**INFLUENCE OF PARENTAL FEEDING PATTERN ON CHILDHOOD OBESITY**

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**ABSTRACT**

The study investigated the influence of parental feeding pattern on childhood obesity in Ikemme Local Government Area, Ogun State. 50 children between the ages of 3 to 5 years were randomly chosen out of the entire population. Questionnaire was used to obtain information from one respondent. The investigation revealed that parental feeding pattern has a significant positive effect on childhood obesity. Based on the findings from the study, it was therefore recommended that parents should watch the feeding pattern in other to reduce the chances of childhood obesity in their children.

**CHAPTER ONE**

**INTRODUCTION**

**1.1 Background Of The Study**

Obesity which was majorly associated with adults in the past unfortunately becomes one of the major health challenges now faced by children. Hence it is now referred to as child obesity. Child obesity can simply be defined as’ a state of being excessively fat or over weight. A lot of reasons have been given by several researchers like center for disease control and prevention in (2012) as to why obesity has persistent in the world and especially in West African sub region. The Chief among these reasons are the influence of the feeding philosophy or pattern of parents. For the purpose of this study, the researcher intends to evaluate the perceived effect of parental feeding pattern on childhood obesity. Therefore this study is guided by the following objectives

Obesity is now a major health challenge among children. Outcomes associated with obesity in adults are now affecting children. The prevalence of overweight status has tripled worldwide in the last 2 to 3 decades, including in developing countries like Nigeria and regions that are increasingly urbanized (Lobstein, Baur, and Uauy. 2004). An international obesity task force (IOTF) analysis has shown that overweight and obesity affects one in 10 children in the world today, but the rate is almost double in Europe and three times as great across the entire American continent (IOTF, 2003). Over nutrition is a growing problem in segments of sub-Saharan African society, particularly where lifestyles become urbanized and westernized and data have accumulated on the adverse health effects of obesity in advanced and developing countries. (WHO, 2004). Increased risk for diabetes, dyslipidemia, coronary heart disease, atherosclerosis, and hypertension, high blood cholesterol concentration, stroke, certain cancers and arthritis have been reported to be associated with childhood obesity (Vander, Ceesay, Milligan, Banya, and Walraven 2006). Obesity in children and adolescence has adverse effect on premature mortality and physical morbidity in adulthood (Reilly & Kelly, 2011) and is associated with impaired health during childhood itself. Once obesity is established in children (as in adults) it is hard to reverse (De Onis and Lobstein, 2010).

In 2010, 43 million children (35 million in developing nations) were estimated to be overweight and obese; 92 million were at risk of being overweight. The worldwide prevalence of childhood overweight and obesity increased from 4.2% in 1990 to 6.7% in 2010. This trend is expected to reach 9.1%, or ’60 million, in 2020. The estimated prevalence of childhood overweight and obesity in Africa in 2010 was 8.5% and is expected to reach 12.7% in 2020. The prevalence is lower in Asia than in Africa (4.9% in 2010), but the number of affected children (18 million) is higher in Asia declared De Onis and Lobstein (2010). Modern dietary patterns and physical activity patterns are risk behaviors that travel across countries and are transferable from one population to another like an infectious disease, affecting disease patterns globally. While age, sex and genetic susceptibility are non-modifiable, many of the risks associated with age and sex are modifiable. Such risks include behavioral factors (e.g. diet, physical inactivity); biological factors (e.g. dyslipidemia, hypertension, overweight) and finally societal factors which include a complex mixture of interacting socioeconomic, cultural and other environmental parameters (WHO, 2003). Furthermore, rapid changes in diets and lifestyles that have occurred with industrialization, urbanization, economic development and market globalization have accelerated over the past decade. This is having a significant impact on the health and nutritional status of populations, particularly in developing or third world nations. While standards of living have improved, food availability has expanded and become more diversified, and access to services has equally increased, there have also been significant negative effects in terms of inappropriate dietary patterns, decreased physical activities and a corresponding increase in diet-related chronic diseases, especially among poor people (WHO, 2003).

Overtime, obesity has been associated with excessive feeding and lack of adequate digestion which eventually leads to excessive fat being stored up in the belly and other fat storage areas of the human body.

Since the pattern of feeding can be said to influence obesity in both adults and children, parents do have leading roles to play in either encouraging or reducing the prevalence of childhood obesity, undoubtedly most children who are obese are under the parental guide age, hence it can be said that the recent cases of obesity may not be unconnected to the feeding habit of their parents or guardians. The feeding pattern of parents may actually have a devastating effect on their children as children are generally known to be dependent on their parents for food shelter and clothing, this view hence propel the researcher’s thought of evaluating the perceived effect of parental feeding pattern on childhood obesity.

**1.2. Statement Of Problem**

The menace of infant mortality in the sub Saharan African and Nigeria especially has been a cause for serious concern. Child hood obesity has over the years been a breeding ground for other diseases and health challenges like cardiovascular or heart related health challenges in children which has led to the increase of child or adolescent mortality and thus led to the depletion of the future generation which could in the future affect the productive capacity of the country.

In Nigeria today, many children who are obese are at risk of being isolated in the society, making them unhappy and withdrawn. This has most times contributed to the poor academic performance of such children. It has also affected their social relationship as they find it difficult to freely associate or relate with their contemporaries.

**1.3. Objectives Of The Study**

The researcher intends to evaluate parental feeding pattern as a determinant for child obesity. Therefore this study is guided by the following objectives

1. To determine the parental feeding pattern of the children with obesity.
2. Identify the perceived effect of the parental feeding.
3. To assess the relationship between childhood obesity and academic performance.

**1.4. Research Questions**

The following research questions would guide us in undertaking this study.

1. What is the relationship between parental feeding pattern and childhood obesity?
2. Is there a relationship between childhood obesity and academic performance
3. What is the actual feeding pattern of parents who have obese children?

**1.5. Research Hypotheses**

**Hypothesis 1**

H0: There is no significant relationship between parental feeding pattern and childhood obesity.

**Hypothesis 2**

H0: There is no significant relationship between childhood obesity and academic performance.

