical, developmental and psycho-social implications (Arvedson & Brodsky, 2002). Furthermore, studies have indicated that the implications of fussy eating in childhood may extend into adolescence and adulthood (Dubois, Famer, Girard, Peterson & Tatone-Tokuda, 2007; Thompson, Cummins, Brown & Kyle, 2015; Uher & Rutter, 2012). Therefore, fussy eating in childhood may inform adult nutrient intake (Dovey et al., 2008), suggesting that the implications of fussy eating in childhood are far reaching. Surprisingly, despite the increased awareness of fussy eating, there is currently a scarcity of published literature internationally and even more so within the South African context. The lack of research in this area is thought to be in part due to the inconsistent use of the terminology used to refer to fussy eating in the literature, as well as the lack of an accepted definition of fussy eating (Dovey et al., 2008; Tharner et al., 2014). The purpose of this study was therefore to describe the nature of fussy eating in children, as well as to examine issues related to fussy eating within the South African context.

When parents report fussy eating to healthcare professionals, they are often reassured that children "do not starve themselves", however research has affirmed that children for whom fussy eating persists do gain weight poorly and may manifest severe feeding problems (Wright, Parkinson, Shipton & Drewett, 2007). Thus, the presentation of fussy eating in children is a phenomenon that is not merely perceived by parents, but presents with significant manifestations, indicating that this area requires further investigation and research. Children with severe feeding problems do not respond to typical cues, such as hunger, that drive feeding behaviour, therefore if left untreated may result in significant health, psychological and social consequences (Tang, Piazza, Dolezal & Stein, 2011). Often fussy eating and its associated behaviours may be the first indication of an underlying medical aetiology that has not been identified (Lefton-Greif, 2008). These children currently cannot be adequately identified and managed within an evidence based approach due to the paucity of literature surrounding fussy eating. It is therefore crucial that an accepted definition and classification of fussy eating be established to accurately diagnose fussy eating that is pathological, so that children presenting with these difficulties may be managed appropriately. Clarification regarding the definition of fussy eating could also be utilized to promote further research related to fussy eating.

South Africa is a developing country, two decades into its democracy, within which widespread inequality still exists, while poverty and hunger are rife in many communities (South African Human Rights Commission [SAHRC] & United Nations International Children's Emergency Fund [UNICEF], 2014; Shisana et al., 2013). Within the South African context, there is a dearth of knowledge regarding the nature and incidence of fussy eating. South Africa's political history presents a complex socio-economic scenario within the country, indicating that the nature of fussy eating within the South African context may differ from that reportedly internationally. Therefore, the nature of fussy eating within the

South African context must be explored to inform the management of children presenting with such difficulties.

Speech Language Therapists (SLTs) are primarily involved in the management of feeding and swallowing disorders in South Africa within a multidisciplinary framework (Seedat, Mupawose & Choonara, 2011). Therefore, it was presumed that SLTs working with feeding and swallowing difficulties would encounter fussy eaters frequently within their clinical practise. Hence, SLTs were identified as professionals who would be able to provide valuable information regarding the nature of fussy eating within the South African context, given their scope of practise. Additionally, given the role of the SLT in feeding disorders, it is crucial that SLTs have an understanding of fussy eating related to the broader context of the child and family unit.

As a result of the paucity of literature related to fussy eating, this study aimed to investigate the experiences and perceptions of SLTs with regards to fussy eating in children. The information collated was intended to contribute to an understanding of "fussy eating". Moreover, the study aimed to formulate a working definition of the term "fussy eating" to inform clinical practise within this area.

Chapter 1 – Literature Review

Chapter one provides an overview of the literature in relation to the area of study. This will provide the context from which the research study was developed. The literature presented will relate to both the area of study, that is fussy eating, as well as relevant information pertaining to fussy eating within the South African context. Key concepts related to the definition, classification and aetiologies of fussy eating are described and the theoretical framework underpinning the study is presented.

Feeding disorders are defined as difficulties in a broad range of eating activities that may or may not be accompanied by a difficulty with swallowing food and liquid (Arvedson, 2008). Concerns related to feeding difficulties in children are amongst the most common issues that parents report to primary health care professionals (Arvedson, 2008; Fischer & Silverman, 2007).The literature is in agreement regarding the prevalence of feeding disorders, whereby feeding problems are estimated to occur in 25-45% of typically developing children (Arvedson, 2008; Lefton-Greif, 2008; Miller, 2009). This suggests that feeding problems in childhood occur frequently. The most common complaints reported by parents include poor appetite, brief meals, picky/fussy eating and food selectivity (Manikam & Perman, 2000). These difficulties are usually transitory, occurring more frequently in children of preschool age (Gisel, 2008). However, severe feeding difficulties may persist in 3-10% of children, especially those with physical disabilities, developmental disabilities, medical illness and prematurity (Manikam & Perman, 2000). The prevalence of feeding disorders in children with developmental disabilities is thought to be 80% (Arvedson, 2008; Gisel, 2008). Due to the high prevalence of feeding disorders in children, further research in this area is needed.

One of the main difficulties involved in performing research within the field of feeding disorders, is due to the disagreements within the literature regarding the definition and classification of feeding disorders (Ünlü, Aras, Eminağaoğlu, Büyükgebiz & Bekem, 2007). Numerous classification systems have been proposed in the literature however there is no system that has been universally accepted to date. Feeding disorders are heterogeneous; however classification systems have been inadequate in terms of reflecting the diversity of feeding problems (Piazza, 2008). Complex aetiologies related to feeding problems are not fully accounted for within the classification systems, nor do they provide sufficient specificity in terms of operationally defining the criteria for diagnosis (Piazza, 2008). For example, early classification systems were based on the assumption that feeding disorders presented in accordance with the organic-nonorganic dichotomy (Burklow et al., 1998). Consequently, this dichotomy resulted in certain classification systems being more medically orientated, while others classified feeding disorders as being behaviourally based. However, current theories have indicated that it is no longer practical to dichotomize difficulties with feeding into "organic" and "non-organic" elements (Kreipe & Palomaki, 2012), as the majority of feeding disorders in children result from a combination of aetiologies (Bryant-Waugh, Markham, Kreipe & Walsh, 2010). In relation to this study, current classification systems lack specificity in terms of adequately defining and describing fussy eating in order to indicate when fussy eating is pathological. However, it has been established that there is a percentage of children for whom fussy eating persists (Mascola et al., 2010; Tharner et al., 2014), therefore fussy eating needs to be explored and defined adequately within the context of feeding disorders in order to accurately identify and manage children with these difficulties.

Definitions of fussy eating are in their infancy, making it difficult to accurately identify this disorder in children (Dovey et al., 2008). The heterogeneity of definitions used

in previous studies indicates that fussy eating is a complex phenomenon and there is a need for a more applicable definition (Tharner et al., 2014). Furthermore, differences in defining fussy eating will only lead to further confusion and problematic theoretical interpretation (Dovey et al., 2008). It is therefore essential that a more applicable definition and classification of fussy eating is formulated and validated as soon as possible (Dovey et al., 2008). Thus the present study attempted to define fussy eating within the South African context.

1.1 Health and Nutrition within the South African Context

South Africa is a country of approximately 51.8 million people, of whom 9.2 percent are under five years of age (Statistics South Africa, 2012). South Africans experience a number of challenges with regard to health and socio-economic factors that differ significantly from those of developed countries. Even though South Africa has experienced two decades of democracy, widespread inequality still exists in the country, with many of its citizens experiencing poverty (SAHRC & UNICEF, 2014). Poverty within the country however, co-exists with striking affluence, where some children live in relative luxury with access to world class health services, while others face threats to their development in the form of poor nutrition and poor access to basic health care services (SAHRC & UNICEF, 2014). The most recent survey of health and nutrition in South Africa indicated that only 45.1% of households in South Africa were food secure, with 28.3% at risk for hunger, and 27% experiencing hunger (Shisana et al., 2013). There appear to be large disparities between provinces and population groups that experience hunger within South Africa (Hall, Nannan & Sambu, 2013). The highest rates of hunger were found in the Eastern Cape and KwaZulu-Natal which collectively reported over a million children living in households that have insufficient food for children (Hall et al., 2013). Child hunger was reportedly the lowest within Limpopo and Gauteng respectively (Hall et al., 2013). Hunger and poverty was also

most likely to be found among black children, with 2.4 million black children living in households that reported child hunger (Hall et al., 2013). By contrast, relatively fewer children in the racially classified groups: coloured, Indian and white, lived in households that reported child hunger (Hall et al., 2013). The National Food Consumption Survey conducted in South Africa confirmed that households with a lower income procured a significantly lower number of food items within their homes than households with higher income (Labadarios, 2005). Therefore, South Africa is a country that presents a complex and diverse scenario with regard to access to nutrition and healthcare in its various provinces, as well as amongst its populations.

The prevalence of under-nutrition within South Africa, as a result of a lack of access to adequate nutrition, is concerning. Under-nutrition is the leading cause of morbidity and mortality in South African children, with 60% of all child deaths in hospitals being associated with malnutrition (Hendricks, Goeiman & Hawkridge, 2013). The South African Health and Nutrition Examination Survey indicated that 15.4% of children were stunted in growth and 5.4% were underweight (Hendricks et al., 2013), with poor black and coloured children from rural areas being most affected (SAHRC & UNICEF, 2014). Furthermore, it was found that there was a high rate of nutrient deficiencies in children within South Africa (Hendricks et al., 2013). The effects of poor nutrition in children are far reaching, impacting on their cognitive development as well as educational outcomes (SAHRC & UNICEF, 2014). As a result, poor nutrition could result in lower wages in adulthood, perpetuating the cycle of poverty in these children (Hall et al., 2013). It is estimated that, in developing countries, 200 million children fail to reach their developmental potential due to poverty, poor health and nutrition as well as lack of care (Hall et al., 2013). Therefore, children within South Africa are burdened with socioeconomic challenges that may contribute to their feeding, nutrition and development.

In addition, children within South Africa are burdened by the prevalence of infectious disease that often occurs in the context of poverty (Sanders, Bradshaw & Ngongo, 2010). The majority of childhood illness and death in South Africa are due to HIV/AIDS, and childhood infections such as diarrhoea and lower respiratory infections (Sanders et al., 2010). Under-nutrition and HIV both result in immune deficiencies, increasing the risk of contracting infectious disease (Sanders et al., 2010). These factors suggest that the profile of feeding disorders within South Africa may differ significantly from that of developed, resourced countries where the burden of disease and under-nutrition is much less prevalent. However, there has been very little research conducted into the profile of feeding disorders within South Africa, in relation to the international literature. Issues that result in under-nutrition and disease in South Africa include household food insecurity; inadequate childcare practises, especially suboptimal breastfeeding; and poor health and environmental services, including access to safe sanitation and sufficient clean water (Sanders et al., 2010). These factors are closely linked to the child's ability to feed and obtain a nutrient dense diet. Therefore, the presentation of fussy eating in the context of poverty within developing countries is an area that must be further explored.

These complex socio-economic factors associated with child health and nutrition in South Africa; indicate that the presentation of children with fussy eating in this context may differ from that of children in developed countries. Gaining further insight into the experiences and perceptions of South African SLTs with this population of children should therefore provide further information into the nature of fussy eating within a developing context.

1.2 Fussy Eating

The concept of fussy eating is a fairly recent theoretical development, with very few studies exploring the nature of fussy eating (Thompson et al., 2015). As a result, there is currently a lack of consensus within the literature regarding the terminology and definitions related to fussy eating in children (Dovey et al., 2008; Tharner et al., 2014). A number of definitions for fussy eating have been proposed in the literature (Dovey et al., 2008; Smith, Roux, Naidoo & Venter, 2005), however there is no accepted definition to describe fussy eating to date, indicating that fussy eating is a complex phenomenon that requires a more applicable definition than those available at present (Tharner et al., 2014). In addition, varying terminology has been used to refer to fussy eating in the literature (Lucarelli, Cimino, D'Olimpio & Ammaniti, 2013), such as, "picky eating", "selective eating", "sensory food aversion" and "behavioural feeding disorders" to name a few. These differences are indicative of the confusion surrounding fussy eating, leading to problematic theoretical interpretation within this population (Dovey et al., 2008). Within the present study, the term "fussy eating" has been selected as the term to refer to these types of feeding difficulties, and has not been differentiated from "picky eating" or "selective eating".

The prevalence of fussy eating has been difficult to ascertain, with variation in these reports noted across studies (Goh & Jacob, 2012; Mascola et al., 2010). Tharner et al. (2014) identified that 5.6% of four year old children, within a population based cohort of 4914 children in the Netherlands, presented with a fussy eating profile. The large sample size used within the study by Tharner et al. (2014) is advantageous in gaining insight into the prevalence of fussy eating. However, it is not known whether a similar prevalence would be apparent within the South African context, as this sample was based solely within the context of the Netherlands, a country which differs significantly in socio-economic standing from South Africa. In a different study, Mascola et al. (2010) conducted a longitudinal study of

120 typically developing children, aged two to eleven years, in the United States of America, to investigate the incidence, prevalence and persistence of fussy eating. The results of the study conducted by Mascola et al. (2010) indicated that 39% of the sample was identified as fussy eaters at some point during the study. However, there were variations in the prevalence of fussy eating across different age ranges examined within the study, indicating that fussy eating has an onset in early childhood, but that the incidence of fussy eating declines to very low levels, that is 3%, by six years of age (Mascola et al., 2010). By age eleven years, 22% of the sample presented with fussy eating, implying that there is a percentage of children for whom fussy eating persists (Mascola et al., 2010). Therefore, the study conducted by Mascola et al. (2010) provides valuable insight into the variation in prevalence of fussy eating across age ranges, supporting the assumption that fussy eating may peak during preschool years, and is often transitory but persists in a percentage of children. However, a limitation of the study by Mascola et al. (2010) related to the sample utilized, which consisted of a relatively small, Caucasian, well educated sample, limiting the applicability of these findings within the South African context. As a result of the variation in the prevalence of fussy eating within the literature, it is difficult to establish the actual number of cases that present with fussy eating. Additionally, no information could be sourced regarding the prevalence of fussy eating within developing countries, warranting the need for further investigation into fussy eating in these contexts.

Fussy eaters have essentially been defined in the literature as children who consume an inadequate variety of foods through rejection of foods that are familiar, and unfamiliar, to them (Dovey et al., 2008). Recent studies within the area of fussy eating (Goh & Jacob, 2012; Thompson et al, 2015), have adopted this definition as a basis within their research. However, this definition lacks the specificity to accurately identify when fussy eating in children is pathological. Tharner et al. (2014) subsequently identified a behavioural profile to reflect

fussy eating in children. This profile was characterized by high food fussiness, high satiety responsiveness and slowness in eating. Fussy eaters also presented with low enjoyment of food and low responsiveness toward food (Tharner et al., 2014). Parental feeding practices and socio-economic status was also found to be linked to fussy eating in children within this study. The behavioural profile by Tharner et al. (2014) is a step towards establishing an accurate definition of fussy eating. However, further investigation in terms of how this fussy eating behaviour profile links to the Avoidant/Restrictive Food Intake Disorder (ARFID) outlined within the Diagnostic and Statistical Manual (DSM)-V, and discussed later on in this chapter, would lead to an improve diagnostic tool in the identification of feeding disorders (Tharner et al., 2014).

Previous studies within the area of fussy eating have indicated a number of symptoms associated with the feeding difficulty. A restricted diet due to selectivity towards food has been frequently reported within the literature (Goh & Jacob, 2012; Mascola et al., 2010; Tharner et al., 2014; Thompson et al., 2015; Wright et al., 2007). Studies have indicated that children with fussy eating typically reject fruit and vegetables and display a strong preference for confectionary, savoury snacks and fast foods (Goh & Jacob, 2012; Tharner et al., 2014; Thompson et al., 2015). Research has indicated that the difficulty that children with fussy eating experience in consuming fruit and vegetables may be linked to the sensory variations apparent in these foods (Coulthard & Blissert, 2009). Another symptom often linked to fussy eating in children related to difficulties with the sensory properties of foods, specifically difficulty with the texture and smell of the food (Dovey et al., 2008; Goh & Jacob, 2012, Mascola et al., 2010; Thompson et al., 2015). Thompson et al. (2015) explored the concept of fussy eating in adults that had presented with these difficulties since childhood. Within the study it was found that fussy eaters often presented with severe, visceral reactions to the sensory properties of food, with fruit and vegetables typically provoking very strong negative

responses (Thompson et al., 2015). Children with fussy eating, however, often presented with difficult mealtime behaviours and tantrums when parents limited preferred foods (Mascola et al., 2010; Wright et al., 2007). These behaviours may result from the child's inability to verbalize their difficulties with the properties of certain foods. The preference that fussy eaters display for confectionary, savoury snacks and processed foods may be due to the consistency of sensory properties within these types of foods. However, further research is required to investigate the link between fussy eating and the sensory properties of foods. The symptoms of fussy eating in children are concerning as studies have found an association with fussy eating and being underweight (Ekstein, Laniado & Glick, 2010; Tharner et al., 2014).

The persistence of fussy eating can have negative health, nutritional and developmental consequences for children. Children with fussy eating consume significantly fewer food items than non-fussy eaters (Wright et al., 2007), placing them at risk for nutrient deficiency. Fussy eaters are less likely to consume fruits and vegetables, thereby receiving fewer foods containing vitamin E, vitamin C, folate and fibre (Dovey et al., 2008). Lower levels of these nutrients could lead to cell damage, immunological weakness and digestive problems (Dovey et al., 2008). This indicates that children with fussy eating may not be receiving adequate nutrition, either due to the amount of food consumed, or the variety of food groups within their dietary repertoire. Studies have confirmed a link between fussy eating and poor weight gain in children. For example, Dubois et al. (2007) conducted a longitudinal study to examine problem eating behaviours in preschool children. The findings of their study indicated that children who were reported to present with picky or fussy eating were twice as likely to be underweight as children who did not present with these difficulties. Wright et al. (2007) also examined toddler eating problems in 455 children in relation to eating behaviour, food preferences and growth. Similarly, their findings indicated that

children who presented with problematic eating behaviours grew significantly less well than children who did not experience these behaviours. Children with problem eating behaviours were found to be three times more likely to meet the clinical criterion for failure to thrive than children without problem eating behaviours (Wright et al., 2007). The link between fussy eating and poor weight gain suggests that the nutritional deficits arising due to fussy eating may result in under-nutrition, posing serious medical and developmental risks to the child. Children may never recover from the effects of under-nutrition on the developing central nervous system (CNS) and these growth impairments may be accompanied by developmental delays, cognitive disabilities and behaviour problems (Arvedson & Brodsky, 2002). Under-nutrition that occurs as a result of fussy eating may, therefore, have long term developmental outcomes for children. It is crucial that children who present with non-transitory fussy eating be identified as early as possible in order to appropriately manage their nutritional needs. This necessitates the need for further clarification regarding the definition and classification of fussy eating.

1.3 Developmental aspects of Feeding related to Fussy Eating

The relationship between a child and its caregiver during feeding serves as a foundation for normal development, somatic growth, communication skills and psychosocial wellbeing (Arvedson & Brodsky, 2002). Hence, feeding is an important activity related to the overall development of a child. A breakdown at any stage of the feeding process may have long term consequences, such as malnutrition, behavioural abnormalities, severe distress to the family unit as well as growth and developmental problems (Arvedson & Brodsky, 2002). Feeding is a reciprocal process that is dependent on the skills and participation of both the child and the caregiver for effective feeding (Arvedson & Brodsky, 2002). The three stages of normal feeding development include: homeostasis, attachment and separation. A breakdown

between the child and caregiver at any of these stages may result in difficulties with feeding at a later stage.

1.3.1 Homeostasis. This stage occurs during the first two to three months of life where the infant's primary goal is to achieve stability within the environment (Arvedson & Brodsky, 2002). During this stage the infant should display rooting, sucking and swallowing reflexes as well as coordination of breathing. The infant remains calm and alert during feeding and consumes sufficient amounts of breast or formula milk. The infant should also display interpretable signs of satiety to the caregiver. During this stage, it is the caregiver's role to interpret the infant's cues of hunger and provide feeds promptly. The caregiver must also interpret the infant's signals to discontinue the feed (Arvedson & Brodsky, 2002). The synchrony of suck, swallow and breathe is a critical component of the oral motor mechanism, with the infant's mouth exhibiting the most organized sensory integrative and neuromotor behaviours after birth (Smith et al., 2005). A study conducted by Jacobi, Agras, Bryson and Hammer (2003) found that children who presented with fussy eating exhibited a different sucking pattern in the first month of life, with more than one hundred fewer sucks per feeding session on average than typically developing children, resulting in a lower mean intake at feeding for fussy eaters. This indicates that fussy eating may be characterized by early childhood eating behaviours that reflect a pattern of inhibited eating (Jacobi et al., 2003).

1.3.2 Attachment. Attachment occurs during three to six months of age where the infant begins to engage and show interest in others (Arvedson & Brodsky, 2002). Feeding becomes more social and the child exerts control over nipple feeding. The caregiver must engage in reciprocity with the infant and develop a routine for mealtimes. At this stage, the infant frequently pauses following sucking bursts. This may be incorrectly interpreted as satiety and is associated with under-nutrition and failure to thrive (Arvedson & Brodsky, 2002). Attachment towards parents has been found to be differentially associated with

problem eating behaviours in children, suggesting that parent-child interaction around feeding is an important developmental aspect related to feeding (Bryant-Waugh, 2013b). Unlü et al. (2007) examined the developmental characteristics of children with food refusal, and observed that a shorter breast feeding duration was associated with food refusal. Research suggests that babies experience a variety of flavours via maternal milk while breast feeding (Unlü et al., 2007). This experience is thought to facilitate the acceptance of new foods during the transition to solid foods (Unlü et al., 2007). This study suggests that early feeding experiences may have an effect on children's feeding development later on.

1.3.3 Separation. By six months of age, the infant begins to exert more control over their environment as they develop a sense of self (Arvedson & Brodsky, 2002). This is apparent within the feeding situation as the infant initiates self feeding. The infant is introduced to a variety of foods and changes in food textures. Preference for foods is a function of exposure, as we learn to enjoy foods as we become familiar with trying them (Mason, Harris & Blissert, 2005). At this stage, babies are particularly willing to try new tastes of foods, and by repeated exposure, develop preferences toward foods (Mason et al., 2005). The process of feeding becomes more social and includes the family as a whole instead of the primary caregiver only. The caregiver should strive to promote a balance between autonomy and dependency of the infant during this stage (Arvedson & Brodsky, 2002). However, in children who present with fussy eating, it has been found that mothers apply more pressure to eat, indicating that these children may not be eating well themselves (Tharner et al., 2014). The associations between the maternal feeding behaviour and child feeding behaviour appear to represent bi-directional effects on behavioural patterns that develop in early childhood (Tharner et al., 2014). Therefore, due to the child not eating well enough, the stage of separation in children with fussy eating may be affected by the lack of autonomy in feeding provided to these children. Parental pressure to eat, however, may have

counterproductive effects on the children eating behaviour by decreasing the child's enjoyment of food (Tharner et al., 2014). Children who present with difficulties in terms of feeding may not get exposure to a variety of tastes and textures early on in life, making it difficult to achieve oral acceptance later on (Mason et al., 2005). Therefore, early identification of these children may ensure that they are exposed to tastes and textures during sensitive periods, when food is more readily accepted so that they are able to develop food preferences (Mason et al., 2005).

1.3.4 The course of fussy eating in children. The study conducted by Mascola et al. (2010) indicated that fussy eating was highest in early childhood, declining to lower levels by six years of age. As children move into the latter half of their first year, and into their second year of age, they become increasingly neophobic toward food, i.e. they are fearful of trying new foods (Mason et al., 2005). However, in the study by Mascola et al. (2010), over half of the fussy eaters recovered within a two year period. This suggests that fussy eating usually has an onset in early childhood with the majority of cases being transient and of short duration (Mascola et al., 2010). However, a smaller percentage of children with fussy eating continue to present with problematic feeding behaviours for many years (Mascola et al., 2010). These findings indicate that fussy eating is common in childhood, with many cases being transient in nature, however, there is a small percentage of children for whom fussy eating tends to persist and is pathological in nature. Fussy eating can extend further than a developmentally appropriate neophobia toward food as fussy eaters reject not only unfamiliar food, but also foods that are familiar to them (Dovey et al., 2008). Furthermore, fussy eaters reject food based on sensory properties, such as the taste and texture of food, unlike a transient food neophobia, where just particular novel foods are rejected (Dovey et al., 2008).

Research also indicates a degree of continuity regarding the persistence of feeding difficulties from infancy to adulthood (Uher & Rutter, 2012). For example, difficulties with

feeding in infancy have been associated with anorexia nervosa in adulthood (Uher & Rutter, 2012). In recognition of current literature, which indicates a relationship between childhood and adult feeding difficulties, the DSM-V has no longer prescribed an onset before the age of six for feeding and eating disorders has renamed this section as ARFID (Kelly, Shank, Bakalar & Tanofsky-Kraff, 2014). In a study of adolescents that presented with ARFID, it was found that 21.4% presented with fussy eating since childhood (Fisher et al., 2014). A recent qualitative study investigated the phenomenon of fussy eating in adults where all participants reported being a fussy eater since childhood (Thompson et al., 2015). This suggests that the impact of fussy eating in children is significant, and may persist into adulthood in a percentage of individuals. A limitation of the study by Thompson et al. (2015) was that the study did not involve any clinical diagnosis of disordered eating; instead the participants either identified themselves as fussy eaters, or were identified by their parents as fussy eaters. This may be in part due to the lack of a standard means for identifying fussy eaters, as well as the fact that fussy eating has not yet been classified as a feeding disorder (Thompson et al., 2015). Further studies regarding fussy eaters as a discrete group are required (Thompson et al., 2015); however the development of an adequate definition and description of fussy eating is needed in order to aid in research related to fussy eating. Although further research is required in terms of the relationship between feeding disorders in infancy and the persistence of eating disorders in adulthood, these studies highlight that the early identification of fussy eating in children may be an important factor in the prevention of feeding and eating disorders later on.

Although there is little research available regarding the onset and development of fussy eating in children, current research indicates that there may be differences in the developmental pattern indicative of children with fussy eating. Further longitudinal studies are required to investigate the progression of fussy eating in childhood, as well as the

relationship between childhood feeding difficulties and eating disorders in adulthood. However, research in this area is hampered by the lack of consistency in defining and classifying fussy eating in children.

1.4 Classification of Fussy Eating

Due to the difficulties experienced by researchers and clinicians in the identification and diagnosis of children with feeding disorders, there has been a radical increase in the research conducted within this area (Bryant-Waugh, 2013b). However, a clear classification of fussy eating is lacking within the literature. There remains a debate as to whether fussy eating can be classified as a feeding disorder (Thompson et al., 2015). As a result, there has been a move to further research in this area to classify fussy eating as a condition, and possibly a feeding disorder (Thompson et al., 2015). The formal classification systems that relate to fussy eating in children within the literature currently are discussed within this section.

1.4.1 The diagnostic and statistical manual of mental disorders, 5th edition. The DSM has recently implemented a number of changes to its classification of feeding and eating disorders. The previous category of feeding disorders in infancy and childhood, outlined within the DSM-IV-TR, had a number of limitations and was rarely used clinically (Attia et al., 2013). This disorder has, therefore been renamed ARFID, and the list of criteria has been expanded to encompass a broader range of presentations that individuals with feeding disorders present with (Attia et al., 2013). The DSM-V defines the following diagnostic criteria for ARFID:

- Disturbance in eating or feeding, as evidenced by one or more of:
    - Substantial weight loss (or, in children, absence of expected weight gain);
    - Nutritional deficiency;

    - Dependence on a feeding tube or dietary supplements;
    - Significant psychosocial interference.
- Disturbance not due to unavailability of food, or to observation of cultural norms.
- Disturbance not due to anorexia nervosa or bulimia nervosa, and no evidence of disturbance in experience of body shape or weight.
- Disturbance not better explained by another medical condition or mental disorder, or when occurring concurrently with another condition, the disturbance exceeds what is normally caused by that condition.

(Fischer et al, 2014, p. 50)

The DSM-V is a substantial improvement from the DSM-IV-TR, in that it has improved clinical utility by including more detail pertaining to the feeding disorder as well as broadening the criteria for diagnosis (Bryant-Waugh, 2013a). As a result, the DSM-V is better able to account for the heterogeneity of feeding disorders. The DSM-V also no longer stipulates exclusion of a medical condition or organic disease from the feeding difficulty. This is representative of current theory that it is no longer practical to dichotomize difficulties with feeding into "organic" and "non-organic" elements (Kreipe & Palomaki, 2012), as the majority of feeding disorders in children result from a combination of aetiologies (Bryant-Waugh et al., 2010). However, the clinical utility of this classification system has not been determined across countries and within different contexts. Therefore, the clinically utility of the diagnosis of ARFID within the DSM-V has not been sufficiently tested within the South African context.

The DSM-V identifies different types of avoidance or restriction related to eating, that is: a lack of interest in eating or food, sensory based avoidance of food and avoidance related to the fear of eating, possibly related to an aversive eating experience (Bryant-Waugh,

2013a). Therefore, ARFID may include different sub-types of feeding and eating disorders, however at the time of publication of the DSM-V; there was little evidence to identify subtypes within ARFID, indicating that further research is required in this area (Bryant-Waugh, 2013a). As discussed above, further exploration into the role of fussy eating in the context of ARFID is needed (Tharner et al., 2014) to establish if there is a link between ARFID and fussy eating, or if there is a possibility that fussy eating may be classified as a sub-type of ARFID. Further research in terms of the definition and classification of fussy eating are therefore required to aid in the possibility of fussy eating being recognized and classified as a feeding disorder.

The publication of the DSM-V criteria for ARFID has stimulated more interest within the field of feeding disorders, and some research has been conducted to empirically test the clinical relevance of this diagnostic tool (Bryant-Waugh, 2013a; Fisher et al., 2014). However, there is a significant need for further work in this area to continue to develop our understanding of feeding disorders (Call, Walsh & Attia, 2013), especially within varied contexts and settings.

1.4.2 The international classification of functioning, disability and health. The International Classification of Functioning (ICF) has been proposed as a standard tool to report paediatric feeding and swallowing problems (Miller, 2009). The ICF appears unique in terms of its inclusion of the following criteria as well as specificity within each criterion:

- Body Structure;
- Body Function;
- Activities and Participation;
- Environmental Factors;
- Personal Factors.

