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The effectiveness of occupational therapy in preventing childhood obesity in the school setting

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The effectiveness of occupational therapy in preventing childhood obesity in the school setting

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CLINICAL SCENARIO:

Childhood obesity, one of the most current issues of health education today, poses short and long-term effects on health and wellness. According to the Center for Disease Control (CDC) (2011) the numbers have more than tripled in the past 30 years, with more than 1/3 of children and adolescents being overweight or obese. CDC defines overweight in children by a body mass index (BMI) at or above the 85th and lower than the 95th percentile and obesity is defined as a BMI at or above the 95th percentile. Risk factors such as cardiovascular disease, high cholesterol, high blood pressure, prediabetes, bone and joint problems, sleep apnea, and psychological problems such as stigmatization and poor self-esteem increase for children with obesity (Adolescent and School Health, 2011). This population is 70-80% more likely to become overweight or obese as adults which enhances the risk of an obesity-related diagnosis (Haboush, Phebus, Ashby, Zaikina-Montgomery, & Kindig, 2011). In addition to clinical conditions, obesity significantly impacts physical, social, emotional, and school domains (Riazie, Shakoor, Dundas, Eiser, & McKenzie, 2010). These struggles experienced as children may lead to decreased self-esteem, self-worth, and confidence. Further, these experiences put individuals at risk for increased anxiety and sadness as adults, which may lead to mental illness or elevated engagement in risky behaviors (Sanderson et al, 2011; Strauss, 2000). This condition is an epidemic and poses economic concerns as well. According to a study in 2009 published in Medical News Today, 147 billion dollars is spent annually on the healthcare cost of obesity (Paddock, 2009). Regardless of a child's ethnic background, economic circumstance, or environmental setting, obesity is of soaring concern.

Occupational therapists (OT) employed in the school system typically see children receiving special education services as directed by the Individuals with Disability Act (IDEA). School OTs caseloads consist of children who have been referred to special education by a parent or teacher, and then evaluated by an Individualized Education Plan (IEP) team, which includes an OT (Bober & Corbett, 2011). Goals include: academic and non-academic outcomes in social skills, math, reading, writing, recess play, self-help skills, participation in meaningful activities, and transitions (Bober & Corbett, 2011). Interventions commonly focus on handwriting, sensory-awareness/processing, gross/fine motor skills, and perceptual abilities (Barnes, Beck, Vogel, Grice, & Murphy, 2003). Although it is not written in the scope of OT practice to create prevention programs, specifically obesity in the school setting, OTs have the skills, imaginative tools, program development training, and holistic viewpoints of individuals to do so. As mentioned in the newest OT Obesity Position Paper, OTs voluminous areas of skills contribute to the practice of obesity through prevention and intervention techniques including diet and nutrition, exercise, behaviour modification and lifestyle changes (Clark, Reingold, Salles-Jordan, 2011). The purpose of this critically appraised topic is to determine the potential effectiveness that occupational therapy could have in preventing childhood obesity, particularly in the school setting.

FOCUSED CLINICAL QUESTION:

What is the effectiveness of occupational therapy on children with obesity in the school setting?

SUMMARY of Search, 'Best' Evidence' appraised, and Key Findings:

A total of 6 research articles were analysed with information regarding childhood obesity in multiple settings, quality of life, risk of mental health in adulthood as a child with obesity, and the role of OT working with a population of children with obesity (specifically in the school setting). The following indicate the key findings from each paper:

- The qualitative and quantitative study by Munguba, Valdez, M.T., & Bruno Da Silva (2008) was chosen as the 'best evidence' because it highlights an OT intervention program for prevention of obesity within the school system. The study concluded that OT applying 'play' activities can be effective in a nutritional education program during the age in which children are gaining more autonomy in choosing food selection (8-10yrs).
- Pinhas-Hamiel, Singer, Pilpel, Fradkin, Modan, & Reichman (2006) found that most severely obese children/adolescents scored significantly lower in the emotional and school domains on the PedsQL questionnaire. Parents of obese children/adolescents scored significantly lower than their child in all categories (emotional, school, social, physical).
- Riazie, Shakoob, Dundas, Eiser, & McKenzie (2010) found no difference between ethnic backgrounds and obesity, but results simulated those by Pinhas-Hamiel, Singer, Pilpel, Fradkin, Modan, & Reichman (2006) in that children/adolescents with obesity scored lower than normal weight children in all domains of the PedsQL. Also, prepubescent obese children/adolescents achieved the poorest scores in the emotional domain.
- In a longitudinal birth cohort study, Emerson (2009) found that by age 3, children with developmental delay are more likely to be obese than their peers and the risk of obesity associated with developmental delay increased between 3-5 years of age. Therefore, there is a greater risk for obesity in children at risk for intellectual disabilities.
- A national survey conducted by Barnes, Beck, Vogel, Grice, & Murphy (2003) concluded that OTs are interested in a provision for children with emotional disturbances, but many do not feel competent working with that particular population. Obstacles stated for treating this population included: role confusion, limited knowledge base, lack of support from team, administrative factors, finding time to meet with the team, classroom issues and difficulties with parents.
- Sanderson, Patton, George C., McKercher, Charlotte, Dwyer, Terence, & Venn, Alison J. (2011) concluded that there is a correlation between being overweight in childhood and being at risk of a mood disorder in adulthood. In addition, women with obesity had a significantly higher prevalence of mood and anxiety disorders in adulthood than men.

CLINICAL BOTTOM LINE:

Children with obesity are at risk of feeling anguish from physical taunting and social stigmatization which may result in educational deficits and emotional uncertainties. This increases the risk for severe clinical, psychosocial, and mental illness in his/her future. In addition, these diagnoses result in millions of dollars in health expenses. Research shows that children as young as 3 years old may be at risk for obesity. Further research found that the emotional domains of children with obesity during the age of increasing autonomy have significantly poorer self-scores than those of normal-weight. OTs have knowledge in psychosocial, physical, environmental, and spiritual factors that allow them to effectively treat this clientele. School is where most learning is structured, planned, and executed and seems to be the most ideal location for acquiring good eating and exercise habits, therefore preventing social isolation, and the risk of future mental and psychosocial issues. With team collaboration and more formal education for OTs working with children that may be suffering secondary factors of obesity (e.g. emotional disturbance) OTs have the potential to create programs for the schools, with the goal of creating healthy habits and routines through education, play, and peer interaction, and in turn, benefit the occupational engagement of children.

Limitation of this CAT: This critically appraised topic has not been peer-reviewed and the author is not an expert in this area. The search is not exhaustive and has been conducted by a 2nd year MOT student as part of a class assignment.

SEARCH STRATEGY:**Terms used to guide Search Strategy:**

- **P**atient/Client Group: Children with obesity
- **I**ntervention (or Assessment): Occupational therapy
- **C**omparison: N/A
- **O**utcome(s): Quality of life for children with obesity; what effect does OT have in preventing obesity

Database	Search Terms	Limits used	Helpful Articles
CINAHL (September, 2011)	“occupational therapy” and “schools” Results- 59	Research article, 2000-2011	Barnes, Beck, Vogel, Grice, & Murphy, (2003), <i>American Journal of Occupational Therapy</i>
	“occupational therapy” and “schools” and “obesity” Results- 1	Research article, 2000- 2011	None helpful or appropriate
	“occupational therapy” and “schools” and “emotional disturbances” Results-1	Research article, 2000- 2011	1 repeat
	“obesity” and “children with disabilities”	Research	Emerson (2008), <i>Public Health</i>