**1.6. Significance Of The Study**

This study seeks to examine parental feeding pattern as a determinant of child obesity. Another significance of this study is to educate parents and guardians on the negative consequences of obesity in children and at the same time recommend ways of preventing obesity in children. This study would be immense benefit to the health sector and researchers who are interested in childhood obesity in Nigeria.

**1.7. Scope Of The Study**

This study is the perceived effect of parental feeding pattern on childhood obesity in ikenne local government. Due to the time factors that may be needed in this study the researcher is compelled to limit its focus to just two towns in ikenne local government that is Ilishan Remo and Irolu Remo. This study will adopt a descriptive survey research design, and also using questionnaires in addition to library research would be used in collecting existing data. Hence the collected data would be analyzed using the correlation statistical method. The sample size of this study would be 50 parents residing within Ilishan Remo and Ikenne Remo that there child attended private primary school. This study is restricted to the perceived effect of parental feeding pattern on childhood obesity in ikenne local government.

**1.8. Operational Definition of Terms:**

**Obesity:** Obesity is a condition that is associated with having an excess of body fat, defined by genetic and environmental factors that are difficult to control when dieting. Obesity is classified as having a Body Mass Index (BMI) of 30 or greater.

**Parental feeding pattern:** this is a particular way a parent feed or gives food to his or her child. It can also be said that it is the example the parent give to the child. Like if the mother eat bread every morning the child will grow into eating bread in the morning that the example the parent gave that child.

**Childhood:** the state of being a child. The time of a child life that is between infancy and puberty.

**CHAPTER TWO**

**LITERATURE REVIEW**

**INTRODUCTION**

Our focus in this chapter is to critically examine relevant literature that would assist in explaining the research problem and furthermore recognize the efforts of scholars who had previously contributed immensely to similar research. The chapter intends to deepen the understanding of the study and close the perceived gaps.

Precisely, the chapter will be considered in two sub-headings:

* Conceptual Framework
* Chapter Summary

**2.1 CONCEPTUAL FRAMEWORK**

**Childhood Obesity**

Obesity is defined as an excess accumulation of fat in the human body by the World Health Organization (WHO, 2020). Body Mass Index (BMI) [BMI=weight/ (height) is the most widely used criterion to measure weight status and define overweight and obesity (WHO, 2000). Children grow constantly; thus, their BMI is adjusted for age and sex (e.g. standard deviation scores), according to reference data (Cole, Bellizzi, Flegal, & Dietz, 2000; Cole, Flegal, Nicholls, & Jackson, 2007; Cole & Lobstein, 2012). In the past four decades, there has been an upward trend in the prevalence of childhood obesity (NCD Risk Factor Collaboration, 2017). In 2015, the global prevalence was 5%, and 107.7 million children between the ages 2 and 19-years-old were estimated to have obesity worldwide (GBD 2015 Obesity Collaborators, 2017). In addition, 38 million children under five years old had overweight or obesity in 2019 (United Nations Children’s Fund (UNICEF), the World Health Organization, and the International Bank for Reconstruction and Development/The World Bank, 2020). In Sweden, the prevalence of obesity among children at 6-yearsold is 5%, while it is twice as much among children who are 9-years-old (Public Health Agency of Sweden, 2020a). According to recent estimates, the obesity prevalence among school-aged children in Sweden has increased five times over the past three decades, with the steepest increase observed in the last 10 years (Public Health Agency of Sweden, 2020b).

**Health implications–Physical and psychosocial**

Childhood obesity once established, does track into adolescence and adulthood (Aarestrup et al., 2016; Buscot et al., 2018; Simmonds, Llewellyn, Owen, & Woolacott, 2016), and increases adult morbidity and mortality (Bjerregaard et al., 2018; GBD 2015 Obesity Collaborators, 2017; Global BMI Mortality Collaboration, 2016; Juonala et al., 2011). Moreover, children with obesity have higher cardiometabolic risk, risk for liver disease and musculoskeletal pain (Sanders, Han, Baker, & Cobley, 2015; Skinner, Perrin, Moss, & Skelton, 2015). In addition to the impact on physical health, childhood obesity has a number of psychosocial consequences. Among those are poor quality of life, low self-esteem, decreased social functioning, weight stigmatisation, bullying, and low educational level in adulthood (Hagman et al., 2017; Pont, Puhl, Cook, & Slusser, 2017; Rupp & McCoy, 2019; Williams, Wake, Hesketh, Maher, & Waters, 2005).

**Causes Obesity Among Children**

Obesity is a chronic multifaceted condition, which stems from energy imbalance, i.e. excess energy intake in relation to one’s needs (Bray, Kim, & Wilding, 2017). However, obesity is not a simple function of energy intake and energy expenditure, since genetic susceptibility plays a clear role in obesity variability (Min, Chiu, & Wang, 2013; Stunkard et al., 1986; Whitaker, Wright, Pepe, Seidel, & Dietz, 1997). Specifically, interrelationships between parents and their children may affect the child’s obesity status to varying degrees (Connell & Francis, 2014; Schrempft et al., 2018; Wardle et al., 2008). A recent study in the UK provided evidence that genetic predisposition to obesity manifests as excess weight gain among children in obesogenic home environments, as described by availability of energy-dense foods and maladaptive parent-child interactions, compared to less obesogenic home environments (Schrempft et al., 2018). These parent-child feeding dynamics are particularly influential among young children in the preschool years (between 2 and 6 years of age).

**Parenting Styles And Parenting Practices**

Parents shape the environment in which their children develop, in addition to contributing genetic risk (Savage, Fisher, & Birch, 2007; Whitaker et al., 1997). Thus, the overall emotional climate of the parent-child relationship and specific parenting practices are relevant predictors of the child’s weight trajectory (Balantekin et al., 2020; Birch & Fisher, 1998; Gerards & Kremers, 2015; Niermann, Gerards, & Kremers, 2018).