(Threats, 2007, p. 324)

The ICF provides a framework for coding information based on functional status and providing a common, standardized language for understanding and researching health-related difficulties (Lefton-Greif & Arvedson, 2007). Therefore, the ICF provides a mechanism for describing the impact of health conditions on an individual's ability to function within his/her environment. In addition, the ICF contains codes to describe the impact of the disorder on function, thereby providing an indication of the severity of the disorder (Lefton-Greif & Arvedson, 2007). As a result of the detailed classification of disorders in terms of function and severity, the ICF appeared to be a promising tool in terms of standardizing the classification and description of feeding disorders. However, very little research has been conducted in recent years in terms of the implementation of this tool within a paediatric population. Therefore, its clinical applicability in terms of classifying feeding disorders in children has not been sufficiently tested. In terms of fussy eating, the ICF may be valuable in terms of accounting for the complex and diverse aetiologies associated with the disorder, as well as detailing the impact of the condition on the child's ability to function within his/her environment. However, further research is required in terms of the ICF's applicability in classifying fussy eating.

1.4.3 The diagnostic classification of mental health and developmental disorders of infancy and childhood. The diagnostic classification of mental health and developmental disorders (DC:0-3R) includes six different diagnostic subtests of feeding disorders in children (Lucarelli et al., 2013). The categories that relate to the present study include that of Feeding Disorder associated with Insults to the Gastrointestinal Tract (FDIGT) as well as the category of Sensory Food Aversion (SFA). Feeding Disorder associated with Insults to the Gastrointestinal Tract (FDIGT) refers to a child that presents with refusal of food subsequent to a major aversive event related associated with insults to the oro-pharynx or gastrointestinal

tract (Lucarelli et al., 2013). Gastrointestinal difficulties may result in aversive experiences with feeding, that could present as fussy eating, persisting in some cases even after the medical aetiology has been treated. Gastrointestinal difficulties associated with fussy eating are discussed in further detail within section 1.5. Sensory Food Aversion (SFA) is characterized by the refusal to consume specific foods, based on the taste, texture and/or smell of the food. However, children with SFA are able to eat without difficulty when offered preferred foods (Lucarelli et al., 2013). A diagnosis of SFA would therefore, exclude children who present with fussy eating in conjunction with an organic feeding difficulty. Difficulties with the sensory properties of foods have been found to be a prominent symptom of fussy eating in children. Lucarelli et al. (2013) found that the utilization of criteria within the DC:0-3R, for these types of feeding disorders was clinically useful and valid. These criteria are also reflected within the DSM-V definition of feeding disorders, in terms of the aversive experiences with regard to feeding as well as difficulties with the sensory aspects of food (Bryant-Waugh, 2013a). However, research related to SFA in children is very limited with varied terminology used to define SFA in the literature. For example, SFA has been referred to "fussy eating", "selective eating" and "food neophobia" within the literature (Lucarelli et al., 2013). Therefore, further investigation into the relationship between SFA and fussy eating is warranted.

1.4.4 The international statistical classification of diseases and related health problems 10th revision (ICD-10). The World Health Organization's ICD-10 coding system includes a formal diagnosis of feeding disorders (F98.2) within the broader category of Behavioural and Emotional Disorders (Kreipe & Palomaki, 2012). The ICD-10 diagnosis is very similar to the previous DSM-IV-TR classification, and defines a feeding disorder as:

> "A feeding disorder of varying manifestations usually specific to infancy and early childhood. It generally involves food refusal and extreme faddiness in the presence of an

> adequate food supply, a reasonably competent caregiver, and the absence of organic disease. There may or may not be associated rumination (repeated regurgitation without nausea or gastrointestinal illness).”
>
> (Kreipe & Palomaki, 2012, p. 423)

These criteria have been found to be unsatisfactory for clinical use, as they fail to encompass the heterogeneity of feeding disorders and do not reflect the developmental continuity between childhood, adolescence and adulthood (Uher & Rutter, 2012). In terms of fussy eating, the ICD-10 does not appear to account for the diversity of aetiologies that could be associated with fussy eating as it lends to the dichotomous theory which distinguishes between organic and non-organic causes of the disorder. In light of current theory, which has proved the dichotomous classification of feeding disorders impractical, a review of the ICD-10 coding system is currently underway, with the completion of the ICD-11 expected in 2017 (Uher & Rutter, 2012).

In recent years, there has been an increase in the research conducted into the classification of feeding disorders (Bryant-Waugh, 2013b). However, the area of fussy eating, and how it relates within the classification of feeding disorders has not been adequately researched. This may be in part due to the lack of clarity in defining fussy eating. Therefore, the present study aims to explore the area of fussy eating in order to contribute to the development of an accepted definition of fussy eating.

1.5 Aetiologies associated with Fussy Eating

Feeding disorders are a heterogeneous set of problems that may include multidimensional causes; however the feeding difficulty may also exist in isolation or in relation to other underlying medical conditions (Prasse & Kikano, 2009). The majority of children with feeding disorders do present with mixed aetiologies, including behavioural, physiologic and developmental factors (Fischer & Silverman, 2007). Burklow et al. (1998)

studied 103 children presenting with complex feeding disorders referred to the Interdisciplinary Feeding Team at the Children's Hospital Medical Centre in Ohio. All participants presented with poor oral intake and difficulties sustaining growth. The findings of Burklow et al. (1998) indicated that 80% of children across categories presented with a behavioural component to the feeding disorder, while only 12% of cases presented with feeding disorders that were purely behavioural in nature. Therefore, the majority of children experienced behavioural difficulties in conjunction with their medical diagnosis, indicating that feeding disorders are complex, and cannot always be dichotomized into organic and non-organic elements. However, within the research conducted by Burklow et al. (1998), the present study, the sensory component of feeding disorders was not discussed. The issue of sensory processing difficulties in children is a relatively new concept, with little research available in terms of the role of sensory processing difficulties in feeding disorders. Therefore, it may be assumed that due to a lack of knowledge and research regarding sensory based feeding difficulties at the time the study was conducted, these were not included in the classification of complex feeding disorders proposed by Burklow et al. (1998).

The development of complex feeding disorders appears to relate to a biopsychosocial model, where physiologic, behavioural and social factors all contribute to the development of the feeding disorder (Arvedson & Brodsky, 2002). In the absence of positive experiences related to feeding which may be linked to physiologic aetiologies, strong aversions to oral feeding may develop (Arvedson & Brodsky, 2002). Therefore, feeding disorders that began as physiologically based problems may evolve into behaviour based problems (Arvedson & Brodsky, 2002). Issues related to developmental disorders, for example, may hinder the typical development of feeding for the child as well as the development of the caregiver-child relationship established during feeding, resulting in maladaptive patterns of behaviour during feeding. These problems may persist even after the initial precipitating organic problems

have been treated (Manikam & Perman, 2000). As a result, these children may subsequently present as fussy eaters who continue to present with feeding difficulties that may be expressed behaviourally.

Fussy eating in children therefore appears to be linked to a number of primary and secondary aetiologies. The primary aetiology refers to the initial, precipitating cause of the feeding difficulty, and secondary aetiologies are those that occur as a result of or secondary to the primary aetiology. For example, children with the primary diagnosis of cerebral palsy may present with secondary aetiologies such as gastro-oesophageal reflux disease (GORD), as well as behavioural difficulties associated with feeding due to negative oral experiences. However, it is often difficult to distinguish between the primary aetiology and secondary aetiologies (Arvedson & Brodsky, 2002). Rarely can a single, isolated cause of feeding difficulties be identified (Burklow et al, 1998). The biopsychosocial model, therefore, takes into account all factors associated with the feeding difficulty including both casual and non-causal relationships (Kreipe & Palomaki, 2012). A number of the aetiologies associated with fussy eating are discussed below.

1.5.1 Sensory integration disorders. Sensory integrative theory suggests that the CNS is organized hierarchically (Addison et al., 2012). Sensory systems interact to receive and organize information. Once the information is organized, it can then be processed by the CNS to produce skills and abilities. However, difficulties with sensory modulation in processing of sensory information may result in sensory defensiveness which is indicated by under or over responsiveness of sensory stimuli. Sensory integration theory therefore postulates that sensory feeding difficulties are a symptom of underlying sensory modulation difficulties (Addison et al., 2012). Individuals with sensory integrative disorder experience difficulty with the processing of sensory input and may experience difficulty producing appropriate and effective responses to these inputs (Smith et al., 2005). There are many

behaviours associated with sensory defensiveness, and difficulties with feeding are one example of sensory defensive behaviour. Sensory feeding disorders are described as atypical responses to stimulation in and around the oral cavity, such as coughing, choking, gagging spitting out or refusing foods (Addison et al., 2012). A meal is a complex sensory experience with regard to food in terms of appearance, odours, textures, and tastes, as well as the presence of others including the auditory component of their conversations (Nadon, Feldman, Dunn & Gisel, 2011); therefore, adequate sensory modulation is critical for successful feeding.

It is thought that fussy eating extends into the realm of the sensory aspects of foods, with children rejecting foods based on their sensory properties (Thompson et al., 2015). A recent study found that fussy eating in adults was characterized by severe reactions to the sensory properties of foods (Thompson et al., 2015). All of the participants in the study by Thompson et al. (2015) had also reported being a fussy eater since childhood. This suggests that fussy eating may be an expression of difficulties with sensory integration, with specific difficulties in processing the specific sensory features of certain foods.

There is currently very little known about the specific sensory features of food that impact on children with fussy eating, and the findings of research studies within this area are mixed (Werthmann, Jansen, Havermans, Nederkoon & Roefs, 2015). A South African study conducted by Smith et al. (2005), indicated that children who were tactile defensive refused certain foods based on the texture, smell and temperature of the food. This suggests that children who are tactile defensive may present as fussy eaters in comparison to their typically developing peers. A recent study subsequently confirmed the correlation between fussy eating and tactile defensiveness in children (Nederkoorn, Jansen & Havermans, 2015). Similarly, a study to examine the sensory features of food associated with food acceptance, found that food acceptance was affected by the texture of food, but not by the colour or taste

of the food (Werthmann et al., 2015). Further research, however, found that the sensory aspects of taste and smell were associated with fruit and vegetable consumption in children, with textural aspects showing a smaller relation to consumption (Coulthard & Blissert, 2009). Furthermore, research conducted by Dovey et al. (2012) indicated that visual aspects, i.e. appearance, influenced children's willingness to try novel fruit. These studies confirm that the sensory features of food impact on the acceptance of food in children, however, the literature does not appear in agreement regarding which specific sensory feature; that is texture, taste, smell, temperature or appearance, is most frequently associated with fussy eating in children (Werthmann et al., 2015). In the study conducted by Nederkoorn et al. (2015), it was found that fussy eating was associated with tactile defensiveness more frequently in children between the ages of four and seven and a half years. This may imply that the textural properties of food are more important in younger children, suggesting that processing of the sensory properties of food may be linked to physical development. There appeared to be variation in the above studies with regard to sample size as well as the age range of the participants selected to participate in the studies. Additionally, the designs of the studies differed in terms of the data collection procedures adopted with certain studies generating data through parental questionnaires (Coulthard & Blissert, 2009; Smith et al., 2005) while others collected data during behavioural testing (Nederkoorn et al., 2015; Werthmann et al., 2015). These differences may have contributed to the variation in findings regarding the sensory properties of food associated with fussy eating. Consequently, further controlled, experimental research is required to further investigate the specific sensory features of food that are associated with fussy eating.

Recent studies have demonstrated that fussy eating encompasses difficulty with the sensory features of food, indicating that fussy eating may be linked to difficulties with sensory integration. However, very little is known about the specific sensory features that

may impact on feeding in children as well as the aspects of sensory processing that may be linked to childhood development specific to feeding. Therefore, continued research regarding the link between fussy eating and sensory integration is warranted.

1.5.2 Socio-economic factors. Food insufficiency often occurs in the context of poverty (Dubois et al., 2007). Research has shown that socio-economic status has been linked to fussy eating in children, with fussy eaters originating from families with a lower socio-economic status, where family income was lower and mothers had a lower education level than non-fussy eaters (Dubois et al., 2007; Tharner et al., 2014). A study conducted by Dubois et al. (2007) in Québec, Canada indicated a significant association was found between socio-economic factors and the prevalence of problematic eating behaviours in preschool children. Similarly, Tharner et al. (2014) assessed the eating behaviour of children in Rotterdam, Netherlands and found that families of fussy eaters more often had a lower socio-economic status than families of non-fussy eaters. This may be due to the lack of access to some food groups that is experienced by families with a lower socio-economic status (Tharner et al., 2014). The relationship between socio-economic status and fussy eating within the South African context has not been investigated. As previously discussed, the socio-economic climate within South Africa also differs significantly from that of developed countries (SAHRC & UNICEF, 2014). The problem of poverty is rife within South Africa (SAHRC & UNICEF, 2014), thereby alluding to the presentation of fussy eating within lower socio-economic groups. In addition, children from lower socio-economic populations within South Africa are at increased risk for developing infectious diseases, such as HIV/AIDS and respiratory infections (Sanders et al., 2013) that may contribute to negative feeding experiences. However, further research is required to determine if a similar pattern regarding the increased prevalence of fussy eating within lower income households is apparent within this context.

1.5.3 Behavioural and social factors. Fussy eating is a significant source of stress for parents when feeding their children (Goh & Jacob, 2012). Differences have been noted in the feeding behaviour of the parents of fussy eaters, for example, mothers of fussy eaters applied more pressure to eat but used less monitoring of their child's feeding behaviour than mothers of non-fussy eaters (Tharner et al., 2014). Parental pressure regarding feeding may occur in response to the child's fussiness toward food, but may also perpetuate the difficulty by developing negative associations with feeding as a result (Tharner et al., 2014). Mascola et al. (2010) found that parents of children with fussy eating reported more frequent struggles with their children over food as well as the occurrence of tantrums when parents attempted to limit certain foods, as a result parents of fussy eaters were also more likely to prepare a separate meal for their children than parents of non-fussy eaters. Parents often had to embark on a range of strategies, such as distraction, in order to encourage their children with fussy eating to eat (Wright et al., 2007). The main concern of parents regarding their child's fussy eating was related to the child's physical and mental development, resulting in significant stress on the part of the caregiver (Goh & Jacob, 2012). The child's difficult feeding behaviours and the parents' reactions to these could therefore represent bi-directional effects on behavioural feeding patterns that develop in early childhood (Tharner et al., 2014).

There is increasing evidence that fussy eating in early childhood may precede maladaptive eating later in life (Dubois et al., 2007). Studies have associated fussy eating with a higher incidence of problem behaviours in later childhood, as well as an increased risk of developing anorexia nervosa in adolescence (Mascola et al., 2010). This suggests that the socio-emotional aspects of feeding difficulties in early childhood may have long term consequences for the fussy eater. Being labelled a "fussy eater" may function as a social identity, with individuals ascribing to this identity, thereby perpetuating feeding difficulties (Thompson et al., 2015). Socio-emotional factors therefore appear to contribute to fussy

eating in children, which may result in far reaching consequences into adolescence and adulthood. However, further longitudinal research is required to improve our understanding of the relationship between fussy eating in childhood and its effects later on in life.

1.5.4 Negative oral experiences. The high prevalence of medical disorders in children with feeding problems suggests that biological factors play an important role in the aetiology of feeding disorders (Piazza, 2008). The child who experiences pain, nausea and fatigue during feeding may learn to associate feeding with unpleasant consequences and as a result may develop aversion towards feeding (Piazza, 2008). Feeding while experiencing pain can create an aversion not only to the food being fed, but may generalize to all foods resulting in food refusal (Manikam & Perman, 2000). Children with chronic medical problems, such as gastrointestinal problems, long term non oral feeding and oral Candida or thrush, are often subject to painful and invasive procedures involving the face and mouth, which may result in negative associations with the presentation of objects around the face and mouth (Piazza, 2008). As a result, aversions toward feeding may develop and persist, even after the initial, primary cause of the feeding difficulty resolves (Manikam & Perman, 2000), indicating that children with a history of chronic medical problems may present as fussy eaters due to their experience of feeding under aversive conditions.

Gastro-oesophageal reflux disease is commonly associated with feeding difficulties in children. The literature identifies GORD as the most common cause of feeding difficulties and food refusal in children (Manikam & Perman, 2000; Schwarz, 2003). Gastro-oesophageal reflux is defined as the return of stomach contents into the oesophagus caused by a dysfunction in the lower oesophageal sphincter (Arvedson & Brodsky, 2002). Gastro-oesophageal reflux causes discomfort, pain and irritation, and the triad of pain, nausea and vomiting in children, which may create aversions to food, resulting in food refusal and food avoidance (Manikam & Perman, 2000). Nausea and vomiting have a strong effect on human

dislike of food, therefore, if the ingestion of food is followed by nausea and vomiting, it will cause a dislike of that food even if there is no direct link between the food and the nausea (Mason et al., 2005). Hence, children who suffer from GORD may present as fussy eaters. For some children, these behavioural symptoms related to feeding difficulties may be the first sign of underlying medical conditions (Lefton-Greif, 2008). Schwarz (2003) suggested that all children who present with aversive feeding behaviours, or fussy eating, be evaluated for GORD. Furthermore, gastro-oesophageal reflux has also been linked to malnutrition, oesophagitis, asthma, pneumonia and failure to thrive (Prasse & Kikano, 2009; Schwarz, 2003). Therefore it is important to have a comprehensive understanding of gastrointestinal disorders that may manifest as fussy eating in children.

Children who require prolonged supplemental tube feeding often present with challenges when they transition back to oral feeding (Miller, 2009) with regard to their willingness to allow food into their mouths as well as the limited range of tastes and textures that they accept (Mason et al., 2005). Children who are dependent on tube feeding often undergo experiences of oral traumatisation such as oral suctioning, oral mechanical traumatisation and repeated aspirations (Trabi, Dunitz-Scheer, Kratky, Beckenbach & Scheer, 2010). These experiences may result in oral aversions and oral motor dysfunction (Miller, 2009). Consequently, these children may present as fussy eaters and display behavioural difficulties when they transition back to oral feeding.

1.5.5 Neurological disorders. Neurological disorders that are commonly associated with feeding disorders include cerebral palsy, traumatic brain injury, neoplasms and developmental delay (Arvedson & Brodsky, 2002). Children with cerebral palsy generally have more restricted diets, feeding difficulties and poor nutritional intake (Newman, 2000). They also commonly present with prolonged, stressful mealtimes which may result in behavioural responses in relation to feeding (Arvedson, 2013). It has been found that children

with neurological disorders present with a higher incidence of oral motor difficulties as well as GORD (Field, Garland & Williams, 2003). Therefore, fussy eating in children with neurological disorders is often secondary to neuromuscular and medical complications that promote negative oral and feeding experiences. As a result of delayed advancement of their oral motor skills, children with cerebral palsy often have limited experience with regards to variety of foods in terms of textures (Arvedson, 2013). This could result in food selectivity and apparent "fussiness" toward food due to limited experience of texture and flavour, once oral motor skills improve. Movement and sensation are closely linked, indicating that children with neurological disorders that affect movement, might also exhibit sensory deficits (Prakash & Vaishampayan, 2007). Research has shown significant differences in the sensory processing of children with cerebral palsy in comparison to typically developing children (Prakash & Vaishampayan, 2007), however further research is required to investigate the issues related specifically to oral sensory processing in children with neurological disorders.

There are a number of factors including motor, sensory and medical issues that contribute to difficulties with feeding in this population. Therefore, children with neurological disorders are more at risk for reduced nutrition and hydration, as well as inadequate growth as a result of their restricted diets (Arvedson, 2013). Due to aversive feeding experiences, these children may present as fussy eaters as a result of pain and discomfort associated with feeding, as well as their lack of sensory exposure to different tastes and textures.

1.5.6 Autism spectrum disorder. Fussy eating is a common problem in children with autism spectrum disorders (ASD), possibly due to a large percentage of children with ASD presenting with sensory processing difficulties (Nadon et al., 2011) as well as in association with their propensity for restrictive behaviours and interests (Tang et al., 2011). Nadon et al. (2011) studied the association of sensory processing and eating problems in children with

ASD. Their results indicated that children with ASD who presented with sensory processing difficulties, such as taste and/or smell sensitivity or tactile sensitivity, present with problematic mealtime behaviours and pronounced food preferences. The difficulties regarding feeding in children with ASD are therefore, very similar to those of children with fussy eating in general, for example children with ASD also present with selectivity in terms of the sensory features of foods (Nadon et al., 2011). The sample within the study conducted by Nadon et al. (2011) presented with pronounced selectivity with regard to the brand, colour, texture and temperature of food. Within other studies, selectivity toward food in terms of type and texture has been observed most frequently in children with ASD (Field et al., 2003; Twachman-Reily, Amaral & Zebrowski, 2008). Although there are differing opinions regarding the sensory properties of foods that present as problematic for children with ASD, the literature is in agreement that fussy eating is a common issue in children with ASD due to their difficulties with sensory processing (Nadon et al., 2011; Tang et al., 2011).

Studies have also described a multitude of gastrointestinal problems that are associated with ASD, such as GORD and constipation (Field et al., 2003; Tang et al., 2011). Therefore, children with ASD appear to be at risk for medical complications as a result of their poor nutritional intake. A nutritionally inadequate diet is more prevalent in children with ASD than in other populations of children with special needs or developmental disabilities (Tang et al., 2011). If these issues of fussy eating in children with ASD are left untreated, children may experience significant health complications. Tang et al. (2011) described the cases of two children with ASD who presented with severe food refusal. In the first case, the lack of food intake led to constipation, encopresis, and weight loss while in the second case restricted food intake was associated with nutrient deficiency, resulting in the presentation of Kwashiorkor, a disease uncommon within developed countries (Tang et al., 2011). These cases are indicative of the health consequences that could occur as a result of fussy eating that

remains untreated. The issue of fussy eating in children should therefore be adequately investigated in all populations by a multidisciplinary team within a biopsychosocial framework (Tang et al., 2011).

The aetiologies discussed above are a representation of the factors that may be associated with fussy eating. However, there are a number of aetiologies that could be associated with fussy eating, with some children presenting with multiple aetiologies associated with their feeding difficulty. The factors associated with fussy eating are complex and diverse, differing on a case-by-case basis, thereby indicating that a team approach is necessary in the evaluation and subsequent management of fussy eating.

1.6 The Healthcare Team involved in Fussy Eating

Speech language therapists are largely involved in the management of patients with feeding and swallowing disorders, with both local and international associations affiliated with speech language therapy acknowledging that SLTs play a primary role in the evaluation and treatment of infants and children with feeding and swallowing disorders (American Speech-Language-Hearing Association [ASHA], 2002; Health Professions Council of South Africa [HPCSA], 2009; South African Speech Language & Hearing Association [SASLHA] Ethics & Standards Committee, 2011). Seedat et al. (2011) conducted a study within Gauteng, based in South Africa, to evaluate the awareness of swallowing disorders within the allied health team. The results of the study indicated that SLTs were most aware of swallowing disorders, displaying a good to excellent understanding of terminology and theoretical aspects of the disorder. The various participants within various health disciplines also agreed that SLTs were best equipped to manage swallowing disorders. This indicates that SLTs are largely involved in the management of feeding and swallowing disorders in South Africa. It is therefore imperative that SLTs are equipped with the knowledge and skills to manage fussy eating, as the majority of children with feeding disorders present with

behavioural components to the feeding disorder despite the primary aetiologies of the disorder. This knowledge is crucial in terms of appropriate referrals within the multidisciplinary team. Additionally, the Health Professions Council of South Africa stipulates that clinical practise in speech-language therapy should strive toward having a firm evidence base (HPCSA, 2009). Research within the area of fussy eating would contribute to improving evidence based practice within the clinical domain of feeding and swallowing disorders.

According to the South African Speech, Language and Hearing Association (SASLHA), the management of feeding disorders is a team enterprise, and the SLT must work within a multidisciplinary framework and communicate with all of its members (SASLHA Ethics & Standards Committee, 2011). Members of the team that are usually involved in the management of feeding disorders include developmental paediatricians, gastroenterologists, paediatric psychologists, occupational therapists, SLTs and dieticians (Tang et al., 2011). Input from multiple disciplines is required for adequate management of the medical, surgical, oral motor, sensory, nutritional and psychosocial needs of the child. However, not all disciplines are required for all children, and as the children change over time, the role of team members may change as well (Arvedson, 2008).

Due to the reported link between fussy eating and sensory integration difficulties, the occupational therapist trained in sensory integration is crucial with the healthcare team managing children with fussy eating in order to address issues of oral defensiveness in conjunction with the SLT (Smith et al., 2005). The paediatrician's involvement in terms of managing children with complex feeding disorders involves medical investigation as well as referral to the appropriate specialists, such as the gastroenterologist, in order to investigate possible underlying biological factors that could be contributing to the feeding difficulty (Tang et al., 2011). Identifying the psychosocial factors that may be associated with the

feeding difficulty from the perspectives of the parent and the child falls within the scope of the paediatric psychologist (Tang et al., 2011), while the involvement of the dietician in managing fussy eaters relates to nutritional management as well as adapting foods in terms of their sensory properties in line with the repertoire that the fussy eater will accept (Smith et al., 2005). The healthcare team involved in managing fussy eating is therefore crucial in identifying the primary and secondary causes of fussy eating in each individual case and making recommendations for management accordingly.

The literature appears to be in agreement that the complex nature of feeding disorders in children requires a team approach for optimal management (Arvedson, 2008; Smith et al., 2005; Tang et al., 2011). However, there is very little literature available in terms of identifying the roles of the members within the healthcare team specific to children with fussy eating. It is apparent that collaboration between healthcare professionals is necessary in evaluating fussy eating due to the complexity and inter-relatedness of aetiologies associated with fussy eating. However, the best approach for collaboration between professionals dealing with fussy eating has not yet been clearly defined in the literature. This leads to the question of whether a multidisciplinary approach would be most appropriate, drawing on the knowledge of different disciplines while staying within their various boundaries (Choi & Pak, 2006), or if a transdisciplinary approach, which integrates different disciplines and transcends traditional boundaries (Choi & Pak, 2006), would be more feasible. Internationally, the scope of practise within the area of feeding disorders differs from that of South Africa. For example, internationally the management of feeding disorders also falls within the scope of practise of the occupational therapist (Paul & D'Amico, 2013). Therefore, the delineation of roles in the management of fussy eating may differ internationally in comparison to the South African context. The present study aims to investigate the healthcare team involved in fussy eating as well as the referral processes currently utilized in order to explore the perceived

roles and responsibilities within the healthcare team, as well as the approach that may be best utilized for collaboration between professionals.

1.7 Conclusion

Although there has been an increase in the research conducted within the area of fussy eating in children within recent years, it remains an area that is scarcely researched. As a result, there is no universally accepted definition of fussy eating within the literature, and a number of different terminologies are used to refer to fussy eating within various studies. This lack of clarity in defining and classifying fussy eating has contributed to the lack of research within the area, and limits the comparability of available research within the area. However, fussy eating presents with significant implications for both the child as well as the family biologically, psychologically as well as socially. Clinically, evidence based practise is essential, thereby improving the quality of care provided to children with fussy eating. Therefore, research within this area is crucial to assist clinicians in the effective identification and management of fussy eaters.

While there is a dearth of literature related to fussy eating internationally, this is even more apparent within the South African context. Majority of the studies available have been conducted within first world countries. As previously discussed, South Africa presents a complex socio-economic environment that differs substantially from that of developed counties. This limits the transferability of the findings of international studies to South Africa's unique, developing context.

The SLT is the primary health care professional involved in managing feeding disorders within South Africa. As a result, SLTs encounter children with fussy eating regularly within their clinical practise. It is imperative that SLTs are equipped with adequate knowledge and skills in order to ensure best, evidence based practise. The lack of research

and literature available within this area is thought to hamper the SLT in effectively identifying fussy eaters for appropriate assessment and management.

This study therefore aimed to explore the experiences and perceptions of SLTs regarding fussy eating in children. The findings of the study are intended to shed light on the nature of fussy eating within South Africa, in terms of the perceived definitions, descriptions and causes of fussy eating, in addition to determining the health care professionals involved in the management of this population. Based on the clinical experiences of the SLTs, a primary objective of the study is to develop a definition of fussy eating that can be applied within the South African context.

Chapter Two - Methodology

Chapter two provides an outline of the methodology of the study, including the aims and objectives of the study. The research design employed within the present study is delineated, and a description of the participants that constituted the research sample is provided. Within this chapter a detailed overview of the procedure used for analysis of the data is presented as a basis from which the results of the study are derived.

2.1 Aims and Objectives

The study's main aim was to explore the experiences and perceptions of SLTs with regard to fussy eating in children. The primary objective was to establish a definition of fussy eating based on the clinical experiences and perceptions of the SLTs. A further objective of the study was to describe the symptoms which a fussy eater may present with. This information was intended to assist clinicians in the diagnosis and description of fussy eating, thus adding value to best practise.

The sub-aims of the study included:

1. Exploring the understanding of the definitions of fussy eating within a clinical context.
2. Understanding the perceptions of the aetiologies of fussy eaters in terms of primary and secondary causes.
3. Documenting the symptoms and behaviours that SLTs have experienced as fussy eating.
4. Exploring the SLTs perceived referral base for children who are fussy eaters.
5. Exploring the understanding of SLTs regarding the team approach in the management of fussy eating.

2.2 Research Design

The study utilized an exploratory, descriptive and qualitative research design. According to Marshall and Rossman (2011), qualitative research is a broad approach to the study of social phenomena involving a variety of genres that are naturalistic, interpretive, and critical, drawing on multiple methods of enquiry. Due to the domain of fussy eating being a relatively new and scarcely researched topic within the South African context, an exploratory, qualitative method of enquiry was deemed appropriate in order to generate data related to the aims and objectives of the study.

2.3 Participants

2.3.1 Sampling. Purposeful sampling was used to identify individuals for the study who would purposefully inform an understanding of the central phenomena within the study (Creswell, 2007). Participants who were able to provide appropriate and useful data (Green & Thorogood, 2009) were therefore selected to participate in the study. To attain this, a snowball sampling strategy was employed. Snowball sampling, according to Seale, Gobo, Gubrium and Silverman (2004), refers to identifying subjects who feature the necessary characteristics for the study, and through their recommendations, locating other subjects with the same characteristics. The use of the snowball sampling strategy was therefore employed in order to ensure that the sample was representative of SLTs knowledgeable and actively involved in the field of feeding and swallowing disorders. A potential limitation of the sampling strategy utilized, related to the fact that purposive samples can be prone to researcher bias (Leard Dissertation, n.d.). However, the subjective component of purposeful sampling is only a major disadvantage when judgements have not been based on clear criteria (Leard Dissertation, n.d.). Within the present study, specific inclusion criteria have been

stipulated to ensure that the individuals selected to participate in the study were able to provide useful and appropriate data related to the topic at hand.