<p>OVID (September, 2011)</p>	<p>Results- 16 “occupational therapy practice” and “obesity” Results- 14 “quality of life” and “obesity” and “child” and schools” Results- 5 “mental health” and “childhood obesity” Results- 34 “occupational therapy” and “obesity” and “child or adolescent” Results- 4 “occupational therapy” and “obesity Results-7</p>	<p>none</p>	<p>Mosely, Jedlicka, Lequieu, Taylor (2008), <i>OT Practice</i> Pinhas-Hamiel, Singer, Pilpel, Fradkin, Modan, Reichman (2006), <i>International Journal of Obesity</i> Riazie, Shakoor, Dundas, Eiser, McKenzie (2010), <i>Health & Quality of Life Outcomes</i> Sanderson, Patton, McKercher, Dwyer, Venn (2011), <i>The Royal Australian & New Zealand College of Psychiatrists</i> 1 repeat Munguba, Valdez, M.T., & Bruno Da Silv (2008), <i>Occupational Therapy International</i></p>
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INCLUSION and EXCLUSION CRITERIA

- Inclusion:
 - Childhood or adolescent obesity
 - Children with obesity and their quality of life
 - Mental health and obesity
 - Obesity prevention/interventions
 - OT role in school system
 - Year 2000-current
 - Research articles
- Exclusion:
 - Chronic secondary conditions
 - Adults with obesity as primary focus of study
 - Articles prior to 2000

RESULTS OF SEARCH

Table 1: Summary of Study Designs of Articles retrieved

Study Design/ Methodology of Articles Retrieved	Level-PYRAMID CHART	Author (Year)
Quasi-Experimental	II	Munguba, Valdez, & Bruno Da Silva (2008)
Cross-Sectional (2)	III	Pinhas-Hamiel, Singer, Pilpel, Fradkin, Modan, & Reichman (2006); Riazie, Shakoor, Dundas, Eiser, & McKenzie (2010).
Cohort (2)	III	Sanderson, Patton, McKercher, Dwyer & Venn (2011); Emerson (2008)
Semi-structured Interview, direct and structural observation, focus group	NA	Munguba, Valdez, & Bruno Da Silva (2008)
Survey	NA	(Barnes, Beck, Vogel, Grice, & Murphy, 2003)

BEST EVIDENCE

The following study/paper was selected for critical appraisal. Reasons for selecting this study were:

- Only occupational therapy intervention in the school system found during search
- Highlights the effects that OT can have on implementing a prevention program in the school system
- Qualitative and quantitative information included

SUMMARY OF BEST EVIDENCE

Table 2: Description and appraisal: The application of an occupational therapy nutrition education programme for children who are obese by Munguba, M.C., Valdez, M.T., & Bruno Da Silva, C.A., 2008.

Aim/Objective of the Study: The purpose of this study was to assess the impact of two interactive nutrition education games developed by occupational therapists on elementary students in a school setting. Behaviors, attitudes, and the amount and type of intermediation, the signs, tools, and languages within the subjects and their activities needed for learning, was observed during play and collected from the children during a focus group.

Study Design: The study design included both qualitative and quantitative data. Qualitative data was collected with triangulation through semi-structured interview and direct and structured observation of the children by team members during play, and through focus groups following the study to collect children's perception of learning

nutritional concepts. The trained observers developed categories of observation following the study. Quantitative data collected through a quasi-experimental design simply to compare the two types of interactive games, a board game versus a video game, both based on the food pyramid. The qualitative data was looking to explain the student's actual nutritional knowledge gained from participating in a game as well as their perception of what they learned and how they apply it in different areas of their lives. The quantitative data was used to compare the two games in varying categories (preference, attitudes, experience, intermediation, strategies used). The games were created with input by a team consisting of an OT, nutritionist, physician, and 23 undergraduate students in OT (12), nutrition (10), and social communication (1) all whom received education in learning strategies, intermediation, and nutrition education. The interprofessional group was chosen based on past research proposing that in school-based settings OTs interact with other professionals.

Setting:

The study took place in a public school in Fortaleza, Brazil in 2004.