Parenting styles set the climate between the parent and the child, and parenting practices capture what parents do in specific situations (Darling & Steinberg, 1993). Parents may control child behaviour, while they remain responsive to what the child needs and attune to the child’s emotions (Sleddens et al., 2014). These distinct dimensions of parenting reflect parental demandingness (behavioural control) and parental responsiveness (attention to child’s needs), respectively (Baumrind, 1966; Maccoby & Martin, 1983). Although they seem to represent opposite sides in parenting, it is best when they co-occur, i.e. when parents communicate structure and limit setting in a way that is responsive and takes into account the child’s perspective. This approach to parenting describes an authoritative parenting style, which is characterised by high demandingness and high responsiveness (Baumrind, 1966; Maccoby & Martin, 1983). When parental responsiveness is the dominant dimension in parenting, a permissive style emerges. By contrast, an authoritarian parenting style is characterised by high demandingness and low levels of responsiveness (Baumrind, 1966; Maccoby & Martin, 1983).

While parenting styles describe the overarching aspects of parenting, they relate to specific parenting practices, which describe what parents do when they interact with their children (Hubbs-Tait, Kennedy, Page, Topham, & Harrist, 2008; Sleddens et al., 2014; Lopez et al., 2018). For example, authoritative parenting includes clear rules and routines with the child along with childcentred strategies, such as breaking down new behaviours into small achievable steps and encouraging the child’s efforts at each step (Ek et al., 2015). In particular, evidence-based parenting practices that support an authoritative parenting style are monitoring (keeping track of child behaviours), encouragement (use of positive attention to reinforce a desired child behaviour), limit setting (providing clear structures and routines in the home) and emotional regulation during parent-child interactions (Dishion, Forgatch, Chamberlain, & Pelham, 2016; Ek et al., 2015). Such practices have been associated with optimal social and emotional development among children (Barlow, Bergman, Kornør, Wei, & Bennett, 2016; Boylan, Cundiff, Jakubowski, Pardini, & Matthews, 2018; Fisher & Skowron, 2017; Patterson, Forgatch, & DeGarmo, 2010). Notably, most research has been conducted in homogeneous high-income settings (Balantekin et al., 2020; Barlow et al., 2016), but evidence suggests that favourable effects on child outcomes can also be seen in low-income settings (Arlinghaus et al., 2018; Devlin, Wight, & Fenton, 2018; Loth, MacLehose, Fulkerson, Crow, & Neumark-Sztainer, 2013a; Yavuz & Selcuk, 2018). Literature integrating parenting into obesity research suggests that evidence-based parenting practices relate favourably to child eating and lower weight status (Chai et al., 2019; Collins, Duncanson, & Burrows, 2014; Rhee, Lumeng, Appugliese, Kaciroti, & Bradley, 2006; Rollins, Savage, Fisher, & Birch, 2016; Sleddens, Gerards, Thijs, de Vries, & Kremers, 2011; Tiberio et al., 2014). However, the effects of both mothers’ and fathers’ practices on child weight status, are rarely examined (Davison, Haines, Garcia, Douglas, & McBride, 2020; Lloyd, Lubans, Plotnikoff, & Morgan, 2014).

**Parental Feeding Practices**

Parental feeding practices aim to capture the specific goal-oriented strategies, which parents use when they feed their children (Birch et al., 2001; Musher Eizenman & Holub, 2007; Power et al., 2013; Savage et al., 2007). Parents may control the amount and/or type of foods available to their child, and/or prompt their child to eat (Bergmeier et al., 2017; Russell et al., 2018). These controlling feeding practices have been conceptualised as coercive forms of control, which direct what and how much the child eats without taking into account the child’s perspective, i.e. they are parent-centred approaches (Loth, Friend, Horning, Neumark-Sztainer, & Fulkerson, 2016; Vaughn et al., 2016; Wood et al., 2020).

Restriction of energy-dense foods and pressuring children to eat (the ‘clean plate’ rule) are the most extensively studied controlling feeding practices in relation to childhood obesity (Shloim, Edelson, Martin, & Hetherington, 2015; Vaughn et al., 2016). Controlling feeding practices may produce immediate effects that are in line with parental wishes (i.e. lower consumption of ‘unhealthy’ foods and ‘cleaning the plate’ during meals). However, since they are parent-centred, they interfere with the child’s self-regulation of food intake, in particular, when children find themselves outside of their parents’ sphere of influence (Bergmeier et al., 2020). For example, restricting palatable energy-dense foods has been shown to increase the preference for and intake of those foods when they are made available (Bergmeier, Skouteris, & Hetherington, 2015; Birch, Fisher, & Davison, 2003; Faith, Scanlon, Birch, Francis, & Sherry, 2004; Fisher & Birch, 1999; Jansen, Mulkens, & Jansen, 2007; Rodgers et al., 2013). By contrast, children who are pressured to eat according to parental perceptions of them ‘not eating enough’ may develop a long-term rejection of a varied and nutritionally adequate dietary pattern (Galloway, Fiorito, Lee, & Birch, 2005; Galloway, Fiorito, Francis, & Birch, 2006).

Cross-sectional studies are common in the field of food parenting; thus, there is no conclusive evidence on the directionality of effects between controlling feeding practices, child eating and child weight status (Wood et al., 2020). Bidirectional effects are the most plausible scenario, with child characteristics (i.e. child weight status and child eating) prompting controlling feeding practices, while feeding practices also affect the child (Afonso et al., 2016; Jansen, Williams, Mallan, Nicholson, & Daniels, 2018; Jansen et al., 2014; Mallan et al., 2018). Parental concerns about child weight status and eating (i.e. overeating or fussy eating) are suggested to elicit controlling feeding (Brown et al., 2016; Byrne, Jansen, & Daniels, 2017; Ek et al., 2016; Gregory, Paxton, & Brozovic, 2010; Harris, Jansen, Mallan, Daniels, & Thorpe, 2018; May et al., 2007; Webber, Hill, Cooke, Carnell, & Wardle, 2010). Nevertheless, it is important to acknowledge that controlling feeding practices may override child’s self-regulation of food intake among children who are already susceptible to excess weight gain (Anzman & Birch, 2009; Birch et al., 2003; Faith et al., 2004; Gubbels et al., 2011; Haszard, Russell, Byrne, Taylor, & Campbell, 2019).