Green and Thorogood (2009) indicated that, the sample size for an interview study is dependent on the research question and aims of the study. When addressing a specific research question, the experience of many qualitative researchers indicates that little new information comes out of transcripts once you have interviewed approximately twenty individuals within a category (Green & Thorogood, 2009). A sample size of thirty SLTs working within the field of paediatric feeding and swallowing disorders was therefore deemed appropriate to address the research questions in the current study. When conducting the final five interviews, the researcher found that similar themes arose from the final set of interviews when compared to the preceding transcripts. At this stage during the data collection process, it was assumed that saturation in the data collection process had been reached, indicating that sufficient data had been obtained to adequately address the research questions at hand.

The following inclusion criteria were considered when selecting participants:

- Participants must be currently working within the area of paediatric feeding and swallowing disorders.
- Participants must have at least three years experience with paediatric feeding and swallowing disorders.

These inclusion criteria were stipulated to ensure that at the time of the interview process, the participants were actively involved in the area of feeding and swallowing. The SLTs were therefore expected to be aware of their scope of practice as well as current practices with regard to the management of feeding and swallowing disorders. The inclusion

criteria were also implemented to ensure that the SLTs had sufficient experience with feeding and swallowing to provide valuable input in defining the area of fussy eating.

2.3.2 Description of participants. The sample consisted of thirty SLTs currently working within the field of paediatric feeding and swallowing disorders. Participants were selected to represent the various clinical settings available in South Africa, including public and private healthcare settings. The use of a varied sample was intended to improve the study's applicability in various clinical settings. The sample consisted of SLTs with varied years of experience, working within diverse contexts across South Africa. Table 1 provides a description of the sample who participated in the study.

Table 1

Description of the Participants

Participant (P)	**Location**	**Place of Work**	**Years Experience in Feeding**	**Additional Training**
1	Johannes burg , Gauteng	Private Practice	5	Paediatric NDT* Advanced NDT* MA ECI*
2	Johannesburg, Gauteng	Special Needs Public School	5	Paediatric NDT*
3	Johannesburg, Gauteng	Non-Government Organization	19	Paediatric NDT* Sensory Integration Training MA Speech Therapy*
4	Johannesburg, Gauteng	Private Practice	33	
5	Johannesburg, Gauteng	Public Tertiary Hospital	4	Paediatric NDT*
6	Johannesburg, Gauteng	Special Needs Private School	3	MA ECI*
7	Johannesburg, Gauteng	Public Central Hospital	6	
8	Johannesburg, Gauteng	Public Central Hospital	7	
9	Johannesburg, Gauteng	Special Needs Private Preschool	5	
10	Johannesburg, Gauteng	Special Needs Private Preschool	9	
11	Johannesburg,	Special Needs	12	

	Gauteng	Private Preschool		
12	Johannesburg, Gauteng	Public Central Hospital	3	
13	Johannesburg, Gauteng	Public Central Hospital	4	MA ECI*
14	Johannesburg, Gauteng	Public Central Hospital	20	Paediatric NDT* Advanced NDT* MA ECI* PhD*
15	Johannesburg, Gauteng	Public Central Hospital	6	
16	Johannesburg, Gauteng	Rehabilitation Centre	8	Paediatric NDT*
17	Potchefstroom, North-West	Multiple Settings	15	Paediatric NDT* Advanced NDT*
18	Johannesburg, Gauteng	Private Practice	14	Paediatric NDT* MA Speech Therapy*
19	Cape Town, Western Cape	Academic Institution	13	
20	Port Shepstone, KwaZulu-Natal	Public Provincial Hospital	5	Introductory NDT*
21	Cape Town, Western Cape	Public Tertiary Hospital	7	
22	Pretoria, Gauteng	Public Academic Hospital	4	Fussy Eating Course
23	Nelspruit, Mpumalanga	Public Tertiary Hospital	3	
24	Nelspruit, Mpumalanga	Public Tertiary Hospital	4	
25	Cape Town, Western Cape	Public Paediatric Hospital	4	
26	Pretoria, Gauteng	Private Practice	20	Paediatric NDT* Advanced NDT*
27	Stellenbosch, Western Cape	Multiple Settings	17	Paediatric NDT*
28	Cape Town, Western Cape	Public Tertiary Hospital	5	
29	Durban, KwaZulu-Natal	Private Practice	3	
30	Pretoria, Gauteng	Academic Institution	8	Paediatric NDT* Advanced NDT*

*Note. Abbreviations:
NDT – Neuro-Developmental Training
MA – Masters Degree
ECI - Early Communication Intervention
PhD – Doctoral Degree

2.3.2.1 Location of participants. SLTs that consented to participate in the study were located within the following provinces within South Africa: Gauteng, KwaZulu-Natal,

Mpumalanga, North West Province and Western Cape. The majority of the participants (n=17) within the study were, however, based in Gauteng, followed by the Western Cape (n=5) and KwaZulu-Natal (n=2). The researcher postulated that the majority of the participants within the present study being based in Gauteng may have been a result of a number of factors. Firstly, the researcher was based in Gauteng at the time of the study, and may have had a better knowledge of the healthcare system and availability of speech therapy services in Gauteng as opposed to that of other provinces. Secondly, Gauteng is a relatively wealthy and urbanized province (Hall et al., 2013) which led the researcher to presume that a larger number of SLTs may be employed within Gauteng in relation to other provinces. Additionally, therapists in urban areas may have had better access to resources, such as telephones, fax machines and internet services to enable them to participate in the present study. Given that Gauteng is a more wealthy and urbanized province (Hall et al., 2013), the socio-economic climate may differ from that of other provinces within South Africa. As a result, the findings of the present study may be biased toward the presentation of fussy eating within Gauteng.

2.3.2.2 Clinical settings. As intended, the participants presented as a varied sample, from differing healthcare and educational sectors within South Africa. In addition, the specific settings that the participants were involved in were also representative of many different contexts that SLTs are employed within South Africa. Majority of the participants (n = 11), practised in tertiary and central hospitals within the public healthcare sector. The participants were also often involved in general private practises and special needs schools within the private sector. However participants were also recruited from academic hospitals, provincial hospitals and paediatric hospitals within South Africa. Therefore, a variety of settings where paediatric patients receive speech-language therapy services were included in the study. This was necessary as the primary objective of the study, which was to develop a

definition of fussy eating, required input from therapists from varied clinical settings. This was to ensure that the definition of fussy eating derived within the present study was representative of all children who present with fussy eating.

2.3.2.3 Clinical experience. The participants were required to have at least three years experience in the field of paediatric feeding and swallowing disorders. The majority of the participants (n=18) had between three and seven years experience working with feeding and swallowing disorders, while the remainder (n=12) had more than eight years experience working with this paediatric population. This may indicate that there are less SLTs with over eight years experience involved in this area as compared to SLTs with three to seven years experience. A possible explanation for this is that more experienced therapists may have established specific niche areas of practise, whereas less experienced therapists are still involved in multiple areas of practise. Although the sample was relatively well experienced as a whole, it was deemed important to obtain a range of participants with varied years of experience within the present study in order to obtain data that was representative of the profession as a whole with differing schools of thought related to the topic of fussy eating.

2.3.2.4 Training. The participants trained at various academic institutions within South Africa, including the University of Cape Town, the University of KwaZulu-Natal, the University of Pretoria, the University of the Witwatersrand, North-West University and Stellenbosch University. Seven SLTs within the sample had received additional post-graduate training, which is detailed in Table 1. All the participants that completed postgraduate studies, had received further training either in the area of paediatrics, or in the area of paediatric feeding and swallowing, indicating a special interest within these areas, as well as significant theoretical knowledge in these respective areas.

Eleven participants had also received paediatric neuro-developmental training, with five of these participants also having received advanced neuro-developmental training. There

appeared to be a consensus among the participants that had received neuro-developmental training that this had significantly contributing to improving their knowledge and skills regarding paediatric feeding disorders.

Many of the participants (n=25) had also attended courses related to paediatric feeding and swallowing and oral motor therapy, however this training has not been included in Table 1, as no additional certification was provided for these types of training.

2.4 Data Collection Tools

Data was generated within semi-structured in-depth interviews. In-depth interviews are designed for the purpose of improving knowledge (Wengraf, 2002). This method of data collection was therefore relevant to the current study, as further knowledge and insight is required in terms of fussy eating within children, within the area of speech- language therapy. Semi-structured interviews are designed to have a number of prepared open-ended questions which are used in order for subsequent questions of the interviewer to be improvised in a careful and theorized manner (Wengraf, 2002). The interview was topically guided using an interview schedule (Appendix B). The interview schedule was constructed based on the research questions at hand in order to gain an understanding of the SLTs experiences and perceptions with regard to fussy eating in children.

Subsequent to approval by the University of the Witwatersrand Faculty of Humanities Higher Degrees Committee (Appendix C) and the University's Medical Human Research Ethics Committee (Protocol Number: M130757, Appendix D), the interview schedule was piloted to trial and refine the data collection instrument. The key sections included in the interview schedule related to the aims of the study. Within the first two sections, questions related to the participants' academic history, employment and work environment. These

questions were included to interpret the experiences and perceptions of the participants, relative to their training, years of experience and work environment. The third section of the interview included questions specific to the area of fussy eating, in order to gain insight into the participants' perceived definition of fussy eating, as well as the aetiologies they associated with fussy eating. The fourth section of the interview schedule related to the participants' clinical experience with fussy eating as well as issues related to the referral of children with fussy eating within their specific contexts. The final section involved a discussion of the participants' perceptions of the multidisciplinary team involved in managing fussy eating, as well as the role of the SLT within this population.

Interviews are advantageous as they yield a large amount of data relatively quickly (Marshall & Rossman, 2011), as compared to surveys which have a relatively low return rate and contain limited information. Therefore, interviews were selected as the most appropriate method of data collection for the study, ensuring that detailed information regarding the experiences and perceptions of the SLTs could be obtained. However, interviews largely depend on trust and the skills of the interviewer in extrapolating information (Marshall & Rossman, 2011). Research and training related to methods for conducting semi-structured in-depth interviews was undertaken by the researcher to ensure adequate skill in this area prior to conducting the interviews.

Face-to-face interviews were recorded using an Apple iPad 3 (4^{th} Generation). Data was recorded and stored within the Supernote application. Telephonic interviews were conducted on an Apple iPhone 5 using the speaker function and also recorded on the above device. All recordings were systematically backed up on a cloud system called Dropbox subsequent to the interview to ensure that copies of the data were kept securely. The Dropbox account was password protected to ensure that only the researcher is able to access these files. This was implemented to protect identities of the participants throughout the study.

2.5 Pilot Study

Following ethical approval from the University's Medical Human Research Ethics Committee (Appendix D), a pilot interview was conducted to trial and refine the interview schedule. This pilot interview also served to refine the skill of the researcher for conducting interviews within the main study. When pilots are used to refine research instruments, they serve to foreshadow research problems and questions, highlight gaps in data collection and consider significant issues such as validity, ethics and representation (Marshall & Rossman, 2011). One participant was interviewed within the pilot study, and the results of the pilot interview were not included in the analysis of the main study. Following the pilot, the following changes were made to the interview schedule:

- An academic history was included within the interview schedule to ensure that participants' were selected from a variety of training institutions within South Africa.
- The academic history also included questions related to additional training that the participants may have received regarding fussy eating. This was considered as a factor that may influence their knowledge and clinical experience within the area.

Thereafter the final interview schedule was compiled for use within the main study (Appendix B).

The data collection procedure was also revised to include field notes to improve reliability within the study. Methods of improving reliability in a study include good practise during fieldwork including accurate note taking (Green & Thorogood, 2009).

2.6 The Main Study

Interviews were conducted in person or telephonically and were scheduled at a time convenient for the participant. Given the scope of the study, SLTs countrywide were invited

to participate in the study to ensure that the data collected was representative of various clinical settings as well as different clinical perspectives across South Africa. Therefore, in the case of certain participants, it was necessary to conduct telephonic interviews. Telephonic interviews are the best source of information when a researcher is unable to have direct access to individuals, however, a limitation to this method of interviewing is that the researcher cannot view the non-linguistic and non-verbal communication behaviours displayed by the participant (Creswell, 2007). Data was audio recorded in order to effectively transcribe information for analysis and interpretation.

2.6.1 Research and data collection log.

- *May 2013:* The research proposal was completed and a presentation to the University of the Witwatersrand's Speech Therapy & Audiology department was conducted to obtain feedback regarding the design of the study.
- *June 2013:* Amendments were made to the proposal and the final draft was submitted to the University Medical Human Research Ethics committee as well as the University of the Witwatersrand Graduate Studies Committee of the Faculty of Humanities for approval to commence with the study.
- *July 2013:* Unconditional approval to commence with the study was received from the University Medical Human Research Ethics committee.
- *August 2013:* The Graduate Studies Committee of the Faculty of Humanities provided approval of the research proposal.
- *September 2013:* The pilot study was carried out and relevant amendments were made to the interview schedule as well as the data collection procedure.

- *October 2013 to May 2014*: This period involved collection of the data. The researcher transcribed the interviews, and carried out the initial analysis of individual transcripts during this period.
- *June 2014:* The analysis of the data began, involving coding and in-depth analysis of transcripts.
- *August 2014 – February 2015:* The dissertation was written and revised.
- *March 2015:* The final research dissertation was submitted to the Faculty of Humanities at the University of the Witwatersrand.

2.6.2 Transcription and management of data. An accurately transcribed recording is the most reliable record when conducting an interview (Green & Thorogood, 2009). Audio recordings were transcribed by the researcher in order to gain a preliminary understanding of the data. Some researchers prefer to transcribe their recordings independently, and this is a useful way of beginning to familiarize yourself with the data (Green & Thorogood, 2009). Transcriptions were stored on the researcher's personal computer, which was password protected to ensure that only the researcher was able to access these records. Copies of the transcriptions were sent to the research supervisors to audit as they were completed. These transcriptions were also stored on the computers of the research supervisors to back up the files. The computers of the research supervisors were also password protected. Therefore, only the researcher and the research supervisors were able to access the raw data.

2.6.3 Data analysis. The data was analysed qualitatively, using thematic content analysis. Qualitative data analysis involves searching for relationships and underlying themes; it explores and describes to build on theory (Marshall & Rossman, 2011). Thematic analysis is a method for identifying, analysing and reporting themes within data, and involves the search for common threads that extend across an entire interview as well as a set of

interviews (Vaismoradi et al., 2012). Thematic analysis was implemented in order to identify common themes recurring within each interview, as well as the set of interviews as a whole. The approach to thematic content analysis outlined by De Wet and Erasmus (2005) was adopted within the present study. Given the exploratory nature of the study, the data was analysed inductively. A limitation of the use of thematic content analysis as a method to analyse data relates to the flexibility of the method, which allows for a wide range of analytic options (Braun & Clarke, 2006). Therefore, the potential range of themes that may emerge from the data and the interpretation thereof are broad (Braun & Clarke, 2006). This presents with implications in terms of the credibility of the findings as well as the transferability of findings to other contexts. A number of methods were employed to ensure credibility of the findings; these are discussed in further detail within section 2.8.

2.6.3.1 Transcription and review. The initial step in analysing the data involved the transcription of the interview audio recordings. The recordings were transcribed verbatim from the audio recordings by the researcher to enhance familiarity with the data. When transcribing interview recordings, it is important to reliably reproduce the precise words used by the interviewee, including slang words, stutters, hesitations and interruptions to reproduce the actual talk rather than a tidied-up version (Green & Thorogood, 2009). Identifiers that may have been produced in the interview, such as names or locations, were removed from the transcriptions to protect the identities of the participants' as well as specific institutions mentioned within the interviews. The transcriptions were reviewed numerous times by the researcher to ensure that they were accurate in reproducing the interview verbatim as recorded on the audio files.

When analysing qualitative data, the researcher is engaged in the process of using analytic circles, rather than using a fixed linear approach (Creswell, 2007). Therefore, data was considered at each step during the collection process. Each interview was analysed

individually, and then the set of interviews were analysed concurrently to view the data in its entirety. This process was conducted continuously throughout the data collection process. Gathering and analysing data are conducted concurrently in descriptive qualitative approaches, thus adding to the depth and quality of the analysis (Vaismoradi et al., 2012).

The transcripts were read in their entirety several times prior to coding of the data. A close reading of the data allows the researcher an initial sense of issues arising from the data to understand fragments of information in context, before imposing codes on it (De Wet & Erasmus, 2005). Therefore the researcher was able to gain an initial overview of the themes emerging from the transcripts in reviewing the data as a whole.

Although the field notes were found to be useful within the pilot study, they were not found to be detailed enough to be particularly applicable within the analysis of data within the main study. Therefore, the data obtained within the field notes was not included in the data analysis.

A sample of ten participants was selected to conduct the member checks. Member checks were used as a tool to ensure credibility of the data (Creswell, 2007). The transcript from each participant's respective interview was sent to them along with a recording of the interview via email. The participant was required to confirm if the interview had been accurately transcribed according to the recording of the interview. Six of the participants responded to validate that the transcription of the interview was accurate. The remaining four participants did not respond to the email. As none of the participants indicated any inaccuracies in the transcription of their respective interviews, it was assumed that the transcriptions had been completed accurately.

2.6.3.2 First level coding. Following the transcription and review of the data, sampling of the text was carried out via an analysis of the content of the text to identify units

within the text for analysis. The researcher engaged in sampling of the text by identifying the basic units for analysis, which may include entire texts, grammatical segments, formatting units or simply chunks of text that reflect a single theme (Denzin & Lincoln, 2000). Within the present study, thematic units within the text were identified for analysis in terms of their relation to the research questions at hand. The researcher divided transcripts into sections related to the research questions at hand. Thematic content analysis was utilized to identify recurring concepts within the data, including frequency counts of recurring concepts within each interview. This was conducted to provide an understanding of the common issues within the data in order to develop the initial codes or commonalities within the data (Denzin & Lincoln, 2000). The transcripts were reviewed line-by-line and codes were assigned to particular passages or phrases that related to categories within each research question.

Samples of the coded transcriptions were reviewed with the research supervisors as a validity check to ensure that the codes were representative of the themes emerging within the data.

2.6.3.3 Second level coding. The second level of coding involved a thematic analysis of the information in order to identify clusters of information pertaining to the research questions and identify patterns and relationships within them (De Wet & Erasmus, 2005). Thematic analysis therefore involved defining themes apparent within the data as well as reviewing these themes in order to classify the data. Themes are abstract constructs that are identified by the researcher before, during and after the data collection (Denzin & Lincoln, 2000). Themes within the data were considered in relation to each research question in order to answer the central research question.

The final step in the analysis of the data was to utilize the emerging themes to develop the definition and description of fussy eating. Once the researcher had identified a set of

themes or commonalities, the next step was to identify how these things were linked to each other in a theoretical or conceptual model (Denzin & Lincoln, 2000). Following the development of the conceptual models, negative case analysis was used to refine theoretical constructs. Negative cases can either disconfirm parts of a model, or suggestion new connections that need to be made (Denzin & Lincoln, 2000). Therefore, it was important to address negative cases to ensure validity of the interpretation of the data. Within the discussion of the data, findings that are in contradiction to those of the proposed definition are discussed in further detail.

2.7 Ethical Considerations

Approval was granted to carry out the study by the University's Medical Human Research Ethics committee (Appendix D) as well as the Faculty of Humanities Higher Degrees Committee (Appendix C). The procedures were carried out to ensure that the study complied with the ethical standards required in human research. The following parameters were included to ensure ethical compliance of the study: informed consent, confidentiality, non-maleficence and justice, amongst others.

2.7.1 Informed consent. Participants were fully informed of the purpose of the study in writing (Appendix E). The participant information letter was communicated via email. Their decision to participate in the study was on a voluntary basis and the participants were informed of their right to withdraw from the study at any time, with no negative consequences. The decision to withdraw from the study did not pose any foreseeable risks or disadvantages to the participant. Participants who wished to partake in the study were required to complete an informed consent form to indicate that they were fully aware of their commitment to the study and to remain autonomous in their decision to participate in the study, as well as providing consent for audio recording of their interviews (Appendix F;

Appendix G). However, during the data collection process, many individuals expressed that they were willing to participate in the study but did not have access to scanning devices or fax machines to return the consent forms. This occurred at times in the case of telephonic interviews where the researcher did not have direct access to participants. In these cases verbal consent was recorded at the start of the interview. Some participants also expressed their willingness to participate in writing, via email.

2.7.2 Confidentiality. Participants remained anonymous through a coding strategy used during data collection which protected the identities of the participants. Therefore the names of the participants were not recorded on the audio files or the interview transcriptions. Personal identifiers that the participants may have made reference to within their interview, such as their name and workplaces, were removed from the interview transcripts. Furthermore, raw data was only available to the researcher and research supervisors. As previously stated, the recordings were backed up on a cloud system called Dropbox subsequent to each interview to ensure that copies of the data were kept securely. This Dropbox account was password protected to ensure that only the researcher was able to access these files, in order to maintain the confidentiality of the participants.

2.7.3 Non-maleficence. The ethical principle of non-maleficence, certifies that participants are not harmed by participating in the study. The present study did not pose any foreseeable risks to the participants who wished to partake in the study.

2.7.4 Justice. The participants were informed that they would receive feedback regarding the results, upon conclusion of the study. Thereby, the researcher, participants and the field of speech therapy as a whole should benefit from the findings of the study.

2.8 Reliability and Validity

For rigorous qualitative data analysis, the following processes must be taken into account: transparency, validity, reliability, comparisons and reflexivity (Green & Thorogood, 2009).

2.8.1 Transparency. Transparency involves keeping a clear account of the procedures used within the study in terms of the collection of data as well as the analysis of data for others to follow (Green & Thorogood, 2009). Therefore, a thorough data collection schedule as well as data analysis procedures have been included herewith to allow for transparency of methods used.

2.8.2 Validity. The validity of an interpretation in qualitative research refers to the credibility of that interpretation or the truth of the interpretation (Green & Thorogood, 2009). Creswell (2007) recommends employing at least two validation checks within a qualitative research study. There are multiple strategies for validating the credibility or trustworthiness of data analysis within qualitative research. The following procedures to ensure validity have been employed within the study: triangulation, debriefing, negative case analysis, member-checking and rich description.

De-briefing provides an external check of the research process, and the role of the debriefer is to keep the researcher honest by questioning methods and interpretations (Creswell, 2007). Throughout the research process decisions related to data collection and data analysis were discussed with the research supervisors employed by the University of the Witwatersrand. This was to ensure that methods and interpretations employed were discussed with individuals who are experienced and involved in research.

In terms of negative case analysis, the researcher refines hypotheses in response to negative or disconfirming evidence. It is important to address and interpret negative evidence within the study when highlighting themes and definitions arising from the data. This serves

to test emerging theory (Green & Thorogood, 2009). Negative case analysis was employed within the data analysis process in order to refine theoretical and conceptual models that emerged within the data.

Within member checking, the researcher solicits the participants' views related to the credibility of the findings and analysis of the data (Creswell, 2007). A sample of ten participants was selected to provide member checks related to their specific interviews. The participants were provided with the recording of the interview as well as the transcription of the interview, and were required to indicate if the interview had been transcribed accurately.

Providing rich description allows readers to make decisions in terms of transferability of the findings due to shared characteristics in terms of the settings or participants' within the study (Creswell, 2007). Rich description was provided when reporting the results of the study to ensure transferability to results within various contexts.

2.8.3 Reliability. Reliability refers to the repeatability of the research study (Green & Thorogood, 2009). It is important to consider aspects of reliability within a study as this ensures that the interpretation is credible and the rationale for themes or codes are identifiable. Creswell (2007) recommended that detailed field-notes, good-quality recording and accurate transcriptions could enhance reliability within qualitative research. These methods have been employed within the study to improve reliability of the results. The credibility of the analysis can also be enhanced by including the raw data to demonstrate how interpretation is linked to the data (Green & Thorogood, 2009). Due to the length and number of interview transcripts, all transcripts could not be included herewith. Therefore, a transcription of Interview 9 has been included as an appendix to the dissertation for the readers' reference (Appendix H). Direct quotations have also been provided to illustrate themes within the results chapter.

2.8.4 Comparisons. Comparing cases within the data set allows for the identification of themes within the data as well as exceptions to these themes to build typologies (Green & Thorogood, 2009). Comparison allows for theoretical analysis to develop as data is compared with emerging theory as it is generated. Comparing new analyses to provisional theories allows the researcher to refine and amend emerging theory (Green & Thorogood, 2009). Content and thematic analyses were used to identify themes within the data sets as well as exceptions within the data sets for analysis. Interviews were viewed independently, as well as concurrently during the data analysis process in order continuously compare emerging theory. Thorough analysis also involves a comparison of the findings with other findings in the field. The findings of the present study were compared with related studies within the literature to build on existing theory.

2.8.5 Reflexivity. Reflexivity refers to the recognition that the researcher is part of the process of collecting and analysing the data and a conscious analysis of that process (Green & Thorogood, 2009). Methodological openness was employed within the dissertation in order to explicitly describe steps taken in the data collection, analysis and decisions made. Theoretical openness was also maintained in discussing theoretical starting points and assumptions within the literature review (Green & Thorogood, 2009).

Chapter Three – Results

Chapter three presents the results of the study in relation to the aims and objectives of the study. An overview of the main findings of the study is presented, followed by more detailed findings pertaining to the specific aims of the study. The results are presented within the context of the themes that emerged from the study and descriptive statistics have also been used to provide an indication of the frequency of findings.

3.1 Overview of the Main Findings of the Study

The lack of consensus related to the definition of fussy eating, as well as the terminology used to describe fussy eating in the literature became apparent within the present study when examining the participants definitions of fussy eating. The participants highlighted the need to differentiate between fussy eating that is pathological, in contract to fussy eating that is transitory and developmentally appropriate in younger children. Fussy eating was described as a multi-factorial and heterogeneous difficulty arising from a number of inter-related aetiologies. The nature of fussy eating described by the participants therefore appeared to lend to a multidisciplinary approach to adequately address the needs of this population.

A primary theme within the present study related to the role of sensory integration in the understanding of fussy eating in children. This theme extended to almost every aspect of the study. In defining fussy eating, reference was made to fussy eating occurring as a result of difficulties processing the sensory properties of food, namely the texture, taste, temperature, smell and appearance of food. The theme of sensory integration also emerged in respect to the aetiologies of fussy eating, as well as the symptoms of fussy eating. Furthermore, the importance of the role of the occupational therapist in managing difficulties with sensory integration in children with fussy eating, reiterated the significance of sensory processing

difficulties in children with fussy eating. This finding appears in agreement with current research which acknowledges the role of sensory integration in children with fussy eating (Thompson et al., 2015; Werthmann et al., 2015).

The findings of the study further indicated that fussy eating within the South African context presented unique challenges related to the socio-economic climate within the country. Therefore, the presentation of fussy eating within South Africa may differ significantly from that of developed countries.

3.2 Defining Fussy Eating within a Clinical Context

A theme that frequently emerged within the participants' definition of fussy eating related to the difficulties experienced in relation to the sensory properties of food. Additionally, reference was frequently made to a primary aetiology underpinning the presentation of the fussy eating. The participants also discussed symptoms associated with fussy eating within their clinical contexts. Feeding development and the issue of transitory and non-transitory fussiness was discussed and deemed important in establishing when, and if, fussy eating was pathological in children. A number of exclusions were also listed by the participants within their definitions of fussy eating. These findings are presented in further detail below.

3.2.1 Sensory properties of food. Almost two thirds of participants (n=19), described fussy eating as a difficulty with the sensory properties of foods, specifically the taste, texture, smell and temperature of foods. For example, P3's definition of fussy eating encompassed difficulties with the sensory properties of food, with specific reference being made to the texture and temperature of food:

> *"...a general description of fussiness around say temperature of food, or the sensory properties of food so, children not wanting, for example, crunchy foods, or mixed consistencies, so children staying for example on smooth, puree consistencies for extended periods."* [P3]

P23 also discussed difficulties with the sensory properties of texture, taste and smell that define fussy eating in children:

> *"...a child preferring some foods more than, than others, erm not liking certain textures, tastes or smells of foods and resulting in them not wanting to eat those types of foods."* [P23]

Six of the participants reported that selectivity of foods in terms of texture was noted more frequently than difficulties with the other sensory properties of foods, such as taste, smell or temperature. This was highlighted within P4's definition of fussy eating during which the following was expressed:

> *"Fussy eating to me means a child who is not eating properly for their age and stage and it's frequently around things like lumps ... sometimes it's about taste, sometimes it's about temperature, but mostly it's about textures."* [P4]

Difficulty with the sensory properties of foods, therefore, emerged as a key factor in the definition of fussy eating within the present study. This theme was apparent within a number (n=19) of the definitions provided by participants. Within the present study, the sensory feature of texture was most frequently associated with fussy eating. The difficulties experienced by fussy eaters with regard to the sensory aspects of food have been highlighted by previous research in this area (Dovey et al., 2008; Goh & Jacob, 2012, Mascola et al., 2010; Thompson et al., 2015).