Participants:

A convenient sample of 200 children comprised of 95 boys and 105 girls all ages 8-10 years old- the age children are typically gaining autonomy in food choices.

Intervention Investigated

Two interventions were used: an interactive board game and video game. Children partook in games weekly for 30min over a 4month period.

Video: This game encouraged children to organize a daily diet consisting of 6 healthy meals. Weight and height were entered at the beginning. As food appeared on the screen the child selected the specific diet for his/her meal and that selection was awarded a score based on the calories ingested. The child won if he/she built the correct diet according to his or her weight and height.

Board: This game also emphasized the construction of 6 daily meals and asked children to make decisions about the best form of establishing a healthy diet. Competition was stimulated between children and was aimed at obtaining the most suitable amount of calories (points). The child who formulated the best diet according to the food pyramid was declared the winner.

Outcome Measures

1. Comparison variables:

- a. Preference for game
- b. Experience with type of game
- c. Attitudes towards the game (winning, planning, competing, amusement)

2. Attitudes observed during the games:

a. Analysis of the learning strategies applied: Metacognition: distribution of these attitudes and behaviors noted:

- Analyses the strategies adopted & their effectiveness
- Discusses strategies
- Plans & establishes goals
- Attentive to verbal hints
- Uses the hints
- Assesses the results

b. Intrinsic motivation strategies: distribution of these attitudes and behaviors noted:

- Attentiveness to the challenges of game
- Tries new strategies after 'failing'
- Becomes irritated after 'failing'
- Shows happiness after 'succeeding'
- Becomes irritated when the session finishes

c. Attention strategies

3. *Analysis of the Intermediation used:*

- 1st: offering instructions, 2nd: demonstrating, 3rd: offering hints, 4th: performing the task jointly

4. *Comparison categories*

- a. Possibility of learning while playing
- b. Fantasy during the learning process
- c. Learning the concepts of nutritional education (Focus group)
- d. Intermediation needed (Focus group)

Main Findings:

The following outcome measures with significance are listed below in these adapted tables. Additional relevant findings, although not significant, are also mentioned.

Comparison Variables:

At the beginning of the study, the preference was the video game, likely due to the previous experiences and accessibility to technology versus board games. Following the 4weeks, children preferred the board game due to the competitiveness it offered between students.

	Board Game	Video Game
Preference (difference significant*)	6%	27%
Previous Experience	N/A	80.5% preferred video game
Attitudes triggered by games:	Competition*	Winning* Planning* Amusement*

Statistically significant (*) = <0.005

Table adapted from: Munguba, M., Valdez, M.T., & Bruno Da Silva, C. (2008). The application of and occupational therapy nutrition education programme for children who are obese. *Occupational Therapy International*, 15(1),6-70. doi: 10.1002/oti. (Original Table © 2008, Occupational Therapy International)

Significant attitudes observed during the games:

The therapists observed these attitudes most significantly through both of the games:

Metacognition strategy	Analyses the strategies adopted & their effectiveness, plans & establishes goals, assesses the results
Intrinsic Motivation strategy	'shows happiness after succeeding'
Attention Strategy	Level of attention high: video game (70.5%) & board game (63%)

Statistically significant (*) = <0.005

Table adapted from: Munguba, M., Valdez, M.T., & Bruno Da Silva, C. (2008). The application of an occupational therapy nutrition education programme for children who are obese. *Occupational Therapy International*, 15(1),6-70. doi: 10.1002/oti. (Original Table © 2008, Occupational Therapy International)

Analysis of the intermediation used:

Within the 4 levels of intermediation (1: offering instructions, 2: demonstrating, 3: offering hints, 4: performing the task jointly), the 1st and 3rd levels were observed most

frequently, with the 3rd level being significant in the board game, likely due to lesser prior experience with the board game.