While controlling feeding practices relate to coercion, structure-based approaches in feeding represent favourable practices (Frankel, Powell, & Jansen, 2018; Vaughn et al., 2016). For example, the concepts of overt and covert control distinguish between positive and negative aspects of control (Nowicka, Flodmark, Hales, & Faith, 2014; Ogden, Reynolds, & Smith, 2006). While the child perceives overt control in the form of restriction or pressure to eat, covert control relates to structuring the environment and modelling food intake to promote healthy eating (Rodenburg, Kremers, Oenema, & van de Mheen, 2014). However, the need to capture the differences between coercion and structure regarding feeding practices through refined measurement tools has only been voiced in recent years, and they are expected to guide future research on food parenting (Rollins et al., 2016; Savage, Rollins, Kugler, Birch, & Marini, 2017; Vaughn et al., 2016).

**Child Food Intake**

Child food intake is a determinant of energy imbalance and weight gain (Ambrosini et al., 2012; Dalrymple et al., 2020; Hohman, Paul, Birch, & Savage, 2017). In particular, EDNP foods (energy-dense nutrient poor foods), i.e. sugary drinks, sweets and processed foods, represent less healthy dietary patterns, which in addition to weight gain, carry health consequences (GBD 2017 Diet Collaborators, 2019; Wirfält, Drake, & Wallström, 2013). The intake of EDNP foods among young children follows through childhood, promoting excess weight gain over time (Ambrosini, Emmett, Northstone, & Jebb, 2014). Higher availability and accessibility of EDNP foods within the home environment (i.e. an obesogenic home environment) promote less healthy food intake (Schrempft, van Jaarsveld, Fisher, & Wardle, 2015). However, an obesogenic home environment may have a larger impact on excess weight gain among children who have a genetic predisposition, as was recently shown in the Gemini twin cohort (Schrempft et al., 2018). Thus, parents may influence their child’s weight status through monitoring the child’s food intake and making less EDNP foods available in the home (Davison, Jurkowski, & Lawson, 2013; Fildes et al., 2014; Montano, Smith, Dishion, Shaw, & Wilson, 2015). This may be facilitated by structuring the home environment accordingly, e.g. by not purchasing EDNP foods or through limit setting and routines around their consumption.

**Child eating behaviours**

Child eating behaviours describe a child’s appetite in terms of ‘self-regulation of eating’, i.e. children consume food according to their internal cues of hunger and satiety (Blundell et al., 2010). Overall states of hunger and satiety have been conceptualised as food approach and food avoidance behaviours (Carnell & Wardle, 2008a; Ek et al., 2016; Wood, Momin, Senn, & Hughes, 2018). While food avoidance behaviours represent a general state of responsiveness to satiety cues (absence of hunger), food approach behaviours describe eating in the absence of hunger and in response to external influences (such as emotions and food cues) (Wardle, Guthrie, Sanderson, & Rapoport, 2001). Food approach behaviours relate to higher energy intake, faster eating rate and eating in the absence of hunger (Carnell et al., 2016; Carnell & Wardle, 2008a; Fogel et al., 2018; Kling, Roe, Keller, & Rolls, 2016). By contrast, food avoidance behaviours manifest as slower eating rate and lower food intake (Carnell et al., 2016; Carnell & Wardle, 2008a; Syrad, Johnson, Wardle, & Llewellyn, 2016). Accordingly, food approach and food avoidance behaviours have been associated with higher and lower weight status, respectively, across multiple contexts (Behar et al., 2018; Cao et al., 2012; Carnell & Wardle, 2008b; Domoff, Miller, Kaciroti, & Lumeng, 2015; Ek et al., 2016; Purwaningrum et al., 2020; Quah et al., 2019; Sanchez, Weisstaub, Santos, Corvalan, & Uauy, 2016; Sleddens, Kremers, & Thijs, 2008; van Jaarsveld, Boniface, Llewellyn, & Wardle, 2014; Viana, Sinde, & Saxton, 2008).

Some eating behaviours are heritable traits, which may partly explain weight gain in childhood (Llewellyn, Trzaskowski, van Jaarsveld, Plomin, & Wardle, 2014; Llewellyn, van Jaarsveld, Johnson, Carnell, & Wardle, 2010). According to the behavioural susceptibility theory of obesity, genetic predisposition to obesity may operate through appetite traits, which make individuals more susceptible to overeating, especially in a ubiquitous obesogenic food environment (Llewellyn & Fildes, 2017; Carnell & Wardle, 2008b). Under these conditions, overeating and the subsequent weight gain describe an interaction between our genetic makeup and the environment in which we are raised (Schrempft et al., 2018). As an exception, emotional eating, i.e. eating more or less under powerful emotional states, is learned behaviour (Herle, Fildes, Steinsbekk, Rijsdijk, & Llewellyn, 2017). In any case, the early home environment, which comprises parental feeding practices, determines the conditions for weight gain among susceptible children, and may further influence eating behaviours (Bjørklund, Wichstrøm, Llewellyn, & Steinsbekk, 2019; Jansen et al., 2018; Kininmonth, Smith, Llewellyn, & Fildes, 2020; Llewellyn & Fildes, 2017; Moller, de Hoog, van Eijsden, Gemke, & Vrijkotte, 2013; Steinsbekk, Belsky, & Wichstrom, 2016).

Most parents are sensitive to their child’s cues for eating and adopt strategies to influence their child’s food intake (Byrne et al., 2017; Fildes, van Jaarsveld, Llewellyn, Wardle, & Fisher, 2015; Harris et al., 2018). Among the widely studied child eating behaviours, which parents acknowledge and act upon (Jansen et al., 2012), are food responsiveness (responsiveness to sight/smell of food) and food fussiness (picky eating and food neophobia) (Gibson & Cooke, 2017; Kral et al., 2018). Regardless of child weight status, these behaviours relate to a liking for energy-dense foods (food responsiveness) and rejection of nutrient-dense foods, typically vegetables (food fussiness) (Fildes et al., 2015; Russell & Worsley, 2016). Moreover, child temperament, i.e. traits of behavioural patterns unique to the child, has been implicated in the complex interrelationships between food parenting and child eating behaviours (Anzman-Frasca, Stifter, & Birch, 2012; Holley, Haycraft, & Farrow, 2020; Steinsbekk, Bjørklund, Llewellyn, & Wichstrøm, 2020).