3.2.2 Underlying primary aetiologies. Within their definitions of fussy eating, participants (n=17) often linked fussy eating behaviours in children to an underlying primary aetiology. The fussy eating behaviours were perceived as secondary to these primary aetiologies. These primary causes of fussy eating in children were classified most frequently, in terms of behavioural and emotional factors (n=13), sensory processing difficulties (n=11) and underlying medical aetiologies (n=10). The specific aetiologies discussed by the participants within each category, are discussed in further detail below. P10's definition of fussy eating highlights the possible primary causes of fussy eating in children:

> *"Well, fussy eating I always think you have to look at the underlying cause so you need to see are they just fussy because it's a behavioural thing, in which case you may look at having psychology involved or parenting skills. Are they fussy because they have an underlying oral motor deficit, so they appear to be fussy but actually there's something oral-motor wise that they're struggling with, or is it that they have something else that's making them fussy so for example if they have ASD they might have a preference for certain colours or only eat food from specific lunch boxes or only eat specific kinds of foods. Or is it a sensory issue so those are children who maybe don't like certain temperatures, tastes, textures that kind of thing... So that's how I kind of think about fussy eating to look at why, why are they a fussy eater."* [P10]

The participants also frequently made reference to multiple possible underlying aetiologies within their definitions of fussy eating, suggesting that the issue of fussy eating in children is complex and multi-dimensional. The complexity fussy eating in children is highlighted by P14's definition of fussy eating:

"It's very hard to put one specific label to it. I think because it's, it's multi-dimensional and ..., from the children that I have seen, there usually is an underlying reason but you have to, to dig deep." [P14]

Therefore, fussy eating in children was defined as a complex, multidimensional issue that may present as secondary to one or more underlying aetiologies. The fact that the participants could not separate the aetiologies of fussy eating from the definition of fussy eating, suggests that the complexity of factors contributing to fussy eating in children is an important defining feature of fussy eating. Although the aetiologies of fussy eating have not been thoroughly researched, the majority of feeding disorders result from a combination of aetiologies (Fischer & Silverman, 2007). The aetiologies discussed by participants as underlying fussy eating are discussed in further detail below.

3.2.2.1 Behavioural and emotional factors. The participants made reference to general behavioural and psychological factors underlying the fussy eating behaviours. General behavioural factors related to fussy eating were described by P25 as follows:

"For me fussy eating is often more ... around behavioural issues around eating and around food and children's perceptions of eating and food erm, rather than a specific medical, you know, it can be precipitated by a medical issue, but ... for me fussy eating is more about children who have been exposed to eating and been exposed to foods, different textures, different types of foods but are still reluctant to feed." [P25]

In this instance fussy eating was seen to present as secondary to a general behavioural issue in terms of a child's perception towards food that resulted in a reluctance to feed.

However, negative feeding experiences and social factors were also discussed in relation to behavioural and emotional causes of fussy eating in children. P28 discussed the

negative feeding experiences and social factors that may result in the presentation of children as fussy eaters:

> *"... they've had long term NG [naso-gastric] feeds, or erm, they've been on TB [tuberculosis] meds and keep vomiting up ... so they've had negative feeding experiences ... or limited feeding experiences, so some of the kids who, erm don't get fed, erm certain textures anyway ... maybe due to social deprivation ... so then when they're introduced to something out there, they're picky about it ..."* [P28]

In this case, the behavioural and emotional factors underlying fussy eating related to previous negative feeding experiences, as well as social factors that could result in children presenting as fussy eaters. A lack of exposure to foods was also discussed in terms of children who may not have exposure to a variety of foods due to social deprivation and poverty. When introduced to new varieties of foods, they may then appear to present with behavioural responses which may be interpreted as fussiness towards foods. This presentation of fussy eating as a result of social deprivation and poverty is an important factor to consider within the definition of fussy eating in the South African context, given the widespread poverty and hunger that is rife within South Africa (SAHRC & UNICEF, 2014).

The participants also referred to difficulties within the parent and child's relationship that was described as a primary cause of fussy eating in children. P3 discussed a specific case of a parent that presented with Munchausen by Proxy Syndrome within her definition of fussy eating:

> *"So, there was a particular child that I can think of that was grossly overweight but the mom said that the child refused to eat all the time and actually, eventually, er, after conducting all kinds of medical investigations, one of the doctors, the GIT [gastroenterologist] doctor actually, suggested that there may be something called, erm,*

Munchausen by Proxy where the parents actually have their own issues with eating and they actually put it onto the child. They actually like transfer their own eating and drinking issues onto the child..." [P3]

Issues related to general parenting was also referred to as a cause of fussy eating by the participants, as discussed by P14 in her definition of fussy eating:

"So, I would say sometimes it's, it's a food aversion related to which I'm finding a lot more now, relating to parenting as well... I'm doing a lot more investigative work now in terms of finding out about parents as well because I'm finding a lot of the fussiness that the kids are presenting with are sometimes the parent's fussiness as well." [P14]

Therefore, issues related to the parent and child's relationship were viewed as factors that may result in fussy eating. In addition, parents who present with fussiness toward food may also limit the child's exposure to certain foods or food groups, thereby resulting in the child developing fussy eating.

Behavioural and emotional causes of fussy eating have been linked to a number of socio-emotional and economic factors that contribute to fussy eating within the present study. Similarly, previous research has also linked socio-emotional and economic factors to fussy eating in children (Dubois et al., 2007; Goh & Jacob, 2012; Mascola et al., 2010; Tharner et al., 2014). The issue of a lack of access to food due to poverty is an important factor to consider in defining fussy eating within the South African context.

3.2.2.2 Sensory processing difficulties. With regards to sensory processing difficulties, participants most frequently made reference to a general sensory processing disorder within their definition of fussy eating in children. This can be seen in an extract from P22's interview:

"... it's mainly then for children that's struggling, erm to cope with sensory issues, erm that's related to feeding..." [P22]

One participant also made reference to sensory processing difficulties that arise in children with motor impairments, resulting from a lack of sensory experience due to their inability to access their environment. This was discussed within the context of children with cerebral palsy by P3:

"Fussy eating sometimes goes together with, erm, other kinds of sensory issues, so you find that it might be a child... that because of motor impairments or motor challenges, is not able to almost regulate their sensory experiences because they have limited movement." [P3]

In this case, the primary aetiology of motor impairment would result in a secondary sensory processing difficulty that in turn results in the child presenting as a fussy eater. This is a further example of the complex and multi-dimensional nature of fussy eating in children, and once again emerges as the theme within the aetiologies of fussy eating discussed later on in this chapter.

3.2.2.3 Medical aetiologies. The participants made reference to a number of primary medical aetiologies that could result in symptoms of fussy eating. These included disorders resulting in motor impairment, such as cerebral palsy, as well as developmental disorders. In some cases, the participants made reference to underlying oral motor difficulties that may result in dietary restrictions that present as fussy eating in children. P17 made reference to developmental difficulties, resulting in motor impairments and/or oral motor difficulties as possible primary aetiologies of fussy eating:

"Well, if I had to define it I would say the fussy eater is a child that has difficulty, erm, with nutritional intake due to a, a any developmental, erm, difficulty and it might be due to a motor disability or a... oral motor thing." [P17]

Children with neurological disorders, such as cerebral palsy, who present with difficulties with oral motor aspects of feeding, may be exposed to a limited range of textures as a result (Arvedson, 2013). Therefore, when exposed to different textures at a later stage, when they are better able to manage them, they may present with a reluctance to try different foods, due to a lack of exposure to these consistencies.

Autism Spectrum Disorder (ASD) was also discussed as a primary aetiology that may result in fussy eating in children. P20 made reference to ASD when defining fussy eating:

"I would define it as probably difficulties with feeding... it could be related to a specific diagnosis such as autism, yeah so anything that impacts on the child's feeding negatively due to behaviour or a specific diagnosis." [P20]

In the case of children with ASD, difficulties associated with the disorder, such as sensory processing difficulties as well as a propensity for restrictive behaviours and interests may result in the presentation of symptoms of fussy eating within this population (Nadon et al., 2011; Tang et al., 2011).

One participant referred to oral candida, oral thrush and reflux as possible underlying causes of fussy eating in children. P14 describes how these aetiologies lead to negative oral experiences, resulting in fussy eating in children:

"In the environment I work in...those kids who have had oral thrush and candidacies and so forth, have had very unpleasant eating experiences and as a result have fussy eating... the children with reflux as well, erm, that has been a problem too." [P14]

Medical aetiologies that cause pain and discomfort during feeding may result in the child associating negative experiences with feeding (Piazza, 2008), leading to the child exhibiting fussiness toward food. Although GORD has been linked to fussy eating internationally (Manikam & Perman, 2000; Schwarz, 2003), little information has been provided regarding the link between fussy eating and issues such as oral thrush and oral candida within the international literature. The burden of disease experienced by children in South Africa (Sanders et al., 2013), may result in these aetiologies, linked to infectious disease, being more prevalent within the South African context.

3.2.3 Symptoms of fussy eating. Within their definitions of fussy eating, the participants made reference to a number of symptoms associated with fussy eating. Issues of selectivity (n=10), food refusal (n=9) and restricted diets (n=8) were more commonly referred to as symptoms of fussy eating. Three participants also reported that children with fussy eating also consumed limited amounts of food.

For example, P6 made reference to the symptoms of food refusal as well as the limited amount of food consumed by fussy eaters:

> *"Fussy eating is ideally when a child refuses to complete the desired amount of food in an appropriate manner..."* [P6]

While, P13 made reference to the symptoms of selectivity and restricted diet:

> *"Ok, I would say fussy eating, erm, is selectivity of food ... which then results in them becoming quite selective in terms of what types of food or consistencies that they want to eat."* [P13]

Fussy eating therefore appears to be characterised by selectivity towards food, resulting in a restricted diet. Fussy eaters may refuse foods based on their specific preferences

or consume smaller amounts of food than is required for adequate nutrition. The symptoms of fussy eating identified within the present study, are in coherence with the symptoms of fussy eating described within previous studies (Goh & Jacob, 2012; Mascola et al., 2010; Tharner et al., 2014; Thompson et al., 2015; Wright et al., 2007).

3.2.4 Feeding development. Six participants reported a delay in the feeding milestones of children with fussy eating within their definitions. For example, the participants reported a delay in the onset of consuming solid foods, as reported by P27 in the definition of fussy eating:

> *"That would be the child who has difficulty dealing with maybe even moving on from, erm, one stage to another in terms of feeding development... the child that has problems even dealing with the initial stages of feeding, erm, and then obviously bring with them a whole bunch of problems when they, erm, move on, or when they get older and their dietary requirements erm increase. So it would be the child who... doesn't want to feed or take in perhaps some foods that are offered even though it might be, erm age appropriate."* [P27]

Participants also referred to a deviance from the typical developmental patterns associated with feeding in typically developing children. This is highlighted in P28's interview:

> *"A child who doesn't tolerate certain textures, tastes or, erm, temperatures ... but not necessarily in a pattern, maybe not necessarily a developmental pattern, so ... they may like crunchy and smooth but not crumbly, which is not developmentally normal. You'd rather go through the stages of liquid, to smooth, to fine textured ... and maybe a fussy eater doesn't have a typical pattern, like a typical developmental pattern."* [P28]

This suggests that fussy eaters may present with a delay in feeding milestones or a deviance in typical, developmental feeding patterns. Although there is very little research regarding the developmental feeding patterns of children with fussy eating, the available research suggests that fussy eating may be characterized by early childhood eating behaviours (Jacobi et al., 2003), and that early feeding experiences may relate to the acceptance of new foods later on (Unlü et al., 2007). However, further longitudinal research is required to investigate developmental aspects related to fussy eating.

3.2.5 Considerations for determining when fussy eating is pathological. Transitory and non-transitory fussy eating also emerged as a theme within the data. Problems with feeding are common concerns related to all children, including typically developing children, especially during the pre-school years (Gisel, 2008). Research has also indicated that there are a number of children for whom fussy eating is transient and of short duration (Mascola et al., 2010). It is therefore important to identify when fussy eating may be pathological in children and to differentiate between fussy eating that is transitory in nature. Eight of the participants identified issues that determined when fussy eating in children was pathological. These involved the following:

- The fussy eating caused interruptions to the family dynamic (n = 4).
- The child presented with compromised nutrition as a result of the fussy eating (n = 4).
- The fussiness was not transitory and persisted for extended periods (n = 2).

P1 highlighted the issue of fussy eating being pathological when it results in interruptions to the family dynamic and compromised nutrition:

"... For me fussy eating is where it actually disrupts the life of the family. So where a child isn't eating and it disrupts the family routine, family eating routines, going out to birthday parties and it also affects the family emotionally as well... children that just don't like

certain foods is ok but they have a general well-rounded diet is fine, but children that are eating about ten or less items in a general diet, would to me come across as fussy eating." [P1]

P3 made reference to fussy eating being pathological when it persists for extended periods, and is therefore non-transitory within her definition of fussy eating:

"... There's a general description of ... fussiness around ... the sensory properties of food... so children staying for example on smooth, puree consistencies for extended periods." [P3]

Therefore, there appear to be a number of factors discussed by the participants that may distinguish fussy eating that is pathological from a developmentally appropriate fussiness towards food that is common in younger children.

3.2.6 Exclusion of criteria in defining fussy eating. Five of the participants referred to the exclusion of certain factors within their definitions of fussy eating. Three participants excluded medical aetiologies from their definitions of fussy eating. For example, P24 stated that a fussy eater was:

"... a child who's refusing to eat for some reason but it's not medical." [P24]

The participants that excluded medical aetiologies from their definitions of fussy eating attributed fussy eating to sensory based difficulties and/or behavioural causes. For example, P7 reported children with fussy eating had difficulty with different consistencies of foods:

"... not anything anatomically wrong with the child ... maybe they can't cope with certain consistencies..." [P7]

P29 also referred to sensory and behavioural causes of fussy eating in children:

"It could be texture based, or behaviour based or something like that" [P29]

The exclusion of medical causes from the participants' definitions of fussy eating, however, did not correlate with their later discussion of the aetiologies of fussy eating, where they discussed medical aetiologies related to fussy eating. For example, P7 discussed cerebral palsy, ASD and cleft palate as causes of fussy eating. These are all medical factors that relate to fussy eating in children:

"...a CP [cerebral palsy] child or an autistic child ... it depends on whether they can cope with those textures ... I think like even with cleft kids..." [P7]

This finding links to the school of thought indicating that feeding disorders must be classified according to an organic or non-organic dichotomy (Kreipe & Palomaki, 2012), leading to the assumption that fussy eating is a non-organic feeding difficulty that cannot be attributed to organic causes.

P5 excluded both medical and sensory aetiologies within the definition of fussy eating, as follows:

"For me fussy eating is a refusal to eat when there is no underlying condition, so there's no underlying neurological condition, or anything structural or anatomical which would relate to the refusal of food. So, no sensory integration issues, er, or any of that." [P5]

However, this exclusion was contradictory to P5's later discussion of the aetiologies of fussy eating, where she included both medical and sensory difficulties as causes of fussy eating. P5's discussion of the causes of fussy eating included both neurological factors as well as gastro-oesophageal reflux as follows:

"... also children with, er, gastro-oesophageal reflux ... who become fussy eaters ... and then obviously those with neurological impairments..." [P5]

P25 excluded oral aversion from the definition of fussy eating, and implied that fussy eating and oral aversion were separate entities:

"For me fussy eating is often more ... around behavioural issues around eating ... for me it's not like an oral aversion that is caused by long term non-oral feeding..." [P25]

P25 appears to associate fussy eating with behavioural causes as opposed to an oral aversion, which could be caused by a negative oral experience or medical issue. However, P25 later discussed long term non oral feeding as a primary cause of fussy eating:

"... in terms of primary, I would say probably, you know, your children who have been long term hospitalization, long term institutionalization or erm, erm like intubations." [P25]

Therefore, this exclusion did not appear to link to P25's discussion of fussy eating within a clinical context. The lack of consistency in terms of the participants' definitions and classification of fussy eating is representative of the lack of agreement within the literature regarding the definition of fussy eating (Dovey et al., 2008; Tharner et al., 2014), as well as the lack of consensus of the terminology used to describe fussy eating (Lucarelli et al., 2013). This finding supports the aim of formulating a more applicable working definition of fussy eating. The difficulties apparent in the definition and description of fussy eating are further discussed within the following chapter.

3.2.7 The term "fussy eating". Connotations related to the term "fussy eating" emerged as a theme within the data, in that participants often seemed to have difficulty with the use of this term. In some cases, this appeared to relate to the lack of clarity in terms of the

definition and classification of fussy eating within the literature. For example, when the topic of fussy eating was introduced to P4, the participant responded with:

"Define it for me first, then I can talk" [P4]

This response seemed to indicate that the participant was unsure of the "definition" of fussy eating that the researcher was referring to, suggesting that there are multiple definitions of fussy eating being used clinically.

P19 also appeared to make a distinction between "fussy eating" and "picky eating" in children. When asked to define fussy eating P19 reported:

"For me fussy eating is a normal variant ... I think, for me it depends on, on what you're talking about, erm for me fussy eating is what toddlers do ... picky eating for me is something more specific ..." [P19]

This confusion regarding the terms "fussy eating" and "picky eating" is representative of the lack of consistency in the literature in the terminology used to describe fussy eating. Additionally, fussy eating in children within the South African context often encompassed complex medical, environmental and social factors. The participants appeared to perceive "fussy eating" as a "first world" difficulty that presented in isolation. However, therapists within the South African context perceived fussy eating as a multi-faceted feeding difficulty within this developing context. P14 made reference the term "fussy eating" in terms of the South African context:

"...when you read articles on, on the types of problems presented in first world countries, I think they're very different from the developing world, erm, and I'm not even sure if fussy eating is the correct terminology, erm, for what we're seeing in South Africa or in Africa in general." [P14]

Therefore, the participants appeared to view the term "fussy" as not being representative of the multi-dimensional factors associated with fussy eating within the South African context.

Within this section, the findings of the present study highlight the confusion and lack of agreement surrounding the definition of fussy eating as well as the terminology used to describe fussy eating. Aspects related specifically to the South African context indicate that an understanding of fussy eating within the developing world may encompass factors that are very different from those in developed countries. Fussy eating was described as a multi-dimensional and heterogeneous feeding difficulty that may result from a number of underlying causes. The role of sensory processing, related to the specific sensory features of food, emerged as key in defining fussy eating in children. Developmental issues were also highlighted in terms of understanding when fussy eating in children is pathological, as opposed to fussy eating that is a developmental phase common in typically developing children. These are all factors that must be considered in relation to the literature, in developing a working definition of fussy eating.

3.3 The Aetiologies of Fussy Eating

During the interview, the participants were asked to discuss what they perceived as primary and secondary causes of fussy eating in children based on their clinical experience (Appendix B). No prompting was provided by the researcher in terms of providing examples of possible primary and secondary causes. Upon analysis of the data, it was found that participants often struggled to differentiate between primary aetiologies and secondary aetiologies of fussy eating. This resulted in difficulty in classifying causes of fussy eating in terms of primary and secondary causes within the data analysis. The common causes of fussy eating were collated based on the responses of the participants.

3.3.1 Primary and secondary causes of fussy eating. A number of the participants, (n=14), did not differentiate between primary and secondary causes of fussy eating in their discussion of the aetiologies related to fussy eating. These participants provided a discussion of their perceived causes of fussy eating in children but did not classify them in terms of either primary causes or secondary causes. For example, P26 discussed different aetiologies of fussy eating in children, but did not distinguish primary from secondary causes:

> *"In one scenario I see children that have been traumatized ... and that causes them to have aversion which can be perceived as fussiness ... I have children with sensory integration or sensory modulation problems, that feeding is just one part of their ... difficulties coping with, with life and changes in the sensory environment. Then I have children ... that have been born prematurely where all the negative experience from the medical treatment ... has left us with erm, a food aversion or fussiness."* [P26]

Seven of the participants experienced difficulty differentiating between primary and secondary causes of fussy eating within their discussion, and frequently did not classify aetiologies in terms of primary and secondary causes. For example, P18 expressed the following when asked primary and secondary causes of fussy eating in children:

> *"Primary and secondary causes, erm, oh gosh!"* [P18]

The participant then continued to discuss aetiologies associated with fussy eating but did not classify these in terms of primary and secondary causes. At times, the participants requested that the question be explained in further detail. For example, P25 requested further information regarding the requirements of the question:

"Primary and secondary causes, my goodness, I've never heard it described that way... can you give me a kind of indication in terms of what you are looking for with that question because I'm not entirely sure." [P25]

In this case the researcher would respond in a neutral manner by re-phrasing the question to discuss more general causes of fussy eating in children. This was done so as to not prompt the participants in any manner in terms of their perceptions of the aetiologies of fussy eating. For example, during the interview with P25, the researcher responded with:

"... so just basically if there's any, erm aetiologies or specific issues that might be linked erm, to fussy eating, that may cause it." [R]

Nine of the participants made reference to primary and secondary causes within their discussion of the causes of fussy eating in children. The responses of the participants that discussed primary and secondary causes were analysed further to explore possible patterns in the classification of aetiologies related to fussy eating in children. Table 2 illustrates the participants' classification of the primary and secondary causes of fussy eating in children.

There appeared to be a lack of consistency in the distinction between primary and secondary causes amongst the participants. For example, sensory integration difficulties were described as a primary cause of fussy eating in children by some, and then described as a secondary cause by others. The literature indicates that due to the complex nature of feeding disorders, it is often difficult to distinguish primary from secondary aetiologies (Arvedson & Brodsky, 2002). In addition, a particular aetiology may be identified as a primary cause of fussy eating in some cases, while the same aetiology may arise as a secondary factor in another case. P8 illustrates how sensory integration difficulties could be classified as either a primary or secondary cause of fussy eating in children:

"...to me the, the primary reason for fussy eating is, is generally something sensory... sometimes for me that's because of an underlying sensory dysfunction ... and that I see often with children on the autistic spectrum but also children with neurological deficiencies, it can be a lack of exposure that leads to a sensory aversion so ... the sensory could actually be secondary to a lack of exposure ... because they weren't given that opportunity rather than because the sensory issue was their primary problem." [P8]

Table 2

The Primary and Secondary Aetiologies of Fussy Eating

Primary Aetiologies	**Number of Participants**
Neurological	3
Sensory Integration	3
Medical	3
Social Deprivation	2
Autism Spectrum Disorder	1
Oral Motor Difficulties	1
Negative Oral Experiences	1
Secondary Aetiologies	**Number of Participants**
Behavioural Difficulties	3
Parent-Child Relationship	3
Medical	2
Emotional	1
Autism Spectrum Disorder	1
Sensory Integration	1
Lifestyle	1

Therefore, no clear classification regarding the primary and secondary aetiologies of fussy eating could be developed from the data. It appears that the classification of primary and secondary aetiologies in children with fussy eating may differ within each individual case.

3.3.2 Common causes of fussy eating in children. Table 3 depicts the specific aetiologies associated with fussy eating as reported by participants based on their clinical experiences. These aetiologies have been categorized into sensory, medical, socio-emotional, neurological/physiological, as well as medical factors. These categories were imposed on the aetiologies of fussy eating within the present study to capture the overriding factors associated with fussy eating. However, it may be argued that these factors could impact each other, linking the categories associated with fussy eating. For example, negative oral experiences may arise from a medical aetiology, but result in socio-emotional issues that impact on the family dynamic. In another scenario, negative oral experiences may result from traumatisation that occurs from the experience of being forced to eat. In this case, the primary aetiology is purely socio-emotional in nature. This further highlights the importance of the identification of primary and secondary aetiologies in children who present with fussy eating. At present the literature appears lacking in the information available regarding the primary and secondary aetiologies of fussy eating, therefore the findings related to primary and secondary aetiologies within the present study could not be compared with previous research.

Table 3

Aetiologies Associated with Fussy Eating in Children

Aetiology		**Participants**
Sensory		
	Sensory Integration	20
Socio-Emotional		
	Socio Emotional	17
	Negative Oral Experiences	14
	Behavioural	11
	Lack of Exposure	10
Neurological/Physiological		
	Neurological	11
	Physiological	10
	Oral Motor Difficulties	5
Medical		
	Autism Spectrum Disorder	10
	Medical	5
	Reflux	5
	Kwashiorkor	4
	Anatomical/Structural	4

3.3.2.1 Sensory integration difficulties. Within the present study, sensory integration difficulties were reported most frequently as a cause of fussy eating in children. Two thirds of the participants interviewed (n=20) reported that difficulties with sensory integration resulted in fussy eating in children. For example, P18 discussed sensory integration difficulty as a cause of fussy eating:

" ... a lot of the kids that I see that are fussy eaters, erm are the kids that have general sensory processing disorders." [P18]

This correlates with the participants' definitions of fussy eating in children, where difficulties with the sensory properties of foods emerged in the definitions of nineteen of the participants interviewed. Eleven of the participants interviewed also made reference to underlying sensory integration difficulties as a primary cause of fussy eating in children within their definitions. Therefore, sensory integration difficulties appear to emerge as a strong theme in the understanding of fussy eating in children within the present study.

3.3.2.2 Socio-emotional factors. Socio-Emotional factors were also identified by a number of participants (n=17) as a cause of fussy eating in children. These included issues relating to the parent and child relationship (n=5), lifestyle (n=2), general parenting (n=8) and environmental factors (n=1). P21 discussed issues related to the parent and child's relationship that may cause fussy eating in children:

"For other children it's the relationship between the parent and the child because sometimes ... it looks like the children use the erm, eating or lack thereof to almost control the behaviour of the parent ... so I often see that it's due to sometimes the attitude of the child or even the relationship between the parent and the child. Often you'll see certain type of parent dynamic where ... they are so desperate to get the child to eat something that they would allow the child to eat whatever they can get in, erm especially if there's quite a lot of refusal of foods and poor appetite..." [P21]

Therefore, the relationship between the parent and the child may initiate and perpetuate fussy eating in children. P14 highlighted parenting and lifestyle issues as causes of fussy eating in children:

"I think, erm, parenting. So that could be an issue, it could be lifestyle, I mean this week I assessed a child who was eating a {fast food outlet} burger every single day ... when I say parenting, it could also be the lack of knowledge ... of young parents or young parents being told by grannies that they should start eating, feeding solids early. So we've had two months old starting on solids so their system is not ready for it, erm, so as a result feeding there too is not ... pleasant." [P14]

Therefore, the parent's knowledge regarding nutrition and the developmental stages of feeding as well as the parents lifestyle choices may have an impact on the child's food choices and acceptance of foods. Environmental and social issues related to fussy eating in children were discussed by P12 in terms of poverty as a cause of fussy eating in children:

"I think primary causes could be a lot of environmental and social aspects, so like your Kwash [Kwashiorkor] kiddies and your kiddies that come in a lot with your marasmus and things like that erm, I think that ... poverty and things like that has an impact on, erm on feeding and also like what children are exposed to." [P12]

P12's discussion on the environmental causes of fussy eating highlights the issue of poverty within the South African context. In this case children may only be exposed to a limited repertoire of foods due to social issues, and develop fussy eating as a result of this lack of exposure.

3.3.2.3 Negative oral experiences. Fourteen of the participants within the study reported that negative oral experiences were a cause of fussy eating in children. Within their discussion, the participants referred to the following within the category of negative oral experiences: long term non-oral feeding (n=7), pain/discomfort during feeding (n=4) and traumatic experiences during feeding (n=3). P26 discussed traumatic experiences during feeding and long term non-oral feeding as causes of fussy eating in children:

"In one scenario, I see children that have been traumatized by, erm, for example their swallowing problems and food have been pushed down their throat and they can't handle on a swallowing level and that causes them to have aversion which can be perceived as fussiness ... then I have children with erm, er, that have been born prematurely where all the negative experience from, from the medical treatment in ICU [intensive care unit] has left us with erm, a food aversion or fussiness." [P26]

P15 discussed medical issues that resulted in pain and discomfort during feeding as a cause of fussy eating:

"... a lot of kids that have had, erm reflux and allergies, to kids that have other upper respiratory issues, so like ton- chronic tonsillitis to, so anything that's causing pain..." [P15]

Therefore, a number of negative oral experiences could result in fussy eating in children due to the pain, discomfort and trauma that these children associate with feeding. Within the present study, these negative feeding experiences seemed to result from medical factors.

3.3.2.4 Neurological. Neurological factors were also reported by participants as a cause of fussy eating in children. Eleven participants referred to neurological factors within their discussion of aetiologies of fussy eating. This was commonly discussed within the context of cerebral palsy, with eight participants linking cerebral palsy with fussy eating in children. A further three participants referred to general neuro-muscular difficulties as a cause of fussy eating in children. P16 made reference to cerebral palsy and neuro-muscular difficulties when discussing causes of fussy eating in children:

"For example, in cerebral palsy, they've just been exposed to one consistency or, or, erm small variety of tastes and textures and they don't really like to try other things so just the lack of experience for a long period of time, erm and just in terms of like general development, if there's any motor difficulties then they don't engage in sensorimotor play a lot then I find those are the kiddies ... that are fussy eaters." [P16]

Neurological factors were thought to result in fussy eating due for a number of reasons. Firstly, children with neurological factors generally also present with oral motor difficulties, which may result in negative oral experiences during feeding. As a result, they may also be provided with limitations in terms of the foods they are exposed to in terms of texture. These limitations may lead to sensory integration difficulties due to a lack of exposure to different textures. P8 highlights this issue in the case of children with cerebral palsy:

"... so a child with CP [cerebral palsy], with cerebral palsy for example, who's struggling to eat, the family might always give them bland, smooth food and then when you try and introduce a consistency even if motorically they can cope with it, the child may reject it ... and ... that's a sensory problem but the sensory problem may have come from a lack of exposure..." [P8]

The extract from P8's interview illustrates how children with neurological impairments may present as fussy eaters as they may be reluctant to try new foods and different textured foods even once their oral motor skills improve.

3.3.2.5 Behavioural or emotional causes of fussy eating. Eleven participants attributed behavioural or emotional factors to fussy eating in children. P2 referred to behaviour and emotional factors as a cause of fussy eating in children:

"Behavioural, maybe the erm emotions or experiences around eating, er, parents, erm, reactions to feeding, to eating and feeding." [P2]

This correlates with the participants' definitions of fussy eating, where links to underlying behavioural or emotional difficulties were included in participants' definitions of fussy eating in children. Within the present study, a percentage of participants discussed fussy behavioural or emotional causes as an isolated primary aetiology of fussy eating. Other participants discussed behavioural or emotional factors as secondary to an underlying primary cause of fussy eating, for example sensory integration difficulties. P8 made reference to this during discussion of the causes of fussy eating in children:

"... and then behaviour obviously the fact that in my experience more often the behaviour is secondary to an underlying sensory difficulty or a lack of exposure and then the child might be very rigid about what they will and won't eat but I don't think the behaviour is the primary. I think that the child is refusing food, it's usually for a reason." [P8]

Therefore, behavioural and emotional factors may present as either a primary aetiology of fussy eating, or could arise as secondary to another, underlying aetiology.