	Board Game	Video Game
1 st level: offering instructions	41.5%	53.5%
3 rd level: offering hints	20.5%*	5%

Statistically significant (*) = <0.005

Table adapted from: Munguba, M., Valdez, M.T., & Bruno Da Silva, C. (2008). The application of an occupational therapy nutrition education programme for children who are obese. *Occupational Therapy International*, 15(1),6-70. doi: 10.1002/oti. (Original Table © 2008, Occupational Therapy International)

Comparison Categories:

-**Possibility of learning while playing:** 65% affirmed learning while playing
 -**Fantasy during the learning process:** children assumed the role of the character, talking in 1st person; e.g. "I haven't eaten any fruit today yet"

Focus Group:

-**Learning the concepts of nutritional education:** They mentioned learning to select foods, even with habits persisting: "*when I go to the grocery store, I still buy pastry, but I know that a banana is better.*" Also, they showed that they had learned to use the available foods: "*At the grocery store there's a little of everything and we can eat well with little money*". Food groups were expressed as a new learning as well: "*I learned that we have to eat a little of each kind of food.*"

-**The need for help in learning (intermediation):** help from both students and the therapist were accepted and even requested. The observer's recorded: "*It's so good to learn with our friends, to organize our diet!*", "*I don't know what to include in my lunch! Can you help me?*"

Original Authors' Conclusions

The author concluded that occupational therapists applying a play activity involving nutritional concepts can be an effective intervention. This type of play through interactive games developed by occupational therapists can promote nutritional learning for children who are obese. Additional research needs to be done in health education that emphasizes the autonomy of children in learning nutritional concepts through play, as well as focusing attention on the impact of family on learning nutrition.

Critical Appraisal/Validity:

This study was created to identify a strategy that would help children create healthy habits as a prevention of obesity. Both qualitative and quantitative data was used with a major focus on the qualitative data. A limitation of this study was that the sample size was chosen conveniently; therefore only 1 school setting was of focus, suggesting complications for generalizing results. In addition, the study did not include the body size of the subjects, making it unclear if they were normal weight or children with obesity. The majority of this study was qualitative and therefore, a theoretical framework should have been mentioned for each question. Replication of this study would be difficult for different evaluators because the criteria for formation of the categories after observation were not described in thorough. The study was approved by the Ethics Committee for Research in Human Beings of the Universidade de Fortaleza, but it was not mentioned if parental consent was obtained. No comments were mentioned about the study's rigour, but a wide array of data collection was obtained. A long-term effect of this intervention is difficult to predict, as a cohort study would be beneficial to see sustainability of the learning module through the sample's body weight over time.

Summary/Conclusion:

The invention of play activities developed by occupational therapists for the purpose of a learning activity has been shown through this research study as effective. In addition to results on the preference of game, observations and information from focus groups focused on behaviors and attitudes of intermediation, internal motivation, and social participation. According to Guimaraes and Bouruchovitch (as cited in Munguba, Valdez, M.T., & Bruno Da Silva, 2008) intrinsic motivation is an affective learning strategy related to involvement and motivation that enhances self-esteem, a key trait at this age. Autonomy and responsibility is also increasing and through playful learning strategies, generalizability of healthy habits into reality is possible. Occupational therapists can incorporate motivating, educational, fun, and skill developing activities to implement healthy habits and routines. In addition, they can educate other professionals on implementation of play activities for nutrition education for continuing results.

Characteristics of included studies**Study 1: Emerson (2008)**

Intervention Investigated: This longitudinal birth cohort study aimed to examine the relationship between obesity and child gender, family socio-economic circumstances and area deprivation for children at age 9mo (inclusion criteria- receiving child benefit), 3yrs., and 5yrs. with and without developmental delay in the UK.

Comparison Intervention: This design was a cohort study with pre and post- test over a period of time, therefore no intervention group was involved.