**Parental Roles during a Child’s Development**

Parenting influences the development of overweight and obesity in various ways at different stages of a child’s development. The following discussion is structured around three time periods in children’s lives: gestation and early infancy; early childhood, when children are toddlers or preschoolers; and middle childhood and adolescence, when children are attending school.

**Gestation and Infancy**

Before an infant is even born, aspects of his mother’s pregnancy can put him at risk of overweight in childhood and later in life. An unfavorable intrauterine environment, for example, can increase a fetus’s future risk of developing adult metabolic abnormalities, including obesity, hypertension, and noninsulin-dependent diabetes mellitus. The children of mothers who suffer from diabetes mellitus, gestational diabetes, and undernutrition and overnutrition during pregnancy are at particular risk for obesity, with the greatest risk factor being gestational diabetes. A key strategy for obesity prevention at this stage of a child’s development, therefore, is to focus on screening for and preventing diabetes during pregnancy.

Parents also have an important role to play during infancy, when a child is establishing the foundation for dietary habits and nutritional adequacy over a lifetime. Although debate over whether breast-feeding can help prevent obesity later in life continues, many researchers believe that breast-feeding infants does have a protective effect against obesity. Several studies, for example, have documented lower rates of overweight among children who were breast-fed for longer durations. Their findings, however, were limited to non-Hispanic whites and did not apply to other racial or ethnic groups. One explanation for the protective effect of breast-feeding is that it helps infants better regulate their food intake than does bottle-feeding. Encouraging an infant to empty a bottle and using formulas more concentrated in energy and nutrients than breast milk may make it more difficult for the baby to attend to his or her own normal feelings of satiety. If such experiences occur early in infancy and continue, an infant may not develop reliable control over food intake. None of the recent studies of breast-feeding, however, rules out the possibility that the protective effect of breast-feeding on obesity later in life may be due to confounding factors such as parental weight status or social and economic status.

**Parents and Healthful Food Behaviors**

Children come equipped with a biological set of taste predispositions: they like sweet and salty tastes and energy-dense foods, and they dislike bitter and sour tastes. But they develop most of their food habits through exposure and repeated experience. Research suggests that individual differences in the physiologic regulation of energy intake appear as early as the preschool years and that parents have enormous influence on these differences. Current data, although limited, suggest that the way parents feed their children contributes to individual differences in how well children can regulate their food intake and perhaps to the origins of energy imbalance. Especially in the early years of a child’s life, parents have a direct role in providing experiences that encourage the child’s control of food intake. Around preschool age, when children particularly dislike new foods, it is important for parents to model healthful eating habits and to offer a variety of healthful foods to their children. When parents provide early exposure to nutritious foods, even fruits and vegetables, children like and eat more of such foods. But parents should observe a clearly defined role in offering the foods to their children. As described by W. Dietz and L. Stern, parents “are responsible for offering a healthful variety of foods,” while children themselves “are responsible for deciding what and how much they want to eat from what they are offered.”

Although children are predisposed to respond to the energy content of foods in controlling their intake, they are also responsive to their parents’ control attempts. Research has shown that these attempts can refocus the child away from responsiveness to internal cues of hunger and satiety and toward such external factors as the presence of palatable foods. Parents who control or restrict what their young children eat may believe they are doing what is best for their child, but recent research challenges this assumption. Imposing stringent controls can increase preferences for high-fat, energy-dense foods, perhaps causing children’s normal internal cues to self-regulate hunger and satiety to become unbalanced.

Parents should also be aware of the social contexts in which foods are consumed. Studies have found that children develop preferences for foods offered in positive contexts and, conversely, are more likely to dislike foods offered in negative contexts. Offering healthful foods in positive contexts will encourage youngsters to enjoy and eat such foods.

Another important influence on the types of food young children consume is a household’s food choices. At an early age children will eat what their parents, especially their mothers, eat. And if parents overeat, their children may too. Thus the parents’ own eating behaviors may contribute to the development of overweight in their children. The types of food available and accessible in the home are also linked with the weight status of preschool children. Research suggests, for example, that increased consumption of sugar-sweetened drinks, like fruit juice, might raise the risk of overweight among preschool children. One study found that children aged two to five years who drank more than twelve ounces of fruit juice a day were more likely to be overweight than those who drank less. More recently, a study of two to three-year old children found that for those who are at risk for overweight, consuming sweet drinks as infrequently as once or twice daily increased their odds of becoming overweight. These findings are consistent with those of long-term studies and interventions focused on sugar-sweetened beverages among school-aged children, although some smaller long term studies in children found no significant link between fruit juice intake and overweight.  
**School-Aged Children and Youth**

National data indicate that 16 percent of children aged six to nineteen years are overweight. As children grow older and as they focus less on family and more on school, peers, and different media, parental influence wanes. As adolescents, children spend increasingly more time away from home, become more exposed to environments that encourage obesity, and have greater choices in their own diet and physical activities. When children make critical decisions about nutrition and physical activity on their own, parents’ roles become even more challenging. Nevertheless, parents and family members can still provide a healthful home nutrition and physical activity environment.

**Parents and Healthful Eating in School-Aged Children**

Parents can encourage healthful eating habits at home by increasing the number of family meals eaten together, making healthful foods available, and reducing the availability of sugar-sweetened beverages and sodas.

Studies show that eating dinner together as a family promotes healthful eating among children and adolescents by increasing their consumption of fruits, vegetables, and whole grains and reducing their consumption of fats and soft drinks. These same studies, however, show that families eat dinner together less often as children grow older. One study found that nine-year-old ate dinner with their family roughly half the time, while fourteen year old ate dinner with their families only a third of the time. It is crucial, therefore, that parents maintain family eating practices throughout adolescence.

As with preschool-aged children, the availability of foods at home is a major influence on older children’s diets. Studies have found that making fruits and vegetables available at home increases children’s consumption of these foods. And parents must not only provide healthful foods at home, but also eat these foods themselves.