3.3.2.6 Autism spectrum disorder. A third of the participants (n=10), reported that ASD was a cause of fussy eating in children. This was often associated with the difficulties with sensory integration experienced by children with ASD. For example, P13 made reference to ASD as a cause of fussy eating in children, as well as the difficulties that they experience related to the sensory properties of food:

"The fussy eaters I've noticed in ASD clinic will be kids with sensory issues, erm and then that comes down to the texture, consistency, erm saltiness, or erm sweetness, that the

differences there they don't like … a lot of them also, er don't move on to solid foods very well and they will refuse the more difficult solids." [P13]

Autism spectrum disorders were, therefore, associated with fussy eating in children, within the present study, in relation to the sensory integration difficulties that are common in this population.

3.3.2.7 Lack of exposure. A lack of exposure to foods was also indicated as a cause of fussy eating in children by a third of the participants (n=10). This lack of exposure to foods was most frequently attributed to social deprivation and poverty in populations from low socio-economic circumstances where a variety of foods were not readily available to children (n=5). Fussy eating within the context of poverty is illustrated by P14 in the discussion of the causes of fussy eating in children:

"I think one of the factors which, which is not currently looked at is, is poverty … I think there could be an impact there where children are, because of limited resources within a family, they could get used to just a particular diet, erm and change in that in any way could be a threat to their system." [P14]

P13 also described how poverty and the lack of availability of foods could result in children presenting as fussy eaters:

"... they refuse milk but then when you get, erm social history and social information, if parents can't afford milk they're giving children rooibos tea ... to fill them up, and we're giving them milk here and then they start refusing the milk." [P13]

Lack of exposure due to social deprivation was reported by participants to result in sensory processing difficulties at times. At other times children presented with medical complications as a result, such as Kwashiorkor. Four of the participants interviewed

specifically identified Kwashiorkor as a cause of fussy eating in children. P13 described Kwashiorkor as a cause of fussy eating in children:

> *"... when I look at the fussy eating, or fussy eaters in the ward setting, a lot of the time I find it's children who have been diagnosed with Kwashiorkor ... so whether it's the medical condition, whether it's the forced feeding that comes with that medical condition, that then results in them being fussy eaters..."* [P13]

Therefore, within the South African context, it appears that fussy eating may result from complex social and economic issues that children are faced with within their environments due to a lack of availability of foods.

As reported above within section 3.3.2.4, fussy eating was also attributed to lack of exposure to foods in children with special needs. This was reported by four of the participants interviewed. P30 referred to this lack of exposure within her report of the causes of fussy eating:

> *"If you look at children with neurological complications, erm such as children with CP [Cerebral Palsy] ... I would say sometimes that you find that they have secondary, erm sensitivity to erm, certain textures or tastes just purely because of erm the fact that they haven't been experiencing it that much. Certain children only eat certain textures because they haven't been exposed to those ... due to the fact that they can't cope erm with erm other textures and then they get offered, erm the same kind of texture or taste over and over and then possibly develop secondary fussiness to food."* [P30]

Preference for foods is a function of exposure (Mason et al., 2005). These findings therefore suggest that a lack of exposure to food may result in children developing a preference for foods that they are regularly exposed to. They may subsequently present as

fussy eaters when exposed to foods that are not within their repertoire by exhibiting selectivity toward food.

3.3.2.8 Physiological causes of fussy eating. Ten participants reported that physiological difficulties resulted in fussy eating in children. Physiological factors reported within the present study included dysphagia (n=4) as well as oral motor difficulties (n=5). P10 discussed oral motor deficits as a cause of fussy eating in children:

> *"They could have an underlying oral motor deficit that's making them appear to be fussy. So they, they erm, don't have, er good chewing skills. Maybe they don't like chewing like chewing foods, erm if they can't lateralize nicely, if their tongue can't form nice bolus, they can't chew and process food nicely so that can also appear to be a fussy eater."* [P10]

Children who present with physiological difficulties in terms of feeding and swallowing may present with fussy eating due to the negative experiences they have had with feeding, as well as their lack of exposure to different foods due to their difficulties with tolerating different textures of foods.

The results of the present study therefore indicate that fussy eating may be attributed to a number of aetiologies including the primary aetiology, as well as secondary issues, that arise as a result. The development of complex feeding disorders relate to a biopsychosocial model, where physiologic, behavioural and social factors all contribute to the development of the feeding disorder (Arvedson & Brodsky, 2002). The aetiologies associated with fussy eating within the present study, also appear to be best understood within the framework of a biopsychosocial model, in which biological, psychological and social factors all interact in the presentation of the feeding difficulty. Understanding the aetiologies of fussy eating within a biopsychosocial framework is discussed further within the following chapter.

3.4 The Symptoms and Behaviours of Fussy Eating

During the interviews, the participants were asked to discuss their clinical experiences with fussy eaters in order to document the symptoms and behaviours that participants understood as fussy eating in children. This information was used to determine the involvement of SLTs in the population of children with fussy eating. Further information regarding the clinical experiences of the participants was grouped within the following categories:

- Aetiologies commonly associated with fussy eating in children.
- Clinical presentation of children with fussy eating.
- Trends noted within the population of children with fussy eating.

3.4.1 The involvement of SLTs in the management of fussy eaters. Of the thirty participants that participated in the study, twenty eight participants reported that they encountered children with symptoms of fussy eating within their clinical practices. Two participants reported that they did not encounter children with fussy eating within their clinical practice. Interestingly, both participants that reported that they did not encounter children with symptoms of fussy eating in their clinical practice also reported that they did not feel comfortable managing children with fussy eating due to a lack of knowledge and training in the area. This may relate to their ability to identify symptoms of fussy eating in children.

However, the overwhelming majority of SLTs that participated in the study (n =28), reported that they do encounter children with fussy eating clinically. This indicates that SLTs within South Africa are dealing with fussy eaters within their clinical practice, and therefore must define their role in dealing with this population more clearly.

3.4.2 Aetiologies. Within the participants' discussions of their clinical experiences with fussy eating, they often made reference to aetiologies that they associated with fussy eating in children. These were collated in order to determine if the clinical experiences of the participants were similar to their discussion of the causes of fussy eating in children within section 3.3. These similarities are illustrated by Table 4.

Table 4

Similarities in the participants' perceived causes of fussy eating and their clinical experiences

	Aetiology	Clinical Presentation
Sensory Integration	20	13
Autism Spectrum Disorder	10	10
Neurological	11	9
Lack of Exposure	10	8
Physiological	10	6
Reflux	5	5
Behavioural	11	5
Anatomical/Structural	4	4
Medical	5	3
Kwashiorkor	4	3

The aetiologies most commonly observed by participants clinically, in children who presented with fussy eating included: sensory integration difficulties, ASD, neurological causes and lack of exposure to foods.

Sensory integration difficulties were discussed most frequently by participants in terms of their clinical experiences with fussy eating. Difficulties with sensory integration

have also emerged as a strong theme within the participants' definitions of fussy eating in children, as well as their perception of the aetiologies associated with fussy eating. However, overall the aetiologies observed by the participants clinically aligned closely with their perceptions of the causes of fussy eating in children.

3.4.3 Clinical presentation. Participants' reports regarding the clinical presentation of children with fussy eating were categorised in terms of the symptoms of fussy eating and environmental factors apparent within this population.

3.4.3.1 Symptoms. Within their discussion of the clinical presentation of children with fussy eating, the participants made reference to a number of symptoms associated with fussy eaters. These are depicted in Figure 1, which highlights the frequency of symptoms reported within the interviews. The most common symptoms of fussy eating reported by participants, of food selectivity, restricted diets, food refusal, under-nutrition and behavioural responses are discussed below.

Selectivity towards food was reported most frequently by the participants as a symptom of fussy eating. Thirteen participants discussed food selectivity as a symptom of children with fussy eating based on their experience. This links to section 3.2.3, where participants also referred to selectivity of food as the most common symptom associated with fussy eating in children. The participants referred to selectivity in terms of texture, taste, temperature and appearance. Selectivity in children with fussy eating is illustrated by P6's discussion of a fussy eater within clinical practise:

"So the one case was, erm, a two and a half year old boy who refused to eat anything unless it was soft and sweet and pink ... started off when he was eight months old erm, where the parents for example would add six teaspoons of sugar to half a gem squash just to get him to eat it, and they would mash it up so it was all sweet puree and erm, he was so

tactile defensive in his mouth that if you had given him a piece of banana or a piece of bread or something like that then he would gag ... so he's a malnourished child ..." [P6]

Selectivity in terms of texture was reported most frequently by participants, with ten participants reporting selectivity in terms of texture as a symptom of fussy eating in children. Five participants reported selectivity in terms of taste as a symptom of fussy eating in children. Selectivity in terms of temperature and appearance were reported less frequently, with just one participant referred to selectivity in terms of temperature and one participant referring to selectivity in terms of appearance of food.

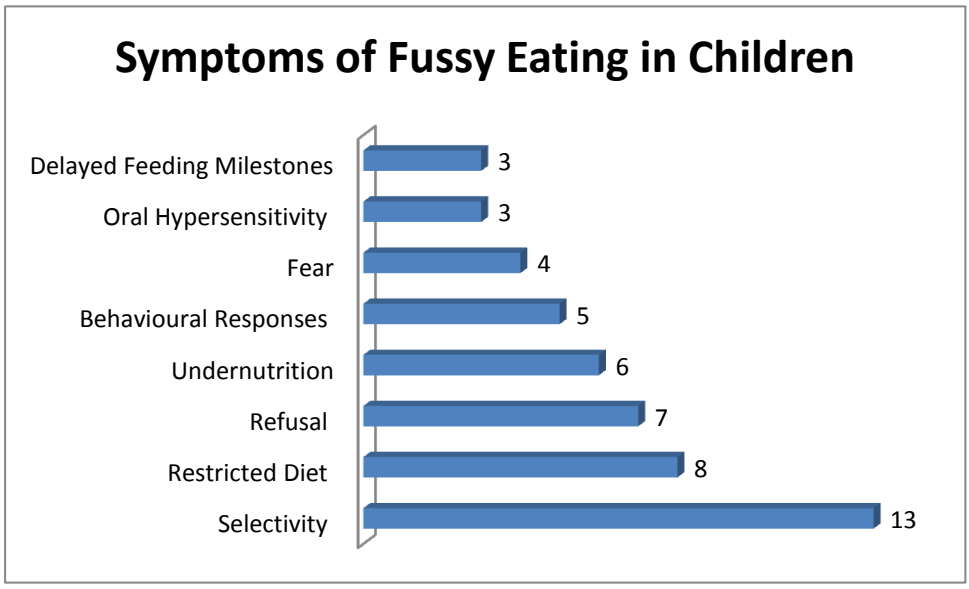


Figure 1. Symptoms of Fussy Eating in Children

Another symptom frequently associated with fussy eating in children was that of a restricted diet. Eight participants made reference to a restricted diet in children with fussy eating based on their clinical experiences. P11 discussed the restricted diets of fussy eaters observed within clinical practise:

"A very limited, erm food repertoire ... so where they, mommy comes in, reports a child eats, erm bread, fish fingers and no vegetables, no fruit erm, or maybe the child will eat apples and nothing else." [P11]

Seven participants reported that food refusal was present in children with fussy eating clinically. P15 made reference to the symptom of food refusal which was observed in fussy eaters clinically:

> *"So either from wards it can usually be more your severe kids so complete refusal. So they won't take anything, erm the kids in out-patients we usually can profile a little bit more easily so ... they're either refusing to a texture or refusing to a consistency ..."* [P15]

Fussy eaters were reported to present with under-nutrition by six of the participants interviewed. This was also highlighted in P6's discussion above related to a case of a child who was malnourished due to severe fussiness and selectivity. P13 also discussed a case of a patient who presented with poor weight gain as a result of fussy eating:

> *"She had very poor weight gain because she was so selective in terms of what she was eating and then the quantities that she was eating..."* [P13]

Five participants reported the behavioural responses to food presented as a symptom of fussy eating within their clinical experience. The types of behavioural responses observed in children with fussy eating clinically are described by P2:

> *"...you erm, get the gag reflex you get, erm pulling away from the food, erm refusal to even have it. You can get crying, erm yeah those basically are it, so crying, refusal, tantrums once food's in the mouth. You have gagging and, or they spit it out or something."* [P2]

The symptoms described by the participants when discussing their clinical experiences, appear to match their definitions of fussy eating. This implies that their understanding of fussy eating aligns closely to their clinical experiences with this population.

Under-nutrition described as a symptom of fussy eating within the present study indicates that fussy eating poses significant health issues for children.

3.4.3.2 Environmental factors. Participants reported a number of environmental factors that they have observed clinically in children with fussy eating. These included parenting styles, lifestyle and the parent-child relationship. The impact of general parenting was most frequently reported by participants as an environmental factor associated with fussy eating in children. Eight participants made reference to parenting as a factor impacting on the child's feeding within their environment. A number of factors related to parenting were observed in children with fussy eating. The need for counselling of parents of fussy eaters was reported most frequently (n=3). P9 made reference to the need for parent or caregiver counselling as follows:

> *"The parents need a lot of counselling actually so we do quite a lot of erm, sitting with them during mealtimes, erm going through the difficulties, erm there's a big emotional attachment to your child being a fussy eater."* [P9]

Two participants made reference to the lack of knowledge of parents of fussy eaters in managing mealtimes, as discussed by P20:

> *"...they don't have like a proper routine in terms of eating and erm, like there's no like set protocol or procedure that they have in terms of eating at all..."* [P20]

Interestingly, the literature has also indicated that parents of fussy eaters were more likely to have a lower educational level than parents of non-fussy eaters (Tharner et al., 2014).

One participant reported that fussy eating could be projected onto the child by the parent:

> *"...the other occasion that I have seen, erm probably three cases ... in my clinical opinion comes from caregivers, erm I will never forget the one case where, erm it ended up that the mom had the feeding issue, and, an, and by that I mean she had anorexia and it was projected onto the child..."* [P27]

This type of parenting issue was also reported by P3 in relation to Munchausen by Proxy discussed within section 3.2.2.4.

Three participants referred to lifestyle factors associated with fussy eating in children. All three participants referred specifically to children consuming large amounts of fast foods within their diets. P14 described a case of a child who was given fast foods each day due to the convenience of accessing these foods:

> *"Another kid who lives with the nanny during the day and the easiest thing for mom is to give nanny money to get take-aways, erm so it's lifestyle choices as well."* [P14]

Two participants discussed the parent and child relationship which contributed to fussy eating in children. For example P6 discussed a case of a child who presented as a fussy eater due to parental neglect:

> *"...another, erm experience that I had was of a child who erm, was admitted into hospital because of his TB [tuberculosis] status, and his HIV status and it was a case of neglect erm, so you could see he had never been exposed to a spoon or anything like that, erm and he would just refuse food coming towards his mouth ... and you could see that he felt unwell and he didn't trust anybody and ... he was so emotional that it just would affect his, his, his need and his want to eat."* [P6]

Therefore, the knowledge of parents regarding feeding, and issues pertaining to the parent and child relationship appear to be important factors in the presentation of fussy eating in children.

3.4.4 Trends in the clinical experience of fussy eating. Within the participants' discussion of their clinical experiences related to fussy eating, two trends became apparent in the analysis of the data. The first trend related to the multi-dimensional nature of fussy eating in children. Six participants reported that fussy eating in children was often multi-dimensional and involved a number of aetiologies as well as socio-emotional and environmental factors. P12 made reference to the multi-dimensional nature of fussy eating in children:

> *"Oh my goodness, I think like with your fussy eaters there's always ... a lot of components playing a role there..."* [P12]

This trend confirms the finding that multiple primary and secondary aetiologies inter-relate, and present as fussy eating in children.

Interestingly, four participants also reported that symptoms of fussy eating often persisted in children even after the primary cause of the fussy eating had resolved. P14 reported:

> *"We seeing kids, this week I saw a little one who is HIV positive and has thrush but they've been unable to get the medication because it's not supplied and as a result the child is refusing to eat because of pain, but what's happening now is when she is on the meds and it gets cleared up, she's still refusing to eat."* [P14]

Therefore, negative experiences with feeding may cause children to present with a fussiness toward food that may persist even once the initial cause of the feeding difficulty resolves.

The findings of the present study therefore indicate that SLTs are currently involved within the area of fussy eating clinically, thus implying that the role of the SLT in managing fussy eating needs to be more clearly defined. The symptoms of fussy eating identified within the present study, namely food selectivity, restricted diet, food refusal, under-nutrition and behavioural responses, aligned closely with previous research. In addition, environmental factors such as parenting styles and lifestyle were also associated with fussy eating in the present study. The participants reiterated that fussy eating was a multidimensional disorder, and indicated that symptoms of fussy eating may persist, even after the initial, primary cause has resolved. This highlights the need for early identification of fussy eating, so children can receive the appropriate management to minimise these effects.

3.5 The Referral Base for children who are Fussy Eaters

During the interview, participants were asked to discuss how fussy eaters were referred to their specific institutions (Appendix B). Participants were also asked if they had noticed any trends in the number of children with fussy eating referred to their institutions within recent years (Appendix B). The referral base for children with fussy eating as well as trends and patterns associated with the referrals are presented below.

3.5.1 The referral base for fussy eaters. Medical doctors and specialists referred children with fussy eating to speech language therapy most frequently (Figure 2). These included general practitioners, paediatricians and neurologists. Allied health professionals also frequently referred children with fussy eating to SLTs. Thirteen participants indicated that they received referrals for children with fussy eating from allied health professionals.

Members of the allied health team that were mentioned within the interviews included occupational therapists, physiotherapists, dieticians and psychologists. The participants received referrals most frequently from occupational therapists (n=7) and dieticians (n=7). Seven of the participants interviewed also reported that they received referrals from other SLTs who do not deal with feeding disorders.

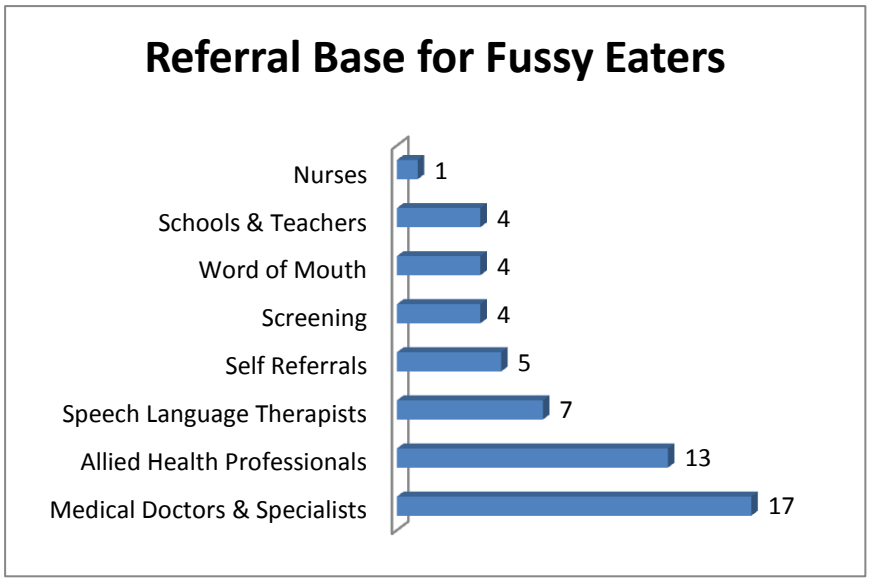


Figure 2. Referral Base for Fussy Eaters to Speech Language Therapy

3.5.2 Reasons for referral to the speech language therapist. In some instances, referrals were made directly for fussy eating (Figure 3). This may indicate that health professionals are becoming more aware of the role that SLTs play in terms of managing feeding difficulties in children, including symptoms of fussy eating. In other cases, children were referred to SLTs for general feeding assessments (n=9), during which the SLT would identify symptoms of fussy eating.

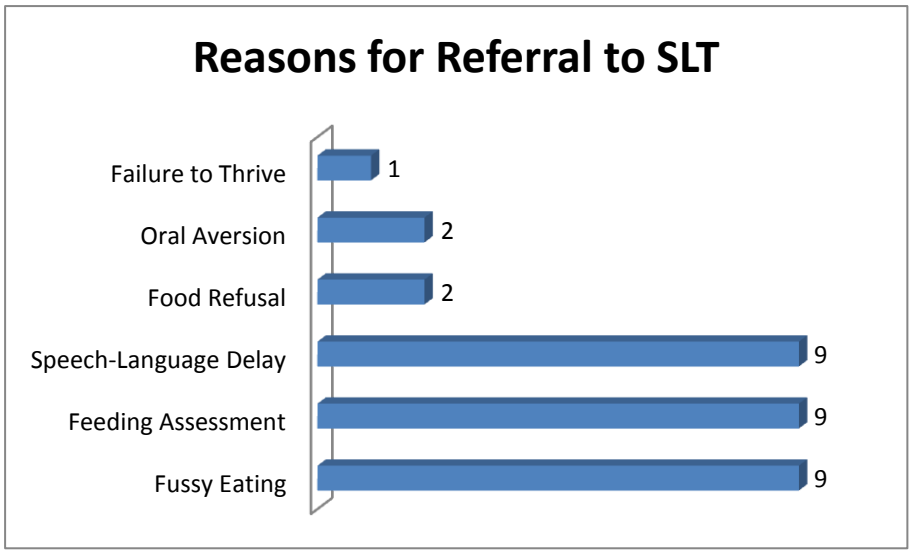


Figure 3. Reasons for Referral to Speech Language Therapy

Children were also at times referred to an SLT for speech-language delay (n=9). During their case history interview and assessment, the SLT would identify the feeding difficulties and symptoms of fussy eating.

3.5.3. Trends in the referral of fussy eaters to the speech language therapist

Table 5

Trends in the Referral of children with Fussy Eating to Speech Language Therapy

Number of Referrals	Participants
Increased	16
Remained Consistent	9
Uncertain	1
Inconsistent	1
Decreased	1

3.5.3.1 Increase in referrals. When asked to discuss patterns in the referrals of fussy eaters to speech language therapy, more than half of the participants interviewed (n=16), reported that they had noticed an increase in the number of fussy eaters referred to them in recent years (Table 5).

Seven participants attributed this increase to an increased awareness of other professionals regarding the SLTs role in feeding. P25 made reference to this increase in awareness within her discussion of referral patterns:

> *"... it's because people are now more aware in our setting that fussy eating is something, or oral aversion is something we deal with as well as everything else."* [P25]

Five participants attributed the increase in referrals to an increase in identification of fussy eaters by SLTs due to improved knowledge regarding fussy eating in children. This was highlighted within P12's discussion of referrals:

> *"...I think, erm, an increased awareness from our side on which on which type of kids we need to be seeing or need to be assessing that could, may be at risk for being fussy eaters."* [P12]

Three participants related the increase to SLTs being more confident in their role with regards to the management of fussy eating and feeding disorders, as described by P 14:

> "*Perhaps us embracing the role, erm also ... it could be probably us having a better understanding of, of our role."* [P14]

Therefore the increase in referral of fussy eaters to SLTs appears to relate to an improved awareness of healthcare professionals regarding the SLTs role in feeding as well as the SLT being more knowledgeable and confident in managing children with fussy eating.

Two of the participants interviewed reported that the increase in referrals of children with fussy eating could be due to an increase in the identification of sensory integration disorders in children. P18 reported:

"*... it's more related to the sensory processing ... I think it's probably related to that 'coz we're just seeing the relationship between sensory processing disorders and fussy eaters ... better and those kids are being referred to both speech and OT more."* [P18]

Given that difficulties with sensory integration are closely linked to fussy eating in children, an increase in the identification of these difficulties appears to link to the increase in referral of children with fussy eating to SLTs.

A further two participants attributed the increase in referrals of fussy eaters to speech therapy to changes in the lifestyle of the population that they served. This is discussed by P3 in relation to Western influences in a previously traditional community. P13 also made reference to an increasing access to fast foods within communities:

"...I also wonder sometimes whether, if you look at the population we were working with there in terms of, er you know, people from a more traditional African community, but as people, as communities get sort of more Westernized and the diet changes, eating habit change. As you get influenced by sort of more Westernized kind of as opposed to just traditional, you wonder also if sometimes that plays a part..." [P3]

"... we're finding a lot more kids that are coming in erm, with this new fast food issue going on erm, there's a lot more of that where when kids are coming in and saying or the mom says, oh he eats this everyday or he wants {fast food outlet} or he wants {fast food outlet} erm so I've noticed quite a bit more of that..." [P13]

This suggests that within the South African context, previously traditional communities are becoming more urbanised with more access to fast foods. As a result, children may develop a preference for these types of foods as opposed to a traditional diet. However, further research into the feeding practises of communities within South Africa is needed to substantiate this finding.

3.5.3.2 Other patterns in referral. Nine participants reported that the number of fussy eaters referred to them in recent years had remained consistent. They did not note any increases or decreases in the number of children that presented with fussy eating within their caseloads. P19 reported:

> *"I get a lot of referrals for, for fussy eating. I have always ... I don't necessarily think I'm getting more, I just think there's always been a lot..."* [P19]

One participant reported that referrals for children with fussy eating appeared inconsistent, depending on the knowledge of the multidisciplinary team regarding the role of the speech therapist. The participant also felt that referrals for children with fussy eating were not made frequently enough by the multidisciplinary team:

> *"Well I think it's really not, it's really not that consistent ... in terms of referrals so ... it's mainly related to whether other professionals understand our role as well. So, if they do know this is something that you are able to intervene with, then they will refer to you. Like the dieticians work quite closely with us as well and maybe if the doctors have been in in-service then they will refer patients to you as well, like we have colleagues like occupational therapists and physiotherapists ... but I feel that it's probably not, it's not frequent enough ..."* [P20]

Interestingly, one participant reported that the number of referrals of children with fussy eating had decreased in that specific context due to more children attending occupational therapy for sensory integration difficulties:

> *"I think for those who go to OT [occupational therapy], I think it's less there, erm, 'coz I think if you like take the population and you say you know what fifty percent go to OT their, their eating habits are not actually that bad whereas those who don't go for OT, their eating is sort of worse. So, I think those who go for OT, it's better off because they, OT's [occupational therapists] are then finding that they have other sensory er integration difficulties..."* [P5]

As discussed in section 3.4.1, the remaining two participants were not able to provide information regarding the referral patterns of fussy eaters as they did not encounter fussy eaters within their clinical contexts.

Fussy eaters were most frequently referred to SLTs by medical doctors and specialists, followed by occupational therapists and dieticians. These children were often referred specifically for fussy eating, as well as for general feeding assessments. This suggests an increased awareness from other healthcare professionals of the SLTs involvement in feeding and the area of fussy eating specifically. Majority of the participants within the present study reported that there was a general increase in the referrals they received for fussy eating. A number of factors were linked to this increase in referral by the participants, such as an improved awareness of healthcare professionals regarding the SLTs role in feeding, SLTs being more knowledgeable and confident in managing fussy eating, and possibly an increase in the identification of sensory integration disorders.

3.6 The Team Approach in the management of Fussy Eating

During the interview, participants were asked questions relating to the multi-disciplinary team involved in the management of children with fussy eating, as well as the role of the speech therapist in the management of this population (Appendix B). The results obtained are discussed below in terms of the members of the multidisciplinary team involved in the management of fussy eaters, the healthcare professionals that SLTs usually refer fussy eaters to and the role of the SLT within the multidisciplinary team. Reports regarding confidence of SLTs within the area of fussy eating are also discussed.

3.6.1 The multidisciplinary team involved in the management of fussy eaters.

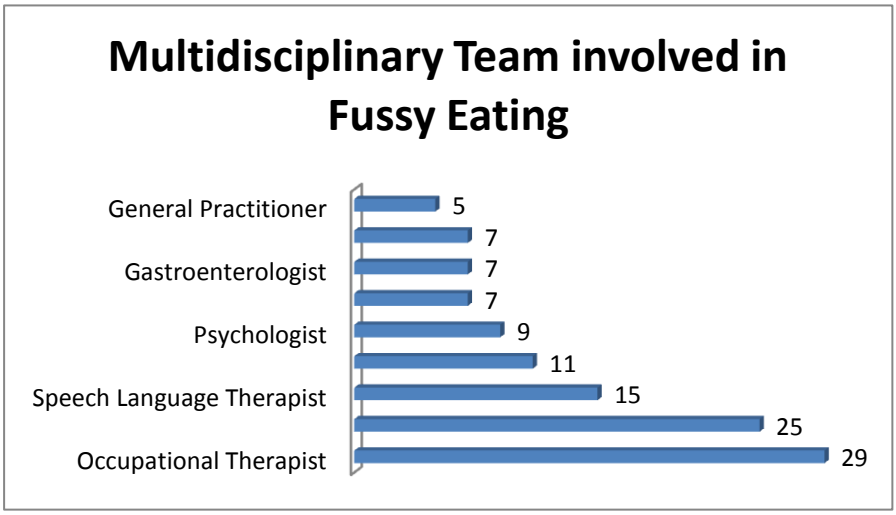


Figure 4. The Members of the Healthcare Team involved in the management of Fussy Eaters

The members of the multidisciplinary team, which participants deemed important in the management of fussy eating was explored within the interview (Appendix B). The role of the occupational therapist in managing children with fussy eating was significant. Almost all of the participants (n=29), reported that the occupational therapist was important in the management of children with fussy eating. The role of the occupational therapist in managing fussy eating is indicated by P8:

"I think that an OT [occupational therapist] is invaluable, in especially an OT with sensory integration training or experience in er, helping as a team to get to the bottom of what the underlying cause is. Very seldom do I see a fussy eater who doesn't have other sensory behaviours, sensory aversions, or sensory defensive behaviours or other rigidity in other aspects of their functioning. So to me to look at the fussy eating in isolation wouldn't make any sense. So the OT's critical there." [P8]

A smaller number of participants (n=2), discussed the role of the occupational therapist in this population in relation to behaviour modification. P21 reported that occupational therapists have a role in the behaviour modification of fussy eaters:

"The occupational therapist also often helps with the fussy eaters as well ... in terms of behaviour management." [P21]

Dieticians were also identified as important members of the multidisciplinary team in the management of children with fussy eating. Twenty-five participants referred to the role of the dietician in managing fussy eaters. P3 discussed the role of the dietician as follows:

"I think a dietician also helps ... with the management aspect because you know your role is to, or your aim of intervention is to try and get the child on move on to a, a better like repertoire of food, but at the same time you're looking at the nutritional side and you need to get that balance right and your dietician plays an essential role." [P3]

Within section 3.4.3, malnutrition was discussed a symptom of fussy eating in children. Participants also made reference to compromised nutrition within their definitions of fussy eating in children, as a factor to determine when fussy eating was pathological in children. Therefore, the role of the dietician in providing nutritional management in this population agrees to the report of malnutrition in children with fussy eating apparent within

this study. However, three participants expressed that dieticians often struggled with the management of this population, due to their dietary restrictions and reluctance to consume supplements. P18 reported the following in terms of the difficulties that dieticians experience in the management of fussy eaters:

> *"...The dietician, depending how fussy the eating is, but I always find that those kids are difficult to refer to the dieticians, and the dieticians don't really know what to do with them, 'coz the range of things that they'll eat is rather limited anyway so they don't have much to work with."* [P18]

Within section 3.5.1, it was found that dieticians were among the allied health professionals that referred fussy eaters to SLTs most frequently. Seven participants reported that they received referrals for children with fussy eating from dieticians. This may indicate that collaboration between dieticians and SLTs are important in effectively managing the feeding and nutritional aspects of fussy eating. However, seeing as the sample within the present study consisted only of SLTs, this finding may not represent the views of all health professionals involved in managing fussy eating.