Outcomes used:

- Cognitive measures (<3% of weighted distribution of age-related norm data on 2 different tests were identified as developmentally delayed)
- Weight
- Height
- Material hardship at each wave (9mo, 3 yrs., 5 yrs.)
 - Wave 1: number of consumer durables not present in household
 - Wave 2/3: number of essentials from a list of 9 that were unaffordable
- Area deprivation

Findings: Findings were consistent with previous literature in that older children and adults with intellectual disabilities are significantly at a heightened risk for obesity compared with non-intellectually disabled children. The risk of obesity among children with developmental delay was particularly high among less severely delayed children, and children not exposed to material hardship. Inequalities in child obesity are potentially an important contributing factor to adult health, which emerge in early childhood.

Study 2: Pinhas-Hamiel, Singer, Pilpel, Fradkin, Modan, & Reichman (2006)

Intervention Investigated: Cross-sectional design in 2 settings- hospital vs. community. Study examined self report of health-related quality of life measures using the PedsQL by children (normal weight and obese) ages 7-16. A parent-proxy was given to evaluate their child and compared scores to their child.

Comparison Intervention: The study was a one-time survey study. Therefore, no comparison intervention group was involved.

Outcomes used:

- BMI calculated with measurements of height & weight
- Questionnaire consisted of 23 items in 4 domains: physical, emotional, social, and school

Findings: The study concluded that the physical domain had the greatest negative correlation with BMI, followed by social, school, & emotional. There were significantly lower scores in the obese quartile than the normal weight quartiles for emotional and school domains. Children with higher BMI scores had progressively decreased social and physical scores than those with lower BMI. Obese children in the hospital had lower QOL scores in all domains compared to the obese children in the community. Parents of obese children reported consistently lower QOL, whereas parents of normal weight children scored similar to their parents.

Study 3: Riazie, Shakoor, Dundas, Eiser, & McKenzie (2010)

Intervention Investigated: Cross-sectional study measuring Health Related Quality of Life (HRQoL) using the PedsQL questionnaire in a mixed-ethnic clinical sample of obese children and adolescents (ages 5-16yrs).

Comparison Intervention: The study was a one-time survey study. With the HRQoL results, comparison of obese and healthy controls, as well as obese according to pubertal status were examined.

Outcomes used: -BMI calculated with measurements of height & weight
-Questionnaire consisted of 23 items in 4 domains: Physical, emotional, social, and school
-pubertal status

Findings: This study concluded that mixed-ethnic samples of children and adolescents with obesity report a significantly lower HRQoL scores than controls of normal weight. In addition, this study demonstrated that pre-pubescent obese children report poorest in emotional functioning.

Study 4: Sanderson, Patton, McKercher, Dwyer & Venn (2011)

Intervention Investigated: The purpose of this cohort study was to examine the association between overweight and obesity in childhood (7-15) with mood, anxiety, and substance use disorders 20 years later in young adulthood (26-36)

Comparison Intervention: This design was a cohort study with pre and post- test over a period of time, therefore no intervention group was involved.

Outcomes used:

Childhood measurements:

- Height
- Weight
- Age, socio- economic status, feelings of loneliness, depression, boredom, upset due to criticism, alcohol intake, general health status with a single item, and number of minutes of physical activity in past week

Adult measurements:

- Mood disorder, anxiety, and substance use disorder
- Marital status, educational attainment, employment status, current daily smoker versus not, any live birth in women versus non, physical health component summary scale, total minutes in the past 7 days engaged in leisure, occupational, commuting, and household/yard activity

Findings: This study concluded that adjusted for age and sex, overweight children were at a significantly greater risk for a mood disorder in adulthood than non-overweight children. When not adjusted for sex, women were found to be at greater risk for mood disorder when taking into account adult weight, concluding that resolution of childhood overweight may be especially important to girls. It is important to reduce the prevalence of childhood overweight & obesity and to promote mental

health and create prevention programs among overweight & obese children and adolescents.