Between 1965 and 1996, adolescents’ soft drink consumption increased 150 percent while their consumption of fruit drinks increased 89 percent. As with young children several studies indicate that sugar-sweetened beverages may play an important role in the childhood obesity epidemic. A long-term study of children that began when they were eleven and twelve years old found that their odds of becoming overweight increased 60 percent for each additional serving of sugar-sweetened drinks consumed daily.A second long-term study, this one beginning when children were nine to fourteen years old, linked consumption of sugar-added beverages with increased weight gains.In a randomized controlled trial in England, reducing consumption of carbonated beverages lowered the prevalence of overweight among sevento eleven-year-old. Such findings show how important it is for parents to limit their children’s consumption of these beverages at home. Now that many schools are making a commitment to soda-free hallways and cafeterias, parents can follow their lead and keep their homes free of sugar-sweetened beverages as well.

**PARENTAL CONTROL**

Generally, parents serve as role models to determine what, when, and how to eat based upon the surrounding food environment and cultural lifestyle [16]. Parent-child interactions during feedings impose some type of control on the child’s eating autonomy such as pressuring or restricting a child to and from certain foods [16]. Parental behaviors and influences used on feeding children include three main aspects: parenting style, home environment, and food availability [15]. Hypotheses based on these behaviors influencing children’s weight status have engendered both positive and negative outcomes. Some studies show that parents may impose stricter food limitations in order to prevent their child from excess weight gain, while other studies show the opposite effect of control causing the child to have the inability to regulate self-control of food intake leading to excess weight gain as seen in Table 1 [16,18,19].

Wardle et al. studied four common feeding styles seen in the development of childhood obesity: emotional feeding, instrumental feeding, prompting/encouragement to eat, and control over eating. Emotional feeding and instrumental feeding are seen to be associated with triggering eating cues in absence of hunger [17]. Excessive prompting and encouragement to eat are often associated with the parent’s belief of heavy babies being healthier, or by a parent’s enthusiasm to see the child eat certain foods. The last most common feeding type is control over eating, this includes restriction of certain foods which are believed to improve the child’s diet and reduce the possibility of excess weight gain. Wardle et al. compared two groups of parents: overweight/obese and normal/lean weight mothers and their feeding styles for their children. The only difference in feeding styles between the two groups that was observed was the obese mothers exerted significantly less control over their children’s food intake. The difference in control may have contributed to the difference in weights of children with obese parents versus normal weight parents [17].

Faith et al. divided their subjects between low-risk and high-risk families and investigated the feeding styles of monitoring, restriction, and pressure to eat on the childhood eating practices [20]. The results proved interesting and differed between the two groups. In the low-risk families, the feeding style of monitoring predicted a reduced BMI. However, in high-risk families, restriction of eating predicted higher BMI scores, while pressure to eat predicted reduced BMI scores. The increase and decrease of control as a general aspect did not have the same effect across either of the three feeding styles and in each of the separate risk groups [20].

Kleges et al. investigated the threat of parental influence on food selection in children and its association with obesity. The study centered on activities in which children were able to choose their own foods for lunch, ranging from low to high-nutritional level items [21]. The children were first able to choose any food items they wanted for lunch. For the second task, the children were asked to choose a new lunch in which they were told that their mother would inspect their food choices afterwards. For the last task, the mothers came in and were allowed to modify the lunches that their children themselves had selected. Between the first and second criteria, the children showed a drastic decrease in the amount of sugar content selected. However, when the mothers were able to adjust the food, they modified their child’s lunch to have an overall less amount of kilocalories, fewer calories from fat and less sodium content. There was no significant difference found between the foods chosen by the mothers of obese children versus the mothers of normal weight children [21].

Robinson et al. aimed to determine the direct relationship of the parent’s control of food intake with the child’s degree of overweight [19]. Parental control over children’s consumption of food was weakly inversely associated with the degree of overweight in girls, however no significant relationship was found in boys. The parents who reported greater control over the food intake of their child had daughters who were less overweight. Among the parents who were overweight, their control on their children’s food intake was significantly less when compared to the other normal weight parents [19].

The Johannsen et al. study on control of food intake had significant results between the fathers and daughters [22]. Daughters with fathers who were stricter on the control of food intake had a higher percent fat. These fathers also had more concern about their daughter’s weight. Contrary to their original hypothesis, the mothers’ control over the children’s eating was not significantly associated with the weight measures of either the daughters or the sons. The authors attributed this difference to the smaller sample size of fathers, however, their findings suggest that the fathers may play a role in the control of feeding practices [22].

**2.2 THEORETICAL FRAMEWORK**

**Trait theories (Lay’s Theory)**

People often think about obesity in the same way they think about other physical or psycho‐ logical traits: as a basic attribute that individuals possess to varying degrees. Dweck et al.have identified two opposing lay theories that characterize how people think and reason about a variety of traits, which are distinguished by the degree to which the trait is viewed as malleable [Mulder, C., Kain, J., Uauy, R., and Seidell, J.C. (2009). People who hold an “entity theory” of intelligence (also known as “fixed mindset”), for example, think about the intellect as something hard-wired and stable, while those who hold an “incremental theory” (also known as a “growth mindset”) believe their intellectual abilities can grow through effort and hard work. Holding one of these theories is associated with a great deal of downstream behavior and cognition. For instance, incremental theorists are more committed to their learning goals and are more persistent in the face of adversity than people who think their intellectual abilities are fixed. A recent study of dieters found that people who hold incremental theories of obesity adopt qualitatively different strategies for losing weight compared to those who hold an entity theory of obesity. Consistent with prior research, incremental theorists were much more open to changing their lifestyle to embrace a new diet, implement a novel exercise routine, or attend group meetings in the service of achieving their weight-loss goal.

**2.3 CHAPTER SUMMARY**

In this review the researcher has sampled the opinions and views of several authors and scholars on parental feeding pattern and child obesity. The works of scholars who conducted empirical studies have been reviewed also. The chapter has made clear the relevant literature.

**CHAPTER THREE**

**RESEARCH METHODOLOGY**

**3.1 AREA OF STUDY**

Ikenne is a Local Government Area in Ogun State, Nigeria. Its headquarters are in the town of Ikenne at 6°52′N 3°43′E. It has an area of 144 km2 and a population of 118,735 at the 2006 census. The postal code of the area is 121. (wikipedia.com).