Eleven participants expressed that the paediatrician was an important member of the team responsible for the management of fussy eating in children. The role of the paediatrician in this population was linked to medical investigation for underlying causes of fussy eating in children, as well as issues related to weight gain. This role was discussed by P20:

> *"... well because it's specific mainly to erm, kids with PDD [pervasive developmental disorder] or developmental delays sometimes ... other diagnosis, probably a paediatrician because you would want them to be addressed medically first, to just rule out that there isn't anything significant that's medical, that's maybe impacting on the fussy eating and things like that so your paediatrician that's the first point of contact."* [P20]

The role of the paediatrician in the management of children with fussy eating therefore appears relevant in investigating possible underlying medical aetiologies in children who present with fussy eating. Correspondingly, the role of the gastroenterologist and the general practitioner may also involve investigations into underlying medical issues related to fussy eating in children. Gastro-oesophageal reflux disease is commonly associated with feeding difficulties in children. The gastroenterologist is therefore an important member of the multidisciplinary team involved in the management of fussy eaters.

Psychologists were reported as important members of the multidisciplinary team involved in the management of fussy eaters by nine participants. The role of psychologists was discussed in terms of behaviour and emotional management as well as parent counselling. P10 reported:

> *"I think also sometimes with our children with a behavioural or parenting issue or controlling issue psychology definitely erm comes into it as well."* [P10]

Behavioural, emotional and environmental factors related to the child as well as the parent have been documented within the present study. Therefore, in some cases, psychological intervention may be required to address behavioural and emotional issues related to fussy eating in children.

As depicted in Figure 4, a range of members within the multidisciplinary team have been deemed important in the management of children with fussy eating, including both medical and allied health professionals as well as the caregiver. The multidimensional nature of fussy eating in children depicted within this study appears to lend to a multidisciplinary or transdisciplinary approach in the assessment and management of this population.

3.6.2 Referrals to healthcare professionals.

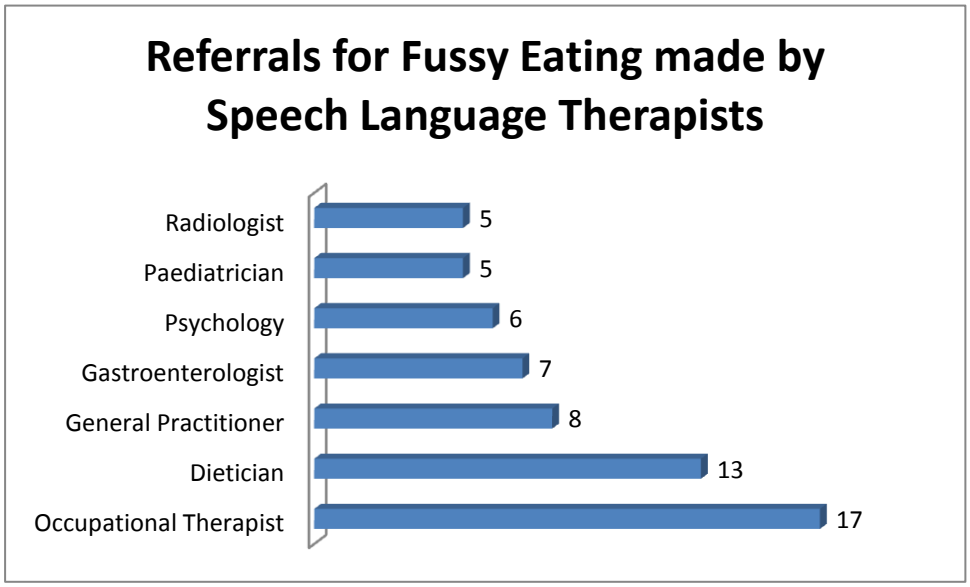


Figure 5. Referrals to the Healthcare Team made by Speech Language Therapists for children with fussy eating

Participants were also asked to discuss the healthcare professionals that they generally referred children with fussy eating to (Appendix B). The referrals made by participants, appeared to correlate with the members of the multi-disciplinary team, deemed important by participants in the management of fussy eaters as discussed in section 3.6.1. Similarly, referrals were most frequently made to the occupational therapist as well as the dietician. As reported previously, the management of fussy eaters requires a multidisciplinary approach, as indicated by P6:

> *"...we definitely need the input of an OT [occupational therapist] and joint session, joint sessions I think are crucial."* [P6]

Referrals for medical management were also apparent including referrals to general practitioners, as well as specialist doctors. These were often indicated in order to evaluate possible underlying medical pathologies, such as reflux. P3 discussed the referrals that would be made to medical practitioners in children with fussy eating:

"If there was any concern at all that, you know, it could be something swallowing related, or structurally related, I would definitely refer either to a paediatrician, or a GIT [gastroenterologist] specialist, or GP[general practitioner] or someone with some kind of medical, yeah. Or for, or just a radiologist if there needs to be some kind of study..." [P3]

Seven participants also indicated that referrals made for children with fussy eating were child specific, depending on each child's specific clinical presentation. P3 subsequently reported:

"I think it's not that you want to refer every single child for medical intervention, I think it's very child by child specific." [P3]

This reflects the complex and heterogeneous nature of fussy eating in children, and encompasses the range of aetiologies that may be linked to fussy eating in children.

3.6.3 The role of the SLT in the management of fussy eaters. All SLTs interviewed expressed that they believed that SLTs have a role in the management of children with fussy eating. Of the thirty SLTs interviewed, five SLTs expressed that the role of the SLT in the management of fussy eating was dependant on the cause of the fussiness. For example, the SLT would be less involved if the cause of the fussy eating was purely psychological in nature. However, if the cause of the fussy eating was related to structural and medical factors, then SLTs would have a bigger role in the management of the feeding difficulty.

Within the present study, the role of the SLT in the management of fussy eaters was attributed to a number of factors as follows.

3.6.3.1 Background in feeding and swallowing. The background knowledge and skill of the SLT within the scope of feeding and swallowing disorders was reported by participants to be valuable within the assessment and management of children with fussy eating. Eight

participants highlighted this unique knowledge and skill of the SLT when discussing the role of the SLT in this population. P8 discussed the role of the SLT in managing fussy eating within the larger scope of feeding and swallowing disorders, and indicated that medical, sensory and behavioural issues could not be viewed as separate entities of the feeding process:

> *"I think that that ... if one accepts that we have a role in feeding at all, if we're looking at dysphagia and feeding difficulties at all, one can't separate motor based feeding difficulties from sensory or behavioural based feeding difficulties because they're all a part of getting the food into the child safely, efficiently, pleasantly. I don't think that that, that feeding process can be cut up into pieces. So I think for me if ... we're looking at one of the areas of our scope of practise being dysphagia, which I'm accepting as part of ours, then I, and I know that there are countries that that's done by the OT's [occupational therapists], you know ultimately, but if that's our role then I don't think that the fussy eater is a separate population I think they're a part of the same population of children who are struggling to get optimal feeding."* [P8]

3.6.3.2 Knowledge of anatomy and physiology of swallowing. The knowledge of the SLT regarding the anatomy of the oral cavity, as well as the physiological process involved in feeding and swallowing, was also discussed in relation to the role of the SLT in managing fussy eating in children. Seven participants made reference to the SLT's knowledge of the anatomy and physiology of swallowing in their discussion of the role of the SLT in fussy eating. P2 highlighted this knowledge of the SLT when discussing the role of the SLT in fussy eating:

> *"... I believe, you know, we understand the mouth really well, and we understand the structures really well and we understand swallowing really well so erm, and the, the*

different functions and stages of swallowing, so yes I do believe we are very important..." [P2]

As discussed above, the background knowledge of the SLT in terms of the theoretical concepts related to feeding and swallowing, provide the SLT with a framework for understanding various factors related to fussy eating in children.

3.6.3.3 The role of the speech language therapist in differential diagnosis. The knowledge and skills of the SLT was discussed in terms of assisting in the differential diagnosis of fussy eating in children. Eight of the participants interviewed reported that the role of the speech therapist in dealing with fussy eating in children involved differential diagnosis. P28 referred to diagnosis as part of the role of the SLT in this population:

"Definitely in terms of helping to diagnose and see whether it is actually fussy eating, or erm something different, so helping and erm advising the process." [P28]

Given the knowledge and skills of the SLT related to feeding and swallowing disorders, the SLT would form a valuable member in the team assessing fussy eaters. The SLT may assist in indicating whether or not fussy eating is pathological, in addition to providing input when identifying the primary and secondary aetiologies associated with fussy eating.

3.6.3.4 Oral sensory and oral motor difficulties. Ten participants referred to the SLTs role in oral sensory-motor difficulties as important within the management of fussy eaters. The participants highlighted the role of the SLT within the management of oral sensory sensitivities. However, many of the participants also reinforced the importance of working together with an occupational therapist when dealing with oral sensory sensitivities. P6

discussed the role of the SLT in managing oral-sensory motor difficulties in children with fussy eating:

> *"Especially if you dealing with oral hyper or hypo sensitivity or if there's something sensory then that's, and it's oral sensory issues, then that's our role, erm in line with the OT [occupational therapist] of course but ... for example, should a chewing or swallowing disorder be related to something sensory or something motor being affecting the sensory in erm, the sensory reception of what's in the mouth, then it's definitely our role."* [P6]

3.6.3.5 Case management and counselling. Three participants expressed that SLTs are the profession that are best equipped to act as case managers for children with fussy eating due to the knowledge and skills of SLTs in terms of the feeding and swallowing process. This is illustrated by P3:

> *"I think, well in South Africa, if you think about it, there's, there's no other professional that's actually specifically trained to look at actual swallowing mechanism, I'm talking about from the allied medical disciplines, and actually, even if you look at the medical disciplines, its only the people that are specifically trained, like your GIT [gastroenterologist] specialist, ... that focuses that much on this whole eating and drinking, swallowing mechanism and things like that. And I think it's so we've got that insight I think it's very important to apply to say is there an underlying medical reason for something like the fussy eating. And also I think we just, we have this unique, I mean, I think we have just from the nature of what we do, we do have, tend to be a very, holistic in the way we actually view children. I do think that's unique to our profession ... so I think we might be, I think we're good at being almost case managers for this kind of child. Because it's not that we would need to solve it ourselves but I think we're the right profession to be able to draw in the right people and to be able to help that child*

effectively. Because we've got a good training in, in dysphagia, in swallowing and that but we also have good training in terms of viewing holistically and looking at how motor, how sensory, how perception, all of that impacts on a child. So I think yeah, we do have a role." [P3]

Therefore, given the background knowledge of the SLT in terms of feeding and swallowing, the SLT would be well equipped to manage referrals and medical investigations in working towards differential diagnosis and subsequently, effective treatment for the child with fussy eating. This would also involve counselling of the family and caregivers of the child. Four participants reported that SLTs have a role in parent counselling for the child with fussy eating.

3.6.4 Confidence of speech language therapists in managing fussy eaters. The majority of participants (n=20) indicated that they were confident in terms of treating children with fussy eating. Eight participants reported that they were not fully confident in terms of managing fussy eaters, while two participants reported that they were not at all comfortable with treating children who presented with fussy eating. The themes that emerged within participants' interviews in terms of their confidence in managing children with fussy eating are discussed below.

3.6.4.1 Factors that improved confidence of speech language therapists in managing fussy eaters. The participants made reference to a number of factors that helped improve their confidence in this area. The support of the multidisciplinary team was most frequently discussed as a factor which assisted in the management of fussy eaters, with eight participants alluding to this factor in their discussion. This further necessitates a multidisciplinary approach in the management of this population, as discussed in section 3.6.1. Peer debriefing was also reported by five participants as being important in terms of

developing confidence in the management of fussy eaters. The importance of multidisciplinary work and peer debriefing in this area is discussed by P14:

> *"... it does help working in a team, because we often erm, discuss our cases with each other to ensure that we are doing the best for, for families that we work with ... so within the department with other speech therapists but also with an occupational therapist and if needs be with one of the medical doctors as well. So I think having a team approach, erm makes it a lot easier for me to, to do my job but I, I would not recommend that a speech therapist works in this area in isolation."* [P14]

Peer learning was also reported by six participants to assist in developing confidence in managing children with fussy eating. This involved observing and learning from more experienced colleagues within a clinical setting. P8 reported:

> *"... I think it's really been from peer learning, from working with, with experienced speech therapists and working with OTs [occupational therapists] with experience in sensory integration and I think that working consistently with them ... you build confidence when you've got somebody next to you when you need that, and when you see what works you feel comfortable."* [P8]

Self-study and courses were also reported as factors that helped develop participants' confidence in managing fussy eaters. Four participants reported that self-study helped develop their confidence in this area, while a further four participants reported that it was important to attend courses related to the management of fussy eaters. P10 discussed how self-study and courses improved her confidence in managing fussy eaters:

"I think that we didn't get a lot of undergraduate training in it but I think there's a lot out there that that you can be reading ... doing things like courses ... if it comes up is quite good." [P10]

A further five participants reported that clinical experience in managing children with fussy eating was important in develop confidence. P13 made reference to clinical experience in developing confidence in this area:

"I think being exposed to more and more kids with it, I think now I've become more comfortable with erm assisting kids with fussy eating." [P13]

3.6.4.2 Need for further training as speech language therapists. Over a third of participants (n=11), referred to the lack of undergraduate training in terms of managing fussy eating in children. A need for further postgraduate training with regards to fussy eating was identified by eight participants. Five participants also expressed that SLTs as a profession, need to learn more about fussy eating in children. P14 made reference to some of the issues related to the training and research required within the area of fussy eating:

"I think that, that it's something that we should look a lot closer in, in terms of our undergraduate training erm because from all the community service therapists that have joined us this year, erm from all training institutions, they haven't had much input in it ... so I think training definitely is, is an area of focus and definitely research because I think when you read articles on, on the types of problems presented in first world countries, I think they're very different from the developing world ... perhaps we need a better understanding of how all these various systems impact on each other." [P14]

Therefore, although the majority of SLTs felt confident with the management of SLTs, the need for further training and development in this area emerged as a strong theme within the study.

Within the present study, a range of healthcare professionals were deemed important in the management of children with fussy eating, including the occupational therapist, the dietician, the paediatrician and the psychologist. The role of the occupational therapist in the management of fussy eating was prominent and linked to their involvement in sensory integration. All the participants within the present study reported that SLTs have a role in managing fussy eating. This was attributed to a number of factors, including the knowledge and background of SLTs within the area of feeding and swallowing, as well as the SLTs expertise in terms of oral motor and oral sensory mechanisms. Majority of the participants were confident in the management of fussy eaters, but felt that undergraduate training in the area was lacking. The participants also indicated that the profession of speech-language therapy as a whole would benefit from developing our knowledge regarding fussy eating.

3.7 Conclusion of Results

The results of the present study highlights the confusion related to the lack of accepted definitions and terminology related to fussy eating within the literature. An applicable definition of fussy eating needs to encompass the heterogeneous and multi-dimensional aspects of the disorder. This should assist clinicians in accurately differentiating fussy eating that is pathological from a common fussiness toward food that is often displayed by young children. The role of sensory integration appeared to emerge as a strong theme within the study, relating to most aspects of fussy eating. Therefore, difficulties with the processing of the sensory features of food appeared to be a defining factor in understanding fussy eating. The complexity of factors associated with fussy eating lends to the involvement

of a multidisciplinary team to adequately evaluate and manage this disorder. However, the roles and responsibilities of members of the multidisciplinary team within this population have not been adequately defined. A range of issues related to fussy eating specifically within the South African context also became apparent within the present study, highlighting the need for further insight into the association between poverty and fussy eating. The key findings of this study are presented for discussion within the following chapter.

Chapter Four – Discussion

Chapter four provides a discussion of the results in relation to the literature in order to locate the findings of the study within the broader context of paediatric feeding disorders. The key themes that emerged within the study are presented for discussion.

The findings of the present study indicate that fussy eating presents as a result of the interaction of a number of factors and aetiologies, with sensory integration difficulties emerging as a strong theme in the understanding of fussy eating. However internationally, definitions of fussy eating have not included the aspect of sensory integration as part of the feeding disorder. As a result of the complexity of factors associated with fussy eating, the roles and responsibilities of the healthcare team involved in the management of fussy eating blur or overlap. Further investigation into the involvement of the members of the healthcare team within this population is therefore warranted. Additionally, the study also indicated that the South African context presents factors related to the aetiologies of fussy eating that differs from that of developed countries. These factors must be considered in relation to the international literature in developing a definition of fussy eating that is applicable within the South African context. The definition of fussy eating must, therefore, reflect the complexity and inter-relatedness of factors associated with fussy eating as well as the heterogeneous nature of fussy eating to enhance its applicability within various contexts. Within this chapter, a discussion of the key factors that emerged within the present study is presented and a definition of fussy eating, based on the results of the present study in relation to the literature, is proposed.

4.1 The Aetiologies of Fussy Eating

An aim of the present study was to understand the perceptions of the aetiologies of fussy eating in terms of primary and secondary causes. However, it was found that no clear

classification of aetiologies could be determined in terms of differentiating primary causes from secondary causes. The findings indicated that a specific aetiology may be a primary cause of fussy eating in one case, but could also result as secondary to the fussy eating in other cases. Therefore, the classification of primary and secondary causes of fussy eating appears to differ in each individual case. This finding is in agreement with the literature, in that it is often difficult to differentiate between primary and secondary aetiologies within complex feeding disorders (Arvedson & Brodsky, 2002). Within the present study, the participants did not appear able to consistently differentiate primary and secondary causes of fussy eating based on their clinical experiences. However, it was also established within the study that fussy eating was multi-dimensional and may present as a result of a number of underlying aetiologies. Therefore, fussy eating in children does appear to arise from a number of primary and secondary aetiologies. However, the classification of primary and secondary causes needs to be considered within each individual case by the healthcare team involved in evaluating the feeding difficulty. The identification of the primary and secondary aetiologies in children with fussy eating is relevant with regard to developing an accurate and differential diagnosis of the feeding difficulty. This validates the need for a detailed and thorough team assessment of children with fussy eating in order to make the appropriate management decisions for the child with fussy eating.

The literature indicates that complex feeding disorders relate to a biopsychosocial model, due to the complexity of factors that interact in the development of the feeding disorder (Arvedson & Brodsky, 2002; Kreipe & Palomaki, 2012; Tang et al., 2011). Similarly, within the present study, the aetiologies associated with fussy eating appeared to fall within the broad categories of biological, behavioural and social factors that were attributed to the development of the feeding disorder. Therefore, the aetiologies associated with fussy eating within the present study, appeared to be best understood within the

framework of a biopsychosocial model, in which biological, psychological and social factors all interact in the presentation of the feeding difficulty. The aetiological factors involved in the development of fussy eating, identified within the present study, closely matched that of previous reports pertaining to complex feeding disorders within the literature. This suggests that fussy eating is also a complex disorder, arising from a combination of factors. A visual representation of the aetiologies associated with fussy eating within the framework of a biopsychosocial model is provided in Figure 6.

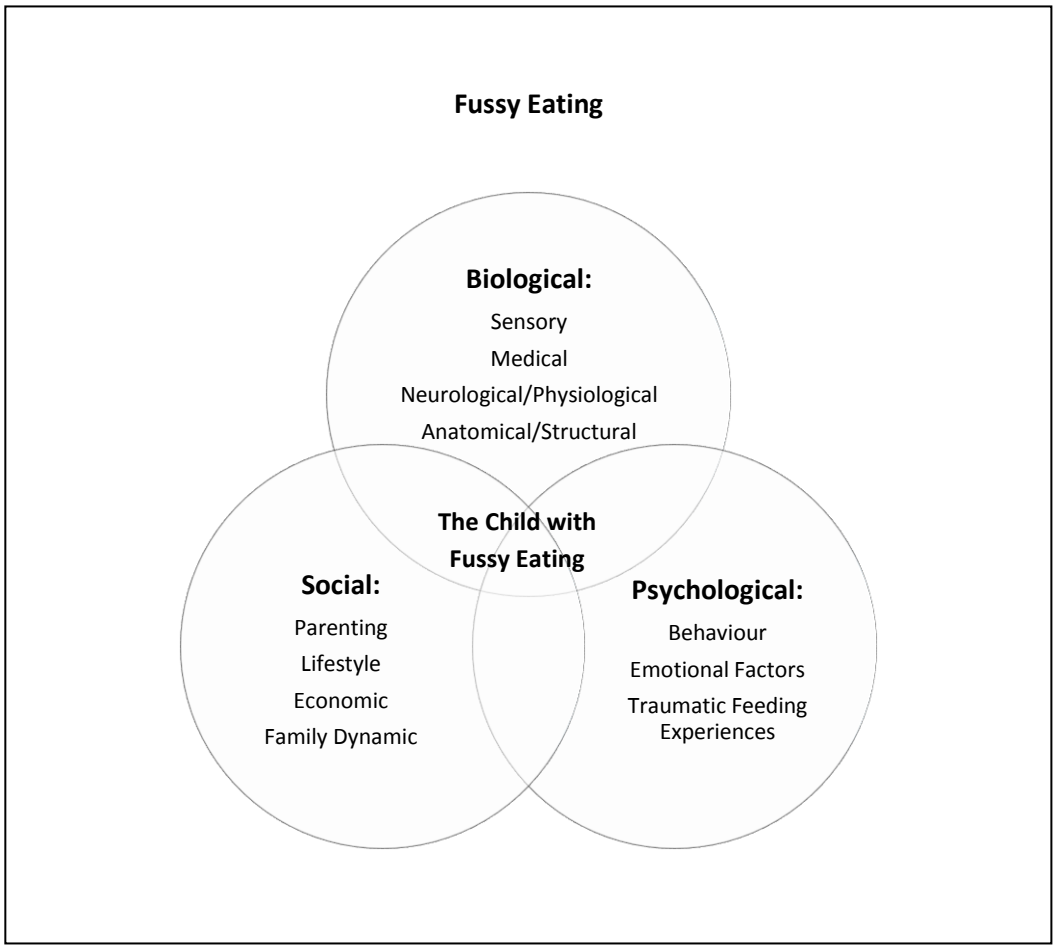


Figure 6. Biopsychosocial representation of the aetiologies of Fussy Eating

The complexity and inter-relatedness of aetiologies associated with feeding disorders has been acknowledged within the literature (Burklow et al., 1998; Fischer & Silverman, 2007; Kreipe & Palomaki, 2012). However the role of sensory integration difficulties within the development of feeding disorders is a relatively new concept that has not been adequately explored and accounted for within the classification of feeding disorders. Within the present study, the theme of sensory integration difficulties in children with fussy eating emerged in almost all aspects of the study. The role of sensory integration was apparent within the participants' definitions of fussy eating, as well as their discussions of the symptoms of fussy eating. The effect of sensory integration difficulties further extended into issues related to the assessment of fussy eaters. This finding indicated that the role of sensory integration difficulties within fussy eating presents implications regarding the roles and responsibilities of members within the healthcare team involved in managing this population.

Within the present study, the participants defined fussy eating as a difficulty with the sensory properties of foods. This is in keeping with the recent literature related to fussy eating which highlights the role of the sensory aspects of food that appear to be responsible for the selectivity towards food displayed by fussy eaters (Dovey et al., 2008; Goh & Jacob, 2012; Mascola et al., 2010; Thompson et al., 2015). Sensory integrative theory suggests that sensory feeding difficulties are a symptom of underlying sensory modulation difficulties (Addison et al., 2012). The frequency with which participants associated sensory based feeding difficulties with fussy eating within the present study, may therefore indicate that the presentation of fussy eating in children is a symptom of a larger sensory modulation difficulty. The relationship between sensory modulation and fussy eating indicated within the present study appears in line with previous research (Coulthard & Blissert, 2009; Dovey et al., 2012; Smith et al., 2005; Thompson et al., 2015). The findings of an early South African study appear to support the assumption within the present study indicating that fussy eating in

children is linked to difficulties with the modulation of the sensory properties of food. Smith et al. (2005) explored the food choices of children in the Eastern and Western Cape within South Africa who presented with tactile defensiveness. The findings of their study indicated that children with tactile defensiveness presented with a restricted diet as well as a pronounced aversion towards textures or consistencies, smells, and temperatures of foods when compared to a control group of children without tactile defensiveness. This suggests that children with tactile defensiveness, who experience difficulty with the modulation of tactile input, may present with symptoms of fussy eating. A study by Coulthard and Blissert (2009) further indicated that children who were sensitive to sensory stimuli were able to detect very small changes in the sensory characteristics of food and therefore variations in the sensory properties of food, indicating that fussy eating was an expression of this sensory sensitivity toward food. An understanding of sensory integrative theory in relation to feeding therefore appears key within the understanding of fussy eating in children. However, the current definitions of fussy eating do not adequately account for the role of sensory integration within the feeding disorder.

Selectivity towards food within the present study was reported by participants as the most common symptom of fussy eating in children. Selectivity towards food appeared to be related to the sensory aspects of food, with the participants referring to selectivity in terms of texture, taste, temperature, smell and appearance of food. It has been suggested that children with sensory processing difficulties may dislike the sensory variations which occur in certain foods, and therefore avoid these food groups (Coulthard & Blissert, 2009). However, foods with less sensory variation may be more palatable to fussy eaters, creating the assumption that fussy eaters may be more partial to these types of foods and therefore present as preferential towards these foods. Previous studies have also found that fussy eaters tend to eat more savoury snacks and confectionary as opposed to fruit, vegetables, meat and wholegrain

products (Coulthard & Blissert, 2009; Tharner et al., 2014). However, the link between fussy eating and the sensory features of specific food groups requires further investigation.

Interestingly, within the present study, selectivity towards foods in terms of texture was noted more frequently than difficulties with the other sensory properties of foods by the participants. There is very little research available in terms of the specific sensory properties of food related to fussy eating in children (Werthmann et al., 2015). Furthermore, the literature that is available related to this aspect of fussy eating also lacks a consensus (Werthmann et al., 2015). There are a number of studies that affirm the significance of the association between fussy eating and the processing of the textural properties of food (Nederkoorn et al., 2015; Smith et al., 2005; Werthmann et al., 2015). The findings of Smith et al. (2005) appeared in agreement with the present study, indicating that children who presented with tactile defensiveness had a pronounced aversion to certain textures of foods. Werthmann et al. (2015) also indicated that food acceptance was affected by the texture of food, and not by the colour or taste of the food. However, in contradiction to these findings Coulthard and Blissert (2009) found that the sensory aspects of taste and smell were associated with fruit and vegetable consumption in children, with textural aspects showing a smaller relation to consumption. A further study conducted indicated that visual aspects of fruit impacted on children's willingness to taste them (Dovey et al., 2012). This indicates the variability and lack of consensus in the literature available regarding the sensory aspects of food related to fussy eating. Although there is some evidence to support the finding that difficulties with the textural properties of food are common in fussy eaters, studies have also found associations with fussy eating and other sensory domains, such as taste, smell and vision. This indicates that further research is required in terms of exploring the issue of food selectivity in relation to all sensory domains. However, the frequency with which selectivity toward food, based on its sensory properties, was associated with fussy eating within the

present study, as well as other studies, indicates that it is a defining feature of fussy eating in children, and must be accounted for within the definition of fussy eating.

In some instances within the present study, difficulties with sensory integration were seen as a primary cause of fussy eating, as described above, where the fussy eating was an expression of difficulties with the sensory properties of foods. For example, sensory processing issues are common in children with ASD and appear to present as a physiological symptom of the disorder (Twachman-Reily et al., 2008). In this case, the sensory integration difficulties associated with feeding are viewed as secondary to the diagnosis of ASD. However, in a different scenario, difficulties with sensory integration were seen to arise as secondary to a lack of exposure to sensory experiences, as in the case of children with motor impairments. Due to their oral motor difficulties, children with neurological disabilities may be limited in the foods they are exposed to in terms of texture (Arvedson, 2013). This may lead to sensory integration difficulties due to a lack of exposure to different textures (Prakash & Vaishampayan, 2007). Current theories of motor behaviour (Prakash & Vaishampayan, 2007), indicate that movement and sensation are related, with a significant difference in the sensory processing of children with cerebral palsy as compared to typically developing children (Prakash & Vaishampayan, 2007). Therefore, children with motor impairments may, in turn, present as fussy eaters as a result of a lack of sensory exposure. However, further research is required to investigate the link between oral sensory processing of children with motor impairments more specifically.

The classification of sensory integration difficulties in terms of either a primary or secondary cause of fussy eating in children, therefore presents as an important factor for the healthcare team involved in the assessment of fussy eating, due to the implications related to the subsequent management of these difficulties. However, this may prove challenging within the South African context due to the overlap between the scope of practise of the SLT and the

occupational therapist within this population, exacerbating the difficulty in differentially diagnosing children with fussy eating. A more detailed discussion related to the healthcare team involved in assessing and managing fussy eaters is provided within the following section.