Study 5: Barnes, Beck, Vogel, Grice, & Murphy (2003)

Intervention Investigated: The purpose of this qualitative study was to collect survey data from OT's working in the public school system on services provided to children with emotional disturbances, as well as the perceived appropriateness, extent, and types of services provided.

Comparison Intervention: A survey was sent across the nation to randomly selected school OT's derived from the AOTA School System Special Interest list. Therefore, no intervention took place.

Outcomes used:

- Questions pertaining to work location and percentage of students with a diagnosis of emotional disturbance on caseloads
- Performance areas & components addressed & treatment approaches used
- Views of school OT for children with emotional disturbances
- Views about educational preparation
- Obstacles to school occupational therapy for children with emotional disturbances

Findings: This study concluded that OT's in the school system could provide services to students with emotional disturbances. Some OT's responded that OT should work directly with psychosocial components of this disability whereas others thought OT should work with these students only if another performance deficit is apparent. Sensory intervention is the most common among responders. Further efforts in continuing education may enhance OT's ability to provide services for this population. Future research is needed to explore sensorimotor intervention with children with emotional disorders as well as EBP for psychosocial occupational therapy in school systems.

IMPLICATIONS FOR PRACTICE, EDUCATION and FUTURE RESEARCH

Childhood obesity is on the rise in America, and as healthcare professionals with holistic viewpoints and ability to create wellness programs, OTs have the skill set to develop interventions that could potentially reverse the childhood obesity epidemic. There is currently limited literature on interventions for prevention of obesity, however many articles were found with effective treatments for children currently with obesity (e.g. exercise, diet). Very limited research was found particularly concerning occupational therapy and childhood obesity prevention. However, literature was found concerning a community-based program for children with obesity. Kugel (2010), interested in the obesity epidemic, reported on the development of a 7-week healthy lifestyle program, created through the lens of the PEO model, at a Boys and Girls club with middle school girls. Feedback following the program was exceptionally positive and empowering, as stated from the girls (Kugel, 2010). Recommendations from this particular program could be implemented within the school, the ideal setting where learning is structured, planned, and executed on most days of the week and peers are involved. Using previous research and developing programs, OT students have the opportunity to implement and improve childhood obesity prevention programs through an IEP project. Furthermore, professionals can create a continuing education course focusing on the impact OT can have in preventing obesity.

Munguba et al (2008) found that through 'play' the students learned healthy eating habits, a key factor in preventing obesity. Limitations persisted within the study but highlighted that utilization of OT expertise and intervention approaches can be of high value in preventing obesity. However, one area of health and wellness was of focus

(nutrition) leaving many factors unaccounted for (behavior modification, exercise, etc.). These, in addition to nutrition, are areas within the OT domain. Surplus articles retrieved concluded a decrease in the quality of life in children with obesity and an increase in the risk for a mental health diagnoses as adults. This information is imperative for supporting the motive of creating a holistic prevention program. Evidence has proven a strong relationship between three highly focused areas of OT: occupation, health, and well-being (Hasselkuss, 2002). Evidence of possible outcomes of childhood obesity has been revealed, and OT has the ability to create motivating and occupation-based prevention interventions.

Implementing a wellness program in the school setting could benefit not only those at risk for obesity, but all students of normal weight and those at risk for psychosocial issues. Implications for this goal are large, because the role of OT in the school is limited to working with children who present with an IEP. In addition, OTs caseloads are high and pressures already exist for providing adequate care (Barnes et al, 2003). This, however, does not undermine the effects in which OT could have on creating programs within the school setting. Within IDEA regulations and through collaboration, communication, and consultation with teachers, administration, and other team members, OTs could use expertise and leadership to either create and implement an activity/program, promote healthy lifestyles, or indulge in research to enhance the rigor of OT's role in preventing obesity.

Finally, additional research needs to be completed on current childhood obesity programs as well as forthcoming school interventions to provide evidence-based OT practice in preventing childhood obesity, and therefore, secondary factors.

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