**3.2 RESEARCH DESIGN**

Research designs are perceived to be an overall strategy adopted by the researcher whereby different components of the study are integrated in a logical manner to effectively address a research problem. In this study, the researcher employed the survey research design. This is due to the nature of the study whereby the opinion and views of people are sampled.

**3.3 POPULATION OF THE STUDY**

According to Udoyen (2019), a study population is a group of elements or individuals as the case may be, who share similar characteristics. These similar features can include location, gender, age, sex or specific interest. The emphasis on study population is that it constitute of individuals or elements that are homogeneous in description.

This study was carried out to examine the influence of parental feeding pattern on childhood obesity in Ilishan Remo and Irolu Remo communities of Ikemme Local Government Area in Ogun State. The respondents for study were made up of mothers of children between the age of 3-5 years. Hence mothers of children between the selected age range in the study area form the population of study.

**3.4 SAMPLE SIZE DETERMINATION**

A study sample is simply a systematic selected part of a population that infers its result on the population. In essence, it is that part of a whole that represents the whole and its members share characteristics in like similitude (Udoyen, 2019). In this study, the researcher adopted the simple random sampling (srs.) method to determine the sample size.

**3.5 SAMPLE SIZE SELECTION TECHNIQUE AND PROCEDURE**

To determine the sample size of this study, the researcher adopted the purposive sampling techniques. Thus purposively selected 50 participants, which are mothers with children from 3-5 years age range. This comprises of 25 mothers from each of the selected communities making a sum of 50 respondents as sample size of this study.

**3.6 SOURCES OF DATA COLLECTION**

The research instrument used in this study is the questionnaire. A 15 minutes survey containing 8 questions were administered to the enrolled participants. The questionnaire was divided into two sections, the first section enquired about the responses demographic or personal data while the second sections were in line with the study objectives, aimed at providing answers to the research questions.

**3.7 METHOD OF DATA ANALYSIS**

The responses were analyzed using the frequency tables, which provided answers to the research questions. While the hypothesis were tested using Pearson Correlation Statistical Tool SPSS v23.

**3.8 VALIDITY AND RELIABILITY OF THE STUDY**

The reliability and validity of the research instrument was determined. The Pearson Correlation Coefficient was used to determine the reliability of the instrument. A co-efficient value of 0.68 indicated that the research instrument was relatively reliable. According to (Taber, 2017) the range of a reasonable reliability is between 0.67 and 0.87.

**3.9 ETHICAL CONSIDERATION**

The study was approved by the Project Committee of the Department. Informed consent was obtained from all study participants before they were enrolled in the study. Permission was sought from the relevant authorities to carry out the study. Date to visit the place of study for questionnaire distribution was put in place in advance.

**CHAPTER FOUR**

**DATA PRESENTATION AND ANALYSIS**

1. **INTRODUCTION**

This chapter presents the analysis of data derived through the questionnaire and key informant interview administered on the respondents in the study area. The analysis and interpretation were derived from the findings of the study. The data analysis depicts the simple frequency and percentage of the respondents as well as interpretation of the information gathered. A total of fifty (50) questionnaires were administered to respondents which only thirty five (35) were returned and validated. This was due to irregular, incomplete and inappropriate responses to some questionnaire. For this study a total of 35 was validated for the analysis.

**4.2 DATA PRESENTATION**

The table below shows the summary of the survey. A sample of 50 was calculated for this study. A total of 35 responses were received and validated. For this study a total of 35 was used for the analysis.

**Table 4.1: Distribution of Questionnaire**

|  |  |  |
| --- | --- | --- |
| **Questionnaire** | **Frequency** | **Percentage** |
| Sample size | 50 | 100 |
| Received | 35 | 70 |
| Validated | 35 | 70 |

**Source: Field Survey, 2021**

**Table 4.2: Demographic data of respondents**

|  |  |  |
| --- | --- | --- |
| **Demographic information** | **Frequency** | **percent** |
| **Gender**  Male |  |  |
| 00 | 0% |
| Female | 35 | 100% |
| **Religion** |  |  |
| Christian | 28 | 79% |
| Muslim | 7 | 21% |
| Age |  |  |
| 20-30 | 06 | 18% |
| 31-40 | 21 | 59% |
| 41-50 | 08 | 23% |
| 51 above | 00 | 0% |
| **Marital Status** |  |  |
| Single | 00 | 0% |
| Married | 35 | 100% |
| Separated | 00 | 0% |
| Divorced | 00 | 0% |
| Widowed | 00 | 0% |

**Source: Field Survey, 2021**

**4.2 ANSWERING RESEARCH QUESTIONS**

**Question 1:** Is there any relationship between parental feeding pattern and childhood obesity? (This question answers research question one)

**Table 4.3:** Respondent on question 1

|  |  |  |
| --- | --- | --- |
| **Options** | **Frequency** | **Percentage** |
| Yes | 25 | 70 |
| No | 05 | 15 |
| Undecided | 05 | 15 |
| **Total** | **35** | **100** |

**Field Survey, 2021**

From the responses obtained as expressed in the table above, 70% of the respondents said yes, 15% of the respondents said no while the remaining 15% were undecided.

**Question 2:** Is there a relationship between childhood obesity and academic performance?

**Table 4.4:** Respondent on question 2

|  |  |  |
| --- | --- | --- |
| **Options** | **Frequency** | **Percentage** |
| Yes | 21 | 58 |
| No | 05 | 15 |
| Undecided | 09 | 27 |
| **Total** | **35** | **100** |

**Field Survey, 2021**

From the responses obtained as expressed in the table above, 58% of the respondents said yes, 15% of the respondents said no while the remaining 27% were undecided.