4.2 The Healthcare Team involved in the Management of Fussy Eating

Within the South African context, occupational therapists work primarily with sensory integration difficulties in children, and sensory integration training is only available to occupational therapists (South African Institute for Sensory Integration, 2014). However, SLTs are primarily involved in the evaluation and treatment of feeding and swallowing disorders in children within South Africa (SASLHA Ethics & Standards Committee, 2011; Seedat et al., 2011), with SASLHA indicating that oral sensory issues which may affect feeding and swallowing, fall within the scope of practise of the SLT. Fussy eating encompasses difficulties related to both feeding, as well as sensory integration difficulties. The area of fussy eating, therefore presents a dilemma as to whether the disorder falls into the scope of practise of the SLT or the occupational therapist within the South African context. This may be a less pertinent issue internationally, where the management of feeding disorders also falls within the scope of the occupational therapist (Paul & D'Amico, 2013). Within the present study, all the participants agreed that SLTs have a role in managing fussy eaters, however many of the participants also reinforced the importance of working together with an occupational therapist when dealing with oral sensory sensitivities. This suggests that collaboration between SLTs and occupational therapists is needed for effective management of fussy eaters. However, many areas within South Africa are under-resourced and access to multidisciplinary healthcare may not always be available, especially in rural or outlying areas. In this case, the lack of training available to SLTs in South Africa regarding sensory integration appears to be a barrier in the comprehensive understanding of fussy eating as the

understanding of two main components of the difficulty, that is the feeding difficulty and the sensory processing difficulty, are divided between the professions of speech-language therapy and occupational therapy. Allowing the SLT access to training related to oral sensory issues may however, improve the identification and management of children with fussy eating across various contexts within South Africa. In the same way, providing access to training regarding sensory aspects of feeding to occupational therapists may also lead to improvements in the management of fussy eaters.

The complexity of aetiologies associated with fussy eating indicates that the assessment and management of fussy eating requires a team approach, incorporating the knowledge and expertise from various disciplines (Arvedson, 2008; Smith et al., 2005; Tang et al., 2011). The findings of the present study indicate that the participants also viewed fussy eating as a team enterprise, lending to a need for collaboration between healthcare professionals for optimal management within this population. The biopsychosocial factors associated with fussy eating indicate that the expertise from a range of healthcare professionals is necessary to effectively evaluate and manage fussy eating, including paediatricians, gastroenterologists, SLTs, occupational therapists, dieticians and psychologists. However, the best approach for collaboration within this population has not been thoroughly researched. Internationally, an interdisciplinary approach has been recommended for co-ordinated consultation and problem solving of the multiple, inter-related aetiologies of feeding disorders (Arvedson, 2008). However within South Africa, the delineation between multidisciplinary and interdisciplinary work in dealing with feeding disorders is often unclear (Seedat et al., 2011). This indicates that there is a need for further insight into the approaches for collaboration between the healthcare professionals dealing with feeding disorders within South Africa. Consequently, there remains a dilemma as to the

approach to collaboration that is best suited to healthcare professionals dealing with feeding disorders in South Africa.

The socio-economic climate within South Africa varies, with provinces such as Gauteng being relatively well resourced, in comparison to other provinces, such as the Eastern Cape (Hall et al., 2013). As a result, certain areas within South Africa may have better access to healthcare professionals and resources than other areas. These factors must be taken into consideration when deciding on an approach for teamwork within the area of fussy eating, indicating that the approach for teamwork within South Africa is context specific. For example, within well resourced tertiary level hospitals, a multidisciplinary approach, incorporating expertise from various disciplines may be the best approach in managing fussy eaters. However, in less resourced institutions within outlying areas, access to a team of healthcare professionals may not be readily and regularly available. In this case a transdisciplinary approach, integrating knowledge from different disciplines may be more feasible. In so doing, the available healthcare professionals may need to utilize and integrate knowledge from various disciplines in order to manage the fussy eater appropriately. This further necessitates the need for SLTs to receive access to training in the area of sensory integration, as occupational therapists may not be available in all contexts. Likewise, training regarding the pertinent aspects of feeding that relates to sensory integration must be provided to occupational therapists, so that they are able to manage fussy eaters adequately in contexts where the SLT is not available. Furthermore, recruiting input from both an occupational therapist as well as a SLT may be costly. Providing SLTs and occupational therapists with the appropriate training to manage sensory integration difficulties related to feeding may therefore result in more cost effective treatment for fussy eaters. This suggests that the scope of practice of SLTs and occupational therapists related to sensory based feeding difficulties may require review. However, the SLT and occupational therapist may still work in

conjunction with children who have severe sensory integration difficulties. This illustrates that the decisions regarding the healthcare team involved in fussy eating, need to be made based on each case individually.

Although the approach to collaboration, as well as the team members involved in fussy eating may vary, it is apparent that collaboration between healthcare professionals is absolutely necessary within the area of fussy eating. Within the present study, as well as previous studies (Burklow et al., 1998; Field et al., 2003), it has been established that children who present with fussy eating, or seemingly behavioural feeding disorders often have underlying medical aetiologies that could impact on their feeding. Medical professionals are therefore key in the investigation of possible underlying medical aetiologies within this population. The prominent role of the paediatrician within the present study indicates that the paediatrician may be the medical professional most frequently involved in this investigation within the area of fussy eating. However, the gastroenterologist was also identified as a member of the medical team responsible for the management of children with fussy eating. Given the association between GORD and feeding difficulties, the role of the gastroenterologist is relevant in investigating GORD as a possible underlying factor for fussy eating. International literature even suggests that that all children who present with aversive feeding behaviours, or fussy eating, be evaluated for GORD (Schwarz, 2003). However, within the under-resourced health context of South Africa, this may not always be feasible. Therefore in many cases, the paediatrician would be responsible for managing symptoms of GORD, with referral to the gastroenterologist in cases warranting additional medical investigation.

Other allied healthcare professionals deemed important in the management of fussy eating within the present study included the dietician and the psychologist. Given the link between fussy eating and poor weight gain in children (Dubois et al., 2007; Tharner et al.,

2014), the role of the dietician in providing nutritional management in this population agrees to the report of malnutrition in children with fussy eating apparent within this study, as well as previous studies. The psychologist's involvement in fussy eating also links to the behavioural, emotional and environmental factors related to the child with fussy eating that have been documented within the present study. Input from these allied healthcare professionals could be valuable in the evaluation and management of children with fussy eating and should be considered in relation to the specific case, as well as the availability of resources to access these services within the specific healthcare context. In light of the findings of the present study, a flowchart detailing the recommended process for assessment of children with fussy eaters, by the core members of the multidisciplinary team established is proposed (Figure 7).

The model proposed in Figure 7 may be used as a guideline in the decision making process in the assessment of children with fussy eating. However, given the complexity of factors involved in children with fussy eating, as well as the variation in clinical contexts across South Africa, these recommendations need to be considered based on each case individually. A thorough assessment and clinical judgement on the part of the healthcare professional is still required in deciding the best course of management for the child with fussy eating. Although a multidisciplinary or transdisciplinary approach to fussy eating is optimal, these models may not always be practical within the South African context, especially within non-urban areas within the country. Socio-economic factors and a lack of resources within the health sector pose serious challenges to multidisciplinary work, as they may result in a lack of availability of health care professionals at certain institutions. This further necessitates that both the SLT as well as the occupational therapist be adequately trained in managing oral sensory processing difficulties.

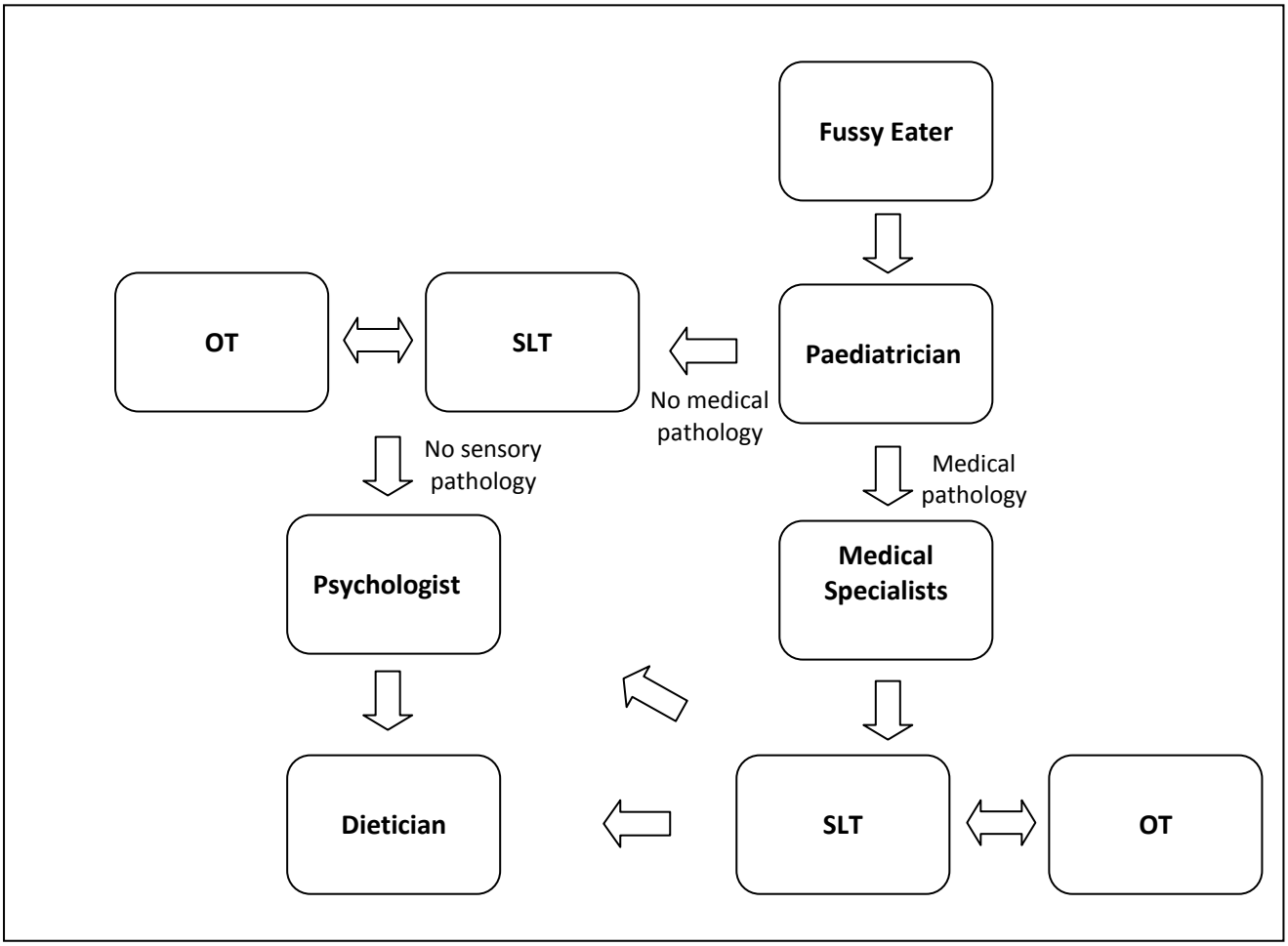


Figure 7. The Team Assessment of Fussy Eaters

4.3 Fussy eating within the South African Context

The South African context presents a complex scenario in terms of health and nutrition, with many South Africans experiencing poverty and limited access to food (SAHRC & UNICEF, 2014). Additionally, the burden of disease, including communicable disease further contributes to the challenges regarding health in South Africa. Within the present study, it was found that fussy eating within the South African context often encompassed complex medical, environmental and social factors. This suggests that the profile of children with fussy eating in South Africa may differ from existing profiles of fussy eating, warranting further investigation into the presentation of fussy eating in South Africa.

Within the present study, social deprivation and poverty were identified as factors contributing to fussy eating by the participants, as a result of a lack of exposure to foods. Consequently, children from lower socio-economic brackets may only be exposed to a limited repertoire of foods or food groups within their environments. The National Food Consumption Survey conducted in South Africa confirmed that households with a lower income procured a significantly lower number of food items within their homes than households with higher income (Labadarios, 2005). Preference for foods is a function of exposure, therefore children who do not get exposure to different tastes and textures early on, during sensitive periods when they are more willing to explore different foods, may not accept foods readily later on (Mason et al., 2005). Children from lower income households could therefore, develop a preference for the limited variety of foods and food groups that they are exposed to within their environments. In some instances, this may result in sensory or medical issues that then could present as fussy eating. In severe cases, the participants within the present study described children who presented with Kwashiorkor as a result of malnutrition, who subsequently presented with fussy eating behaviours within the hospital setting when exposed to a larger variety of foods. It was unclear if these children presented with fussy eating prior to developing Kwashiorkor as well. This indicates that further insight is needed to explore whether fussy eating is a contributor to malnourishment and the development of diseases such as Kwashiorkor, or whether fussy eating is a consequence of the limited access and exposure to food, also resulting in malnutrition. An international study (Tang et al., 2011), described the case of a child who presented with Kwashiorkor, a disease not commonly seen in developing countries, as a result of severe fussy eating. However, the link between fussy eating and Kwashiorkor within South Africa has not been adequately researched.

The compromised nutrition associated with fussy eating within the present study links to the pandemic of under-nutrition in South Africa as well as other developing countries. Nutrient deficiencies as a result of malnutrition are rife within South Africa (Hendricks et al., 2013), possibly due to individuals from lower income households consuming a smaller variety of food groups than those within higher income brackets (Labadarios, 2005). The link between fussy eating and malnourishment in the present study begs the question as to whether fussy eating in South Africa is at times a consequence of poverty and inadequate access to nutrition. The issue of extreme hunger and poverty is particularly concerning within developing countries, and forms part of the United Nation's Millennium Developmental Goals which aims to eradicate these issues (United Nations Fact Sheet, n.d.). Gaining further insight into the link between fussy eating and nutrition will therefore improve our understanding of the issues of malnutrition and nutrient deficiencies within South Africa.

The aetiologies associated with fussy eating within the present study also differ in some aspects from the causes associated with fussy eating internationally. For example, internationally fussy eating was rarely associated with diseases related to malnutrition, such as Kwashiorkor, or due to the complications arising from communicable diseases, for example the oral Candida and thrush associated with HIV, while these factors were associated with fussy eating within the present study. The high burden of disease within the South African context (Feucht, 2013), indicates that the profile of fussy eaters within South Africa may differ in some respects from that of developed countries. Fussy eating within South Africa therefore appears to be associated with the prevalence of disease and lack of access food associated with poverty in many cases. This suggests the possibility that with improved social circumstances and the eradication of poverty, the factors contributing to fussy eating, and consequently the profile of fussy eating within South Africa, may change.

Within the present study it was found that the participants experienced difficulty with the term "fussy" in reference to the symptoms and behaviours of fussy eating within their contexts. The participants appeared to view the term "fussy" as not being representative of the multi-dimensional factors described above, that are associated with fussy eating within the South African context. The researcher attributed this to the fact that "fussy eating" was perceived as a "first world" difficulty that presented in isolation within higher socio-economic brackets. Therefore, the participants appeared to experience difficulty at times in associating their clinical experiences in this population with the term "fussy eating". The term "fussy" seemed to detract from the complex factors associated with this population as well as the far reaching developmental consequences related to this type of feeding difficulty in children. A number of studies in developed countries have also found a link between socio-economic status and fussy eating or problematic eating behaviours in children (Dubois et al., 2007; Tharner et al., 2014). Therefore, the link between fussy eating and socio-economic status does not appear unique to the South African or developing context, and has also been reported within previous research within other countries. The lack of clarity in terms of the definition and terminology related to fussy eating in children appears to lend to the assumption that fussy eating is a difficulty that occurs in isolation within higher socio-economic sectors of the population. However, research has indicated that this is not the case, as fussy eating has been linked to lower socio-economic status within studies conducted internationally (Dubois et al., 2007; Tharner et al., 2014). Lower socio-economic brackets within developed countries, such as the Netherlands and Canada may, however, experience very different challenges than those of developing countries. For example, the burden of disease that is prevalent within developing countries, results in aetiologies associated with fussy eating that differ from developed countries. Further clarity in terms of the definition and description of fussy eating, to encompass the complex factors related to fussy eating,

would lead to an improved acceptance of the term "fussy eating" within developing contexts such as South Africa.

4.4 The Definition of Fussy Eating

The confusion surrounding fussy eating within the literature became apparent within the present study, where the participants appeared to present with significant difficulty with the use of the term "fussy eating". At times this confusion appeared related to the multitude of terminology used to describe fussy eating in the literature, while at other times it appeared to relate to the lack of an accepted definition of fussy eating. Another indication of the confusion surrounding fussy eating within the present study related to the "exclusions" that the participants referred to in their definitions of fussy eating. In some instances, the participants attempted to classify fussy eating in a dichotomous manner, by excluding medical aetiologies from their definition of fussy eating. However, current research has indicated that it is no longer practical to dichotomize difficulties with feeding into "organic" and "non-organic" elements, due to the complexity of factors associated with feeding disorders (Kreipe & Palomaki, 2012). In line with this view, classification systems are being revised to move away from a dichotomous classification of feeding disorders. For example, the DSM-V no longer stipulates the exclusion of a medical condition or organic disease in its classification of ARFID. Discrepancies between the exclusions participants' made in their definitions of fussy eating, and their clinical experiences with fussy eating were also apparent within the present study. For example, a participant would exclude medical aetiologies from the definition of fussy eating, but would discuss medical aetiologies associated with fussy eating when referring to their clinical experiences. These discrepancies are reflective of the lack of agreement in the literature in defining and classifying fussy eating in general, highlighting the need to work towards a universal understanding of fussy eating.

Within the present study, it was found that fussy eating was a complex and multidimensional feeding difficulty, associated with the sensory properties of food. Fussy eaters reportedly presented with persistent selectivity toward food, food refusal and restricted diets. Fussy eating was viewed as pathological when it resulted in nutritional deficiency and/or psychosocial interference. Many of the current definitions of fussy eating include some of these components; however they lack specificity and applicability in terms of accurately identifying fussy eating that is pathological. Additionally, the role of the sensory properties of food is not highlighted within current definitions of fussy eating. The most commonly cited definition for fussy eating within the literature, used within recent studies relating to fussy eating (Tharner et al., 2014; Thompson et al., 2015), is as follows:

"Fussy eaters are usually defined as children who consume an inadequate variety of foods through rejection of foods that are familiar (and unfamiliar) to them." (Dovey et al., 2008, p.187)

Within this definition of fussy eating, reference is made to the refusal or rejection of food as well as the restricted diets of fussy eaters. However, food selectivity based on the difficulties that fussy eaters experience in relation to the sensory properties of food is not accounted for within this definition of fussy eating. The role of sensory integration within fussy eating has been a significant contributor to fussy eating within the present study, and literature has also linked sensory integration difficulties with fussy eating (Dovey et al., 2008; Goh & Jacob, 2012; Mascola et al., 2010; Thompson et al., 2015). Therefore, the definition of fussy eating must represent the role that sensory integration difficulties play in the presentation of fussy eating. Within the present study, it was found that fussy eating was a complex and multidimensional feeding difficulty with multiple underlying aetiologies. The above definition of fussy eating (Dovey et al., 2008) is therefore inadequate as it does not reflect the complexity of aetiologies associated with the feeding difficulty. Additionally, this

definition does not differentiate fussy eating that is pathological from a transient phase of fussy eating that is common within young children. Within the present study, it was found that fussy eating was pathological when it was persistent and resulted in compromised nutrition and/or psychosocial interference. Therefore fussy eating must occur in the presence of one or more of these factors to be considered pathological. A definition that is clinically applicable to fussy eating must differentiate between transient and pathological fussy eating in order to accurately identify children for whom fussy eating qualifies as a specific feeding disorder.

The current classifications of feeding disorders do not appear to fully reflect the factors associated with fussy eating within the previous study. For example, the DSM-V classification of ARFID stipulates that disturbances in feeding may not be due to the unavailability of food. Similarly, the ICD 10 also stipulates that the child must have access to an adequate food supply in order to apply a diagnosis of feeding disorder of infancy and early childhood. As discussed previously, hunger as a result of poverty is still rife within South Africa (Hall et al., 2013). However, the criteria in the DSM-V and ICD 10 exclude children who may present with feeding difficulties due to a lack of exposure to different foods, as a result of poverty. Given the socio-economic profile of children within South Africa, the DSM-V criteria for ARFID, as well as the aforementioned ICD-10 criteria, may have limited clinical utility within South Africa. Current classifications of feeding disorders may therefore not account for the diverse factors that contribute to feeding difficulties within the developing world. Further research is required to evaluate the applicability of these classification systems within developing countries. However, an applicable definition of fussy eating must be relevant within diverse clinical contexts.

From the key factors identified as applying to all children with fussy eating within the present study, discussed above, the following working definition of fussy eating is proposed:

Fussy eating is a complex, multidimensional feeding disorder characterized by a persistent difficulty with processing the sensory properties of food, i.e. the texture, taste, temperature, smell and appearance of food.

Fussy eating is evidenced by one or more of the following symptoms:

- *Pronounced selectivity toward food*
- *Food refusal*
- *Restricted diet*

Fussy eating is pathological when it occurs in conjunction with one or more of the following factors:

- *Nutritional deficiency*
- *Psychosocial interference*

Unlike previous definitions of fussy eating, the proposed working definition of fussy eating reflects that it is a complex feeding disorder with multiple contributing factors and aetiologies. The role of sensory integration and the difficulties with the sensory properties of food is highlighted within the definition. The definition specifies the common symptoms associated with fussy eating, as well as the presence of factors, such as nutritional deficiency and psychosocial difficulties that would differentiate fussy eating that is pathological from a transient fussy eating. The credibility of this working definition must be validated and refined by continued research within the area of fussy eating.

Chapter Five – Conclusion

Chapter five concludes the study by presenting the clinical and theoretical implications of the study and proposed recommendations based on the findings of the study. The limitations of the present study are discussed, and implications for future research are proposed.

Based on the findings of this study, a number of recommendations are proposed both clinically and theoretically. Recommendations for training have also been proposed, along with implications for future research.

Within the present study, it was found that although fussy eating in South Africa was similar to the developed world in some respects, there were factors related to fussy eating within South Africa that differed from international factors. The present study, therefore serves as a basis for understanding fussy eating within the South African context, from which to promote future research into fussy eating within developing contexts such as South Africa. In addition, the study also supports common factors related to fussy eating within the developed world. The main concern related to fussy eating within the literature, and further reinforced within this research related to the lack of applicability of the current definitions of fussy eating. Based on the findings of this study, in relation to the literature, a working definition of fussy eating has been proposed in Chapter Four. In developing a more applicable definition of fussy eating, it is hoped that the confusion surrounding fussy eating and the multitude of terminology used to describe fussy eating within the literature may be resolved. This definition may also aid in the identification and differential diagnosis of children with fussy eating clinically. It is recommended that the credibility of the proposed definition be validated by prospective research to determine if all children with fussy eating can be adequately accounted for within this definition. Furthermore, investigation into how

fussy eating relates to other feeding disorders, such as the ARFID outlined within the DSM-V, would aid in improving the differential diagnosis of fussy eating in children.

It was found within this study that fussy eating in the South African context often encompassed complex medical, environmental and social factors, with fussy eating being linked to social deprivation and poverty due to a lack of exposure to foods. Health complications associated with extreme hunger and poverty, such as malnourishment and the burden of disease, were also associated with fussy eating within the South African context. This suggests that measures to eradicate extreme hunger and poverty, may alter the profile of fussy eating within South Africa. Efforts to reform the social issues of poverty and hunger within South Africa, such as those related to the United Nation's Millennium Developmental Goals, must therefore be continued as these factors appear closely linked to health and subsequently developmental and social outcomes for children.

Due to the complexity of factors associated with fussy eating within the South African context, it is apparent that collaboration between healthcare professionals is necessary for effective assessment and management of fussy eating. It is therefore recommended that fussy eating be assessed within a multidisciplinary or transdisciplinary framework. To assist in the referral process to aid in collaboration of healthcare professionals in dealing with fussy eating, a flowchart for referral between team members is suggested within Chapter Five. However, the lack of availability of sensory integration training for SLTs within South Africa appears to be a barrier in the understanding of fussy eating. Allowing SLTs to receive training in sensory integration would aid in contributing to the knowledge base in terms of the sensory aspect of feeding as a whole. To gain further perspective into the role of sensory integration within the area of feeding disorders, including fussy eating, it is therefore recommended that sensory integration training be made available to SLTs within South Africa. The possibility of allowing SLTs to receive additional licensing for sensory

integration should be reviewed. Allowing occupational therapists further insight into aspects of feeding that relate to sensory integration may also contribute to improving the management of fussy eaters. These training needs could perhaps be addressed within continued professional development (CPD) activities for both SLTs as well as occupational therapists. A limitation of the present study is that the sample consisted only of SLTs, possibly providing a biased outlook regarding fussy eating. Therefore, further research aimed at gaining the perspective of other members of the healthcare team involved in the management of fussy eating would provide valuable information in contributing to the growing knowledge base regarding fussy eating in children.

The present study forms part of a growing theoretical base related to fussy eating, due to an increased interest in research within the area of fussy eating. The findings of the present study indicated that SLTs believe that the profession as a whole could improve their knowledge and skills related to fussy eating. It is therefore recommended that the area of fussy eating be addressed within undergraduate as well as postgraduate training, for example, within CPD activities. Addressing these training needs would assist in ensuring that SLTs currently involved within the field of feeding and swallowing are sufficiently informed in order to provide evidence based practise in delivering services to their clients.

A further limitation of the present study related to the variation within the sample to include representation from all provinces within South Africa. Majority of the participants that consented to participate in the study were based in Gauteng. Furthermore, many of the participants within the study were located in more urbanized areas within the country. Research has indicated that social circumstances within the different provinces within South Africa may vary, with urban areas being better resources than rural areas (Hall et al, 2013). As a result, the social factors related to fussy eating within more rural areas within South Africa may differ from that of urbanized areas. Further insight into fussy eating within

different areas within South Africa, especially areas within more rural sectors of South Africa is therefore warranted. The lack of variation in the sample within the present study in terms of the representation of different provinces within South Africa, as well as the fact that the sample consisted only of SLTs may limit the extent to which the findings can be generalised. However, the findings of the study contribute to knowledge in terms of expanding the current theoretical knowledge base surrounding fussy eating.

A possible methodological limitation within the present study may be due to the lack of use of inter-coder agreement to ensure reliability. Due to the lack of availability of resources, this method was not adopted. However, other methods such as accurate recording, accurate transcription and the inclusion of raw data within the write-up of the study were employed. A further methodological limitation of the study related to the number of participants selected for member checking. A third of the participants were selected for member checking, however of these only six participants responded, resulted in only 20% of the transcripts being member checked. The large sample size chosen for the study may have therefore resulted in a reduction of the overall rigour of the study.

In conclusion, the present study resulted in the development of a definition of fussy eating based on the findings of the study, in relation to the literature. Fussy eating within the South African context was found to differ in relation to fussy eating reported internationally in some respects. These differences were particularly noted in relation to the social circumstances surrounding health and nutrition within South Africa, as well as the aetiologies associated with fussy eating. In addition, fussy eating was found to present as a result of a number of biological, psychological and social factors, indicating that the problem of fussy eating in children was complex. This highlights the need for collaboration between professionals in dealing with fussy eating clinically. The need for all professionals involved in fussy eating to be adequately informed and trained to deal with the issues arising within the

disorder is necessary. Given the significant role of sensory integration within fussy eating apparent within the present study, it appears that the management of fussy eating would be improved by allowing SLTs the necessary training in sensory integration. In so doing, it is anticipated that an improved understanding of fussy eating, in terms of the sensory aspects of the feeding disorder, could be achieved.

Although there has been an increase in the research conducted within the area of feeding disorders as a whole (Bryant-Waugh, 2013b), there remains a dearth of literature related to fussy eating in children. Further research within this area both locally and internationally is sorely needed to provide further insight regarding fussy eating both theoretically and clinically. The research available regarding the assessment and management of fussy eating remains limited (Bryant-Waugh, 2013b). Therefore, the findings of the present study are intended to stimulate further interest within the area of fussy eating, with the hope of encouraging continued research within this area.

Reference List

Addison, L.R., Piazza, C.C., Patel, M.R., Bachmeyer, M.H., Rivas, K.M., Milnes, S.M., & Oddo, J. (2012). A comparison of sensory integrative and behavioural therapies as treatment for paediatric feeding disorders. *Journal of Applied Behaviour Analysis, 45*(3), 455-471. doi: 10.1901/jaba.2012.45-455

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5.* Washington, D.C: American Psychiatric Association.

American Speech-Language-Hearing Association. (2002). *Roles of Speech-Language Pathologists in swallowing and feeding disorders.* Retrieved from http://www.asha.org/policy/PS2002-00109.htm

Arvedson, J.C. (2013). Feeding children with cerebral palsy and swallowing difficulties. *European Journal of Clinical Nutrition, 67,* S9-S12. doi: 10.1038/ejcn.2013.224

Arvedson, J.C. (2008). Assessment of pediatric dysphagia and feeding disorders: Clinical and instrumental approaches. *Developmental Disabilities Research Reviews, 14*(2), 118-127. doi: 10.1002/ddrr.17

Arvedson, J.C., & Brodsky, L. (2002). *Pediatric swallowing and feeding.* (2nd ed.). Canada: Singular Publishing Group.

Attia, E., Becker, A.E., Bryant-Waugh, R., Hoek, H.W., Kreipe, R.E., Marcus, M.D., ... Wonderlich, S. (2013). Feeding and eating disorders in DSM-5. *American Journal of Psychiatry, 170*(11), 1237-1239. doi: 10.1176/appi.ajp.2013.13030326

Braun, V. And Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101.

Bryant-Waugh, R. (2013a). Avoidant restrictive food intake disorder: An illustrative case example. *International Journal of Eating Disorders, 46*(5), 420-423. doi: 10.1002/eat.22093

Bryant-Waugh, R. (2013b). Feeding and eating disorders in children. *Current Opinion in Psychiatry, 26*(6), 537-542. doi: 10.1097/YCO.0b013e328365a34b

Bryant-Waugh, R., Markham, L., Kreipe, R.E., & Walsh, T. (2010). Feeding and eating disorders in childhood. *International Journal of Eating Disorders, 43*(2), 1-14. doi: 10.1002/eat.20795

Burklow, K.A., Phleps, A.N., Schultz, J.R., McConnell, K., & Rudolph, C. (1998). Classifying complex paediatric feeding disorders. *Journal of Paediatric Gastroenterology and Nutrition, 27*(2), 143-147.

Call, C., Walsh, B.T., & Attia, E. (2013). From DSM-IV to DSM- 5: Changes to eating disorder diagnosis. *Current Opinion in Psychiatry, 26*(6), 532-536. doi: 10.1097/YCO.0b013e328365a321

Choi, B.C.K., & Pak, A.W.P. (2006). Multidisciplinary, interdisciplinary, and transdisciplinary in health research, services, education and policy: 3. Discipline, inter-discipline distance, and selection of discipline. *Clinical and Investigative Medicine, 31*(1), E41-E48.

Coulthard, H., & Blissert, J. (2009). Fruit and vegetable consumption in children and their mothers: Moderating effects of child sensory sensitivity. *Appetite, 52*(2), 410-415. doi: 10.1016/j.appet.2008.11.015

Creswell, J.W. (2007). *Qualitative inquiry and research design: Choosing amongst five approaches* (2nd ed.). United States of America: Sage Publications, Inc.

de Wet, J., & Erasmus, Z. (2005). Rigour in qualitative research: Tracing the debate. *Qualitative Research Journal, 5*(1), 28-40.

Denzin, N.K., & Lincoln, Y.S. (2000). *Handbook of qualitative research* (2nd ed.). United States of America: Sage Publications, Inc.

Dovey, T.M., Aldridge, V.K., Dignan, W., Staples, P.A., Gibson, E.L., & Halford, J.C. (2012). Developmental differences in sensory decision making involved in deciding to try a novel fruit. *British Journal of Health Psychology, 17*(2), 258-272. doi: 10.1111/j.2044-8287.2011.02036.x

Dovey, T.M., Staples, P.A., Gibson, E.L., & Halford, J.C.G. (2008). Food neophobia and 'picky/fussy' eating in children: A review. *Appetite, 50*(2-3), 181-193. 10.1016/j.appet.2007.09.009

Dubois, L., Farmer, A., Girard, M., Peterson, K., & Tatone-Tokuda, F. (2007). Problem eating behaviours related to social factors and body weight in preschool children: A longitudinal study. *International Journal of Behavioral Nutrition & Physical Activity, 4*(9), 1-10. doi: 10.1186/1479-5868-4-9

Ekstein, S., Laniado, D., & Glick, B. (2010). Does picky eating affect weight-for-length measurements in young children? *Clinical Pediatrics, 49*(3), 217-220. doi: 10.1177/0009922809337331

Field, D., Garland, M., & Williams, K. (2003). Correlates of specific childhood feeding problems. *Journal of Pediatric and Child Health, 39*(4), 299-304. doi: 10.1046/j.1440-1754.2003.00151.x

Fisher, M.M., Rosen, D.S., Ornstein, R.M., Mammel, K.A., Katzman, D.K., Rome, E.S., ... Walsh, B.T. (2014). Characteristics of avoidant/restrictive food intake disorder in children and adolescents: A "new disorder". *Journal of Adolescent Health, 55*(1), 49-52. doi: 10.1016/j.jadohealth.2013.11.013

Fischer, E., & Silverman, A. (2007). Behavioural conceptualization, assessment and treatment of pediatric feeding disorders. *Seminars in Speech and Language, 28*(3), 223-231. doi: 10.1055/s-2007-984728

Feucht, U.D. (2013). Keeping children alive and healthy in South Africa – how do we reach this goal? Perspectives from a paediatrician in a district clinical specialist team. *South African Journal of Child Health, 7*(4), 124-126. doi: 10.7196/SAJCH.680

Gisel, E. (2008). Interventions and outcomes for children with dysphagia. *Developmental Disabilities and Research Reviews, 14*(2), 165-173. doi: 10.1002/ddrr.21

Goh, D.Y.T., & Jacob, A. (2012). Perception of picky eating among children in Singapore and its impact on caregivers: A questionnaire survey. *Pacific Family Medicine, 11*(5), 1-8. doi: 10.1186/1447-056X-11-5

Green, J., & Thorogood, N. (2009). *Qualitative methods for health research* (2nd ed.). London: Sage Publications, Inc.

Hall, K., Nannon, N., & Sambu, W. (2013). Child health and nutrition. In L. Berry, L. Biersteker, H. Dawes, L. Lake, & C. Smith (Eds.), *South African Child Gauge 2013* (pp. 95-100). Cape Town: Children's Institute University of Cape Town.

Hendricks, M., Goeiman, H., & Hawkridge, A. (2013). Promoting healthy growth: Strengthening nutritional support for mothers, infants and children. In L. Berry, L.

Biersteker, H. Dawes, L. Lake, & C. Smith (Eds.), *South African Child Gauge 2013* (pp. 44-49). Cape Town: Children's Institute University of Cape Town.

Jacobi, C., Agras, W.S., Bryson, S., & Hammer, L.D. (2003). Behavioural validation, precursors and concomitants or picky eating in childhood. *Journal of the American Academy of Child and Adolescent Psychiatry, 42*(1), 76-84. doi: 10.1097/01.CHI.0000024900.60748.2F

Kelly, N.R., Shank, L.M., Bakalar, J.L., & Tanofsky-Kraff, M. (2014). Paediatric feeding and eating disorders: Current state of diagnosis and treatment. *Current Psychiatry Reports, 16*(446), 1-12. doi: 10.1007/s11920-014-0446-z

Kreipe, R.E., & Palomaki, A. (2012). Beyond picky eating: Avoidant/restrictive food intake disorder. *Current Psychiatry Reports, 14*(4), 421-431. doi: 10.1007/s11920-012-0293-8

Labadarios, D., Steyn, N.P., Maunder, E., MacIntryre, U., Gericke, G., ... Nel, J.H. (2005). The national food consumption survey (NFCS): South Africa, 1999. *Public Health Nutrition, 8*(5), 533-543. doi: 10.1079/PHN2005816

Lefton-Greif, M. A. (2008). Pediatric dysphagia. *Physical Medicine and Rehabilitation Clinics of North America, 19*(4), 837-851. doi: 10.1016/j.pmr.2008.05.007

Lefton-Greif, M.A., & Arvedson, J.C. (2007). Pediatric feeding and swallowing disorders: State of health, population trends, and application of the international classification of functioning, disability and health. *Seminars in Speech and Language, 28*(3), 161-165. doi: 10.1055/s-2007-984722

Lucarelli, L., Cimino, S., D'Olimpio, F., & Ammaniti, M. (2013). Feeding disorders of early childhood: An empirical study of diagnostic subtypes. *International Journal of Eating Disorders, 46*(2), 147-155. doi: 10.1002/eat.22057

Manikam, R., & Perman, J.A. (2000). Pediatric feeding disorders. *Journal of Clinical Gastroenterology, 30*(1), 34-46.

Marshall, C., & Rossman, G.B. (2011). *Designing qualitative research* (5th ed.). United States of America: SAGE Publications, Inc.

Mascola, A.J., Bryson, S.W., & Agras, W.S. (2010). Picky eating during childhood: A longitudinal study to age 11-years. *Eating Behaviour, 11*(4), 253-257. doi: 10.1016/j.eatbeh.2010.05.006

Mason, S.J., Harris, G., & Blisset, J. (2005). Tube feeding in infancy: Implications for the development for normal eating and drinking skills. *Dysphagia, 20*(1), 46-61. doi: 10.1007/s00455-004-0025-2

Miller, C.K. (2009). Updates on pediatric feeding and swallowing problems. *Current Opinion in Otolaryngology & Head and Neck Surgery, 17*(3), 194-199. doi: 10.1097/MOO.0b013e32832b3117

Nadon, G., Feldman, D.E., Dunn, W., & Gisel, E. (2011). Association of sensory processing and eating problems in children with autism spectrum disorders. *Autism Research and Treatment, 15*(1), 98-113. doi: 10.1177/1362361309348943

Nederkoorn, C., Jansen, A., & Havermans, C. (2015). Feel your food: The influence of tactile sensitivity on picky eating in children. *Appetite, 84*, 7-10. doi: 10.1016/j.appet.2014.09.014

Newman, L.A. (2000). Optimal care patterns in pediatric patients with dysphagia. *Seminars in Speech and Language, 21*(4), 281-291.

Paul, S., & D'Amico, M. (2013). The role of occupational therapy in the management of feeding and swallowing disorders. *New Zealand Journal of Occupational Therapy, 62*(2), 27-31.

Piazza, C.C. (2008). Feeding disorders and behaviour: What have we learnt? *Developmental Disabilities Research Reviews, 14*(2), 174-181. doi: 10.1002/ddrr.22

Prakash, A.J.A., & Vaishampayan, A. (2007). A preliminary study of the sensory processing abilities of children with cerebral palsy and typical children on the sensory profile. *Journal of Occupational Therapy, 39*(2), 27-34.

Prasse, J.E., & Kikano, G.E. (2009). An overview of pediatric dysphagia. *Clinical Pediatrics, 48*(3), 247-251. doi: 10.1177/0009922808327323

Purposive Sampling.(n.d.). Retrieved from http://www.dissertation.laerd.com/purposive-sampling.php

South African Human Rights Commission & United Nations International Children's Emergency Fund. (2014). *Poverty traps and social exclusion among children in South Africa.* Pretoria: SAHRC.

Sanders, D., Bradshaw, D., & Ngongo, N. (2010). The status of child health in South Africa. In M. Kibel, L., Lake, P. Pendlebury, & C. Smith (Eds.), *South African Child Gauge 2009/2010* (pp. 29-40). Cape Town: Children's Institute University of Cape Town.

South African Speech Language and Hearing Association Ethics & Standards Committee. (2011). *Guidelines: Paediatric Dysphagia.* Retrieved from http://www.mm3.co.za/docmanager/default.aspx?id=1393&catid=526

Schwarz, S.M. (2003). Feeding disorders in children with developmental disability. *Infants and Young Children, 16*(4), 317-330.

Seale, C., Gobo, G., Gubrium, J.F., & Silverman, D. (2004). *Qualitative research practise.* Wiltshire: Sage.

Seedat, J., Mupawose, A., & Choonara, T. (2011). Multidisciplinary management of paediatric dysphagia in government hospitals in Gauteng, South Africa: A pilot study. *South African Journal of Child Health, 5*(3), 97-98. doi: 10.7196/sajch.318

Shisana, O., Labadarios, D., Rehle, T., Simbayi, L., Zuma, K., Dhansay, A., ... Faber, M. (2013). *South African health and nutrition examination survey (SANHANES-1).* Cape Town: HSRC Press.

Smith, A.M., Roux, S., Naidoo, N.T., & Venter, D.J.L. (2005). Food choices of tactile defensive children. *Nutrition, 21*(1), 14-19. doi: 10.1016/j.nut.2004.09.004

South African institute of sensory integration course structure. (2014). Retrieved from http://www.instsi.co.za.winhost.wa.co.za/documents.php

Statistics South Africa. (2012). *Census in brief.* Pretoria: Statistics South Africa.

Tang, B., Piazza, C.C., Dolezal, D., & Stein, M.T. (2011). Severe feeding disorder and malnutrition in two children with autism. *Journal of Developmental and Behavioral Pediatrics, 32*(3), 264-267. doi: 10.1097/DBP.0b013e3182138668

Tharner, A., Jansen, P. W., Kiefte de Jong, J.C., Moll, H.A., van der Ender, J., Jaddoe, V.W.V. , ... Franco, O.H. (2014). Toward an operative diagnosis of fussy/picky eating: a latent profile approach in a population-based cohort. *International Journal of Behavioral Nutrition and Physical Activity, 11*(14), 1-11. doi: 10.1186/1479-5868-11-14

Thompson, C, Cummins, S., Brown, T., & Kyle, R. (2015). What does it mean to be a 'picky eater'? A qualitative study of food related identities and practises. *Appetite, 84*, 235-239. doi: 10.1016/j.apper.2014.09.028

Threats, T.T. (2007). Use of the ICF in dysphagia management. *Seminars in Speech and Language, 28*(4), 323-333. doi: 10.1055/s-2007-986529

Trabi, T., Dunitz-Scheer, M., Kratky, E., Bekenbach, H., & Scheer, P.J. (2010). In-patient tube weaning in patients with long-term tube dependency: a retrospective analysis. *Infant Mental Health Journal, 31*(6), 664-681. doi: 10.1002/imhj.20277

Twachman-Reilly, J., Amaral, S.C., & Zebrowski, P.P. (2008). Feeding disorders in children on the autistic spectrum in school-based settings. *Language, Speech and Hearing Services in Schools, 39*(2), 261-272. doi: 10.1044/0161-1461(2008/025)

Uher, R., & Rutter, M. (2012). Classification of feeding and eating disorders: Review of evidence and proposals for ICD-11. *World Psychiatry, 11*(2), 80-92. doi: 10.1016/j.wpsyc.2012.05.005

United Nations millennium developmental goals and beyond 2015 fact sheet. (n.d.). Retrieved from http://www.un.org/millenniumgoals/pdf/Goal_1_fs.pdf

Ünlü, G., Aras, Ş., Eminağaoğlu, N., Büyükgebiz, B., & Bekem, Ö. (2007). Developmental characteristics of children aged 1-6 with food refusal. *Public Health & Nursing, 25*(9), 2-9. doi: 10.1111/j.1525-1446.2008.00674.x

Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & Health Sciences, 15*(3), 398-405. doi: 10.1111/nhs.12048

Wengraf, T. (2002). *Qualitative research interviewing.* London: Sage Publications, Inc.

Werthmann, J., Jansen, A., Havermans, R., Nederkoorn, C., Kremers,S., & Roefs, A. (2015). Bits and pieces: Food texture influences food acceptance in young children. *Appetite, 84*, 181-187. doi: 10.1016/j.appet.2014.09.025

Wright, C.M., Parkinson, K.N., Shipton, D., & Drewett, R.F. (2007). How do toddler eating problems relate to their eating behaviour, food preferences and growth? *Pediatrics, 120*(4), 1069-1075. doi: 10.1542/peds.2006-2961

Appendix A

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ORIGINALITY REPORT

8%	5%	4%	2%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	www.ncbi.nlm.nih.gov Internet Source	1%
2	Sarah J. Mason. "Tube Feeding in Infancy: Implications for the Developmentof Normal Eating and Drinking Skills", Dysphagia, 03/2005 Publication	<1%
3	file.zums.ac.ir Internet Source	<1%
4	en.wikipedia.org Internet Source	<1%
5	theparentcentre.org.za Internet Source	<1%
6	Cathleen C. Piazza. "Feeding disorders and behavior: What have we learned?", Developmental Disabilities Research Reviews, 2008 Publication	<1%
7	Submitted to University of KwaZulu-Natal Student Paper	<1%
	Submitted to University of Witwatersrand	

Appendix B

Interview Schedule

Academic & Employment History

1. Please discuss how long you have been registered and practising as a Speech Language Therapist.
2. How many years you have been specifically involved in the management of feeding and swallowing disorders?
3. Which institution did you receive your qualification from?
4. Have you received any additional training with regards to fussy eating?

Work Environment

1. Describe the health care setting you are currently involved in. You need not provide the name of the institution, only a description of setting.

Defining & Describing Fussy Eating

1. How would you define fussy eating?
2. Are you aware of any guidelines or programs that address the management of children with fussy eating? Please discuss this further.
5. From your experience, what do you perceive as the primary and secondary causes of fussy eating in children?

Clinical Experience

1. Do you encounter children with symptoms of fussy eating within your clinical practise? If so, please describe these instances further.
2. How are these children usually referred to your practice/department?
3. Have you noticed increases or decreases in the number of fussy eaters referred to your practice/department in recent years?

Multidisciplinary Team

1. From you clinical experience, which members of the multidisciplinary team are important in the management of fussy eaters?
2. Are there any specific health care professionals that you would usually refer fussy eaters to?
3. Do you believe that speech therapists have a role in managing fussy eating? Please explain your response.
6. Are you comfortable with treating children with symptoms of fussy eating? Please discuss further.

Appendix C

Faculty of Humanities - Postgraduate

Private Bag 3, Wits 2050, South Africa • Tel: +27 11 717 4007 • Fax: +27 11 717 4037

Student Number: 0406308T

Miss Zeenat Mohamed
P O Box 1028
Crown mines
2025

20 August 2013

Dear Miss Mohamed

APPROVAL OF PROPOSAL FOR THE DEGREE OF MASTER OF ARTS IN SPEECH PATHOLOGY BY RESEARCH

I am pleased to be able to advise you that the readers of the Graduate Studies Committee have approved your proposal entitled *"Exploring the experiences and perceptions of speech language pathologists regarding fussy eating"* and you have now been admitted to full candidature. I confirm that Ms Andrea Fourie has been appointed as your supervisor in the Speech Pathology department.

The research report is normally submitted to the Faculty Office by 15 February, if you have started the beginning of the year, and for mid-year the deadline is 31 July. All students are required to RE-REGISTER at the beginning of each year.

You are required to submit 2 bound copies and one unbound copy plus 1 CD in pdf (Adobe) format of your research report to the Faculty Office. The 2 bound copies go to the examiners and are retained by them and the unbound copy is retained by the Faculty Office as back up.

Please note that should you miss the deadline of 15 February you will be required to submit an application for extension of time and register for the research report extension. Any candidate who misses the deadline of 15 February will be charged full fees for the year.

Kindly keep us informed of any changes of address or contact details during the year.

Note: All MA and PhD candidates who intend graduating shortly must meet your ETD requirements at least 6 weeks after your supervisor has received the examiners reports. **Students must remain registered at the Faculty Office until graduation.**

Yours sincerely

MR NTSEARE

Mpho Ntseare
Postgraduate Division
Faculty of Humanities
Private Bag X3
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Appendix D

R14/49 Mrs Zeenat Ebrahim

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M130757

NAME: (Principal Investigator)	Mrs Zeenat Ebrahim
DEPARTMENT:	Speech Pathology and Audiology Faculty of Humanities University of Witwatersrand
PROJECT TITLE:	Exploring the Experiences and Perceptions of Speech-Language Therapists regarding Fussy Eating in Children
DATE CONSIDERED:	26/07/2013
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Andrea Fourie/Sharon Moonsamy
APPROVED BY:	Professor PE Cleaton-Jones, Chairperson, HREC (Medical)
DATE OF APPROVAL:	21/08/2013

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Secretary in Room 10004, 10th floor, Senate House, University.

I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. **I agree to submit a yearly progress report.**

Principal Investigator Signature

Date 26/08/2013

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

Appendix E

13/05/2013

To whom it may concern

Exploring the experiences and perceptions of Speech Language Therapists regarding Fussy Eating in children

I am a post-graduate student currently registered with the University of the Witwatersrand within the discipline of Speech Therapy. I am currently working towards a master's degree with my area of research related to paediatric feeding disorders. I would like to investigate the experiences and perceptions of Speech Language Therapists with regards to fussy eating. The results of this study will contribute to the knowledge base regarding paediatric feeding disorders in the South African context.

This study will require the participation of thirty Speech Language Therapists currently working within the field of paediatric feeding and swallowing disorders, with at least 3 years clinical experience. Participation in the study will consist of an interview, which may be scheduled at your convenience. The interview will last for approximately twenty minutes and will consist of open ended questions related to your experiences with children who are fussy eaters. The interview will be conducted in a neutral venue which is accessible to you and may also be conducted telephonically where it is not feasible to meet in person, e.g. for participants situated outside of Gauteng. Once your interview data has been collated and interpreted, you will be required to review the interpretation of data received from your interview and provide feedback regarding the credibility of the data analysis. This is to ensure that the analysis of the data is valid and trustworthy.

Your participation in this study is purely voluntary, and there will be no ramifications if you choose not to participate in the study. Confidentiality will be maintained throughout the research process and your identities as well as the identities of your current institutions of employment will not be recorded or included in the write up of the study. Your identities will remain confidential in any presentations or written products that result from the study. You will have the right to withdraw from the study at any time if you wish to do so with no negative consequences. The interview will involve audio recording for transcription purposes. Only the researcher and research supervisors will have access to the raw data. Research records may also be inspected by the Human Research Ethics Committee of the University for Quality Assurance. These recordings will be kept securely for the period of the study for transcription purposes and will be destroyed upon conclusion of the study.

There are no foreseeable risks to participating in the study. Upon completion of the study, you will be invited to receive feedback regarding the results of the study.

Thank you for your kind consideration. Please complete the consent form if you wish to participate in the study.

Please do not hesitate to contact me telephonically at 0736006964 or via email at zeenat@youngeinsteins.co.za if you have any further queries. Alternatively, you may contact my research supervisors, Andrea Fourie at andrea.fourie@wits.ac.za or Sharon Moonsamy at sharon.moonsamy@wits.ac.za . Any reports or complaints may be directed to the Human Research Ethics Committee on 011 717 1252 or zanele.ndlovu@wits.ac.za.

Regards

Zeenat Ebrahim

Appendix F

Consent Form

I, _____ , consent to participate in the research study related to the investigation of the experiences and perceptions of Speech Language Therapists with regards to fussy eating. I have read the information letter and am fully aware of the requirements of my participation in this study.

_____ _____

Signature Date

Appendix G

Audio Recording Consent Form

I, _____, consent to allow the researcher to audio record me as part of the research study related to the investigation of the experiences and perceptions of Speech Language Therapists regarding fussy eating. I am aware that the recordings will be kept securely for the duration of the study, and will be destroyed upon completion of the study.

_____ _____

Signature Date

Appendix H

Transcription - Interview 9

20/02/2014

P9: Participant 9

R: Researcher

R: Ok there we go. Erm yeah I just wanted to start off by asking you a little but about your academic and work history. Erm so if you can just let me know how long you've been registered and practising as a speech therapist?

P9: Erm so I graduated from UCT [University of Cape Town] in two thousand and one, so what's that thirteen years.

R: Ok.

P9: Yeah.

R: Ok, and you've been practising ever since?

P9: Ever since. Since two thousand and two, Jan two thousand and two, erm yeah I've been doing the same thing.

R: Ok great and then how long have you been involved in the management of feeding and swallowing?

P9: Erm, five years I- yeah five years.

R: Five years, ok. Erm and you said you qualified from UCT [University of Cape Town]?

P9: [Nods]

R: Ok, and then have you received any additional training with regards to feeding and fussy eating specifically?

P9: So I've done erm the Talk Tools, just see the name of the course [gets up and walks to notice board in the office], "Feeding Therapy: A sensorimotor approach" this one [shows certificate]. I did that last year erm but I've done the, the DIR [The Developmental, Individual Difference, Relationship-based Model], I don't know if you're familiar with DIR [The Developmental, Individual Difference, Relationship-based Model] Floor Time?

R: Yes.

P9: Yeah, erm I've done quite a bit of the, the feeding and the sensory stuff through, through that erm and then yeah so that's, that's how I got started back in 2009, was mainly through DIR [The Developmental, Individual Difference, Relationship-based Model] and then I did this oral motor course last year.

R: Ok and then did any of erm so either of those courses address fussy eating specifically?

P9: Yeah so back in two thousand and nine, that's where I got involved mainly in the in the fussy eating.

R: Ok great and then in terms of your work environment, if you can maybe give me a description of the setting you're involved in.

P9: Ok.

R: So, you don't need to give me the name but just a description.

P9: Erm so it's a preschool erm and for children with special needs mainly with speech and language difficulties so we treat children between the ages of two and six years old er with a variety of speech, language and developmental disorders.

R: Ok, and you said it's pre-school.

P9: Yeah.

R: Ok erm and then just I just want to chat to you about fussy eating specifically, erm so how would you define fussy eating?

P9: Erm good question. I think a child who if I was to define fussy eating it would be a child who has a sensory or motor difficulty underlying – an underlying sensory or motor difficulty that is contributing to their fussy eating erm it would be erm affecting either their nutritional intake, or the family's erm social, emotional- the family or the child's social-emotional state erm and yeah resulting in them eating a restricted types of foods and amount of food.

R: Ok, erm and then are you aware of any guidelines or programs that address the management of fussy eating in children?

P9: Yeah, I mean there's there are the the ABA [Applied Behaviour Analysis] erm there is the ABA [Applied Behaviour Analysis] and CARD [Center for Autism and Related Disorders] approach to fussy eating. Er, there's Talk Tools and there's also the, the DIR model [The Developmental, Individual Difference, Relationship-based Model]. Those are the three that I that I'm familiar with.

R: Ok, erm, and then from your experience, what would you perceive as the primary and secondary causes of fussy eating. So I know you've spoken a little bit about it but-

P9: Erm er definitely an underlying sensory or motor difficulty erm that is then, that then becomes an emotional difficulty.

R: Ok.

P9: So, I would say the underlying sensory and motor and then a secondary cause would, would be emotional.

R: Ok, so that happens secondary to the underlying cause?

P9: [nods]

R: Ok, great, and then I'm just going to speak a bit about your clinical experience. Erm so do you encounter children with fussy eating in your clinical practise?

P9: Yeah.

R: And then can you describe some of the instances to me?

P9: Ok, erm if I was to take the children currently on my caseload that are fussy eaters, erm the majority of the underlying developmental disorders erm is dyspraxia and autism. Erm and I have another child with- who had a TOF [Tracheo-oesophageal Fistula].

R: Ok.

P9: So, a difficulty swallowing and erm, then became obviously averse to certain textures because she knew what was going to make her choke. Erm-

R: Ok.

P9: Do you want how much detail do you want me to go into? More detail?

R: Did that sort of persist even after-

P9: Even after the TOF [Tracheo-oesophageal Fistula] was erm, repaired?

R: Yes.

P9: Yeah.

R: Ok.

P9: So, she she was born with a TOF [Tracheo-oesophageal Fistula], that was repaired, erm quite early on and obviously she grew so they had and there was a stricture so they had to re-do the operation erm and this was look in the first twelve months of her life. Then they repaired it again when she was about two so and she is now four.

R: Ok.

P9: So there's still that erm there's still feeding difficulties erm related to that she's still fussy erm despite her oral motor skills being adequate for her to cope with textures. So initially she couldn't cope with them very well but now she can cope with them, we taught her to chew and the rotary chew and all of that so there's no underlying er motor difficulty erm she still has quite a lot of sensory issues.

R: Ok.

P9: Erm but for me it's an emotional, yeah eating was traumatic for her and she just she now chooses very much what she eats and what she doesn't eat.

R: Ok, and then you mentioned the dyspraxia and the children on the autistic spectrum, erm could you maybe describe some of the things they would present with as well?

P9: So your dyspraxics erm again they'll, they'll have the oral, the underlying oral motor difficulties, but then also I find a lot of my dyspraxics it's a sensory, it's a sensory difficulty.

R: Ok.

P9: Erm so they'll have erm, tactile sensitivities erm and so they won't try certain foods or certain textures erm. So it's mostly sensory and again then with your children on the autistic spectrum, it's sensory so erm they have, they hyper-reactive to tactile input and food is obviously erm yeah something that contributes to that. Having said that, can then become behavioural. So with the dyspraxics and your children on the spectrum can also become like a like a control thing.

R: Yes.

P9: Erm especially with the parents. So that's why it's got to be like a combined approach.

R: Yes, ok, so you mean from the sensory-motor perspective and then with the behaviour?

P9: Yeah the parents need a lot of counselling actually so we do quite a lot of erm sitting with them during mealtimes, erm going through the difficulties, erm there's a big emotional attachment to your child being a fussy eater.

R: Yes. Yeah, ok and then how are these children usually referred to your erm practise or your school?

P9: Generally they're not referred for fussy eating.

R: Ok.

P9: Erm , {identifier removed} they generally refer to {identifier removed} specifically for fussy eating or feeding difficulties, but most of the children that I've come across in the practise here at the school and in my private practise in the afternoons, they are not referred for fussy eating they are referred for dyspraxia or er they're on the spectrum or they have a language delay.

R: Yes.

P9: And then when you're going through the case history the parents like yeah well they'll only eat toast or they'll only eat er French fries or whatever so erm yeah it's generally not the primary referral.

R: Ok, and then erm, have you noticed any increase or decrease in the amount of fussy eaters referred to you in recent years or not really?

P9: Erm I wouldn't say erm I wouldn't say here in South Africa I did work in Dubai and then erm it was sort of known that we ran a feeding program so but not no, not in South Africa.

R: So it hasn't really changed much? Ok, ok erm and then and then I just wanted to chat a bit about the multi-disciplinary team with you. So, erm, from your clinical experience, which members of the multidisciplinary team would be important in managing a fussy eater?

P9: That's quite interesting. There's quite a lot of overlap with your occupational therapists and your speech therapists.

R: Ok.

P9: Erm, so erm I would definitely say from the occupational therapy point of view just in terms of their sensory systems and managing the children from the sensory side. Erm, physiotherapy as well I find a lot with our children who have oral motor difficulties then they often have your core muscle difficulties so physio's if they don't have strong core then obviously it's gonna affect everything up so I find my physio's are really erm really helpful. Erm I would imagine a dietician but I don't deal with children who are like it's not that severe. I suppose if you have a child on a PEG or something like that then you have to have a dietician. Erm and yeah I would see them as an important member of the team but we don't really-

R: Refer?

P9: No.

R: Ok and then I know this links a little to the previous erm, question but are there any specific health care professionals that you usually refer a fussy eater to?

P9: OT [Occupational Therapy].

R: Ok, so generally OT [Occupational Therapy]? Ok, erm and then do you believe that speech therapists have a role in managing fussy eating?

P9: Interesting question, erm yes I do.

R: Ok.

P9: Erm because the the, the primary, I feel the primary underlying reasons for fussy eating is in your sensory and your motor.

R: Ok.

P9: Erm and so speech therapists would deal with those underlying issues. So yeah definitely, I know there's quite a lot of overlap with occupational therapy.

R: Yes.

P9: Erm and the speech therapist would have to have a good knowledge of the child's sensory system and how that sort of that comes about but we definitely have a role.

R: Ok, and then just the lastly, erm, personally are you comfortable with treating children with fussy eating?

P9: Mmm I really enjoy it.

R: Ok.

P9: Erm because it's qui- a nice step by step process you know you can, you identify the areas that erm that are causing the fussy eating and then you can deal with them each individually so you have the child who is a fussy eater but if you look at all the little individual aspects of why that child is a fussy eater it's fascinating and then you deal with those things step by step erm and yeah, no I quite, yeah I enjoy it.

R: Ok, great, is there anything else you want to add about fussy eating that maybe I didn't cover?

P9: Erm no.

R: Ok thanks, thanks.

P9: Is that it?

R: Yeah.

Field Notes

- The participant was based in the Johannesburg area.
- The interview was conducted face to face in the participant's office at her place of work.
- The participant works in a preschool for children with specific communication disorders in the Johannesburg area. She also conducts private work after school hours.
- The participant was confident within the interview and appeared at ease with the process.
- The participant referred to a therapist {identifier removed} in the interview, this is the therapist that specializes with feeding and fussy eating at the centre.
- The interview lasted 13 minutes 51 seconds.