**Question 3:** What is the actual feeding pattern of parents who have obese children?

**Table 4.5:** Respondent on question 3

|  |  |  |
| --- | --- | --- |
| **Options** | **Frequency** | **Percentage** |
| 001 (don’t feed in the morning and afternoon but only feed at night) | 00 | 00 |
| 010 (don’t feed in the morning and at night but only feed in the afternoon) | 00 | 00 |
| 110 (feed only in the morning and afternoon but don’t feed at night) | 00 | 00 |
| 111 (Eats three square meal) | 31 | 86 |
| 101 (feed only in the morning and afternoon but don’t feed at night) | 04 | 14 |
| **Total** | **35** | **100** |

**Field Survey, 2021**

From the responses obtained as expressed in the table above, 86% of the respondents said 111, while the remaining 14% of the respondents said 101. there was no record for 110, 010 and 001

**Test Of Hypothesis**

**Hypothesis 1**

H0: There is no significant relationship between parental feeding pattern and childhood obesity.

**Hypothesis 2**

H0: There is no significant relationship between childhood obesity and academic performance.

**Decision Rule:**

In taking decision for “r”, the following riles shall be observed;

1. If the value of “r” tabulated is greater than “r” calculated, accept the alternative hypothesis (H1) and reject the null hypothesis (H0).
2. If the “r” calculated is greater than the “r” tabulated, accept the null hypothesis (H0) while the alternative hypothesis is rejected

**HYPOTHESIS ONE**

**There is no significant relationship between parental feeding pattern and childhood obesity**

**Table 6: Pearson Correlation Table showing the relationship between parental feeding pattern (PFP) and childhood obesity (CO)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | | PFP | CO |
| PFP | Pearson Correlation | 1 | .821\*\* |
|  | Sig. (2-tailed) |  | .000 |
|  | N | 35 | 35 |
| CO | Pearson Correlation | .821\*\* | 1 |
|  | Sig. (2-tailed) | .000 |  |
|  | N | 35 | 35 |

Source: Survey data, 2021

\*\*. Correlation is significant at the 0.01 level (2-tailed)

The Pearson Correlation result in table 6 contains the degree of association between PFP and CO. From the result, the Pearson correlation coefficient, r, value of 0.821 was positive and statistically significant at (p< 0.000). This indicates that parental feeding pattern (PFP) will determine childhood obesity (CO).

Thus, PFP and CO are correlated positively.

**HYPOTHESIS TWO**

**There is no significant relationship between childhood obesity and academic performance.**

**Table 6: Pearson Correlation Table showing the relationship between childhood obesity (CO) and academic performance (AP)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | | CO | AP |
| CO | Pearson Correlation | 1 | .892\*\* |
|  | Sig. (2-tailed) |  | .000 |
|  | N | 35 | 35 |
| AP | Pearson Correlation | .892\*\* | 1 |
|  | Sig. (2-tailed) | .000 |  |
|  | N | 35 | 35 |

Source: Survey data, 2021

\*\*. Correlation is significant at the 0.01 level (2-tailed)

The Pearson Correlation result in table 6 contains the degree of association between CO and AP. From the result, the Pearson correlation coefficient, r, value of 0.892 was positive and statistically significant at (p< 0.000). This indicates that childhood obesity affects academic performance.

Thus, CO and AP are correlated positively.

**CHAPTER FIVE**

**SUMMARY, CONCLUSIONS AND RECOMMENDATIONS:**

**5.1 Introduction**

This chapter summarizes the findings into the influence of parental feeding pattern on childhood obesity in Ilishan Remo and Irolu Remo communities of Ikemme Local Government Area in Ogun State. The chapter consists of summary of the study, conclusions, and recommendations.

**5.2 Summary of the Study**

In this study, our focus was to examine the influence of parental feeding pattern on childhood obesity in Ilishan Remo and Irolu Remo communities of Ikemme Local Government Area in Ogun State. The study specifically was aimed at determining the parental feeding pattern of the children with obesity; identify the perceived effect of the parental feeding. And assess the relationship between childhood obesity and academic performance.

The study adopted the survey research design and randomly enrolled participants in the study. A total of 35 responses were validated from the enrolled participants where all respondent are mothers of children between the age of 3-5 years in Ilishan Remo and Irolu Remo communities of Ikemme Local Government Area in Ogun State.

**5.3 Conclusions**

Based on the analyzed findings of this study, the researcher made the following conclusion.

1. There is a significant relationship between parental feeding pattern and childhood obesity.
2. There is a significant relationship between childhood obesity and academic performance.
3. The actual feeding pattern of parents who have obese children are; 111 I.e. eats three square meal and 101 (feed only in the morning and afternoon but don’t feed at night).
4. Parental feeding pattern will determine childhood obesity.

**5.4 RECOMMENDATIONS**

With respect to the findings of this study, the researcher advised that parents should watch the feeding pattern in other to reduce the chances of childhood obesity in their children. And more so parents should seek for the help of a nutritionist, who will educate them on the categories of foods to give children and how to regulate their meals so as to minimize the chances of Obesity occurrence.

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**APPENDIXE**

**QUESTIONNAIRE**

**PLEASE TICK [√] YOUR MOST PREFERRED CHOICE(S) IN A QUESTION.**

**SECTION A**

**PERSONAL INFORMATION**

**Gender**

Male [ ] Female [ ]

**Age**

20-30 [ ]

31-40 [ ]

41-50 [ ]

51 and above [ ]

**Educational level**

WAEC [ ]

BSC/HND [ ]

MSC/PGDE [ ]

PHD [ ]

Others……………………………………………….. (please indicate)

**Marital Status**

Single [ ]

Married [ ]

Separated [ ]

**SECTION B**

**Question 1:** Is there any relationship between parental feeding pattern and childhood obesity?

|  |  |
| --- | --- |
| **Options** | **Please Tick** |
| Yes |  |
| No |  |
| Undecided |  |

**Question 2:** Is there a relationship between childhood obesity and academic performance?

|  |  |
| --- | --- |
| **Options** | **Please Tick** |
| Yes |  |
| No |  |
| Undecided |  |

**Question 3:** What is the actual feeding pattern of parents who have obese children?

|  |  |
| --- | --- |
| **Options** | **Please Tick** |
| 001 (don’t feed in the morning and afternoon but only feed at night) |  |
| 010 (don’t feed in the morning and at night but only feed in the afternoon) |  |
| 110 (feed only in the morning and afternoon but don’t feed at night) |  |
| 111 (Eats three square meal) |  |
| 101 (feed only in the morning and afternoon but don’t feed at night) |  |