Abstract:

**Background**: The health risks of obesity are a forever growing concern for societies worldwide. While obesity is a widely researched topic for people within the general population, the writer found there is be a limited amount conducted within the intellectual disability population.

**Aim**: The purpose of the present literature review was to investigate obesity within the intellectual disability population.

**Method**: A literature review was conducted by searching databases such as CINAHL, The Allied and Complementary Medicine Database, PsycINFO, MEDLINE and PsycARTICLES. There was also a manual search of the Journal of Intellectual Disability Research and the Journal of Intellectual & Developmental Disability.

**Results**: Twelve studies met the writer’s criteria. Nine of these were quantitative and three qualitative. The four main themes that emerged from the literature were prevalence of obesity, implications of obesity on health, and implications of obesity on nurses’ attitudes and health promotion towards obesity.

**Conclusion**: Overall it is evident that obesity is a complication for people with intellectual disability and the nurses working within this area. Nurses who work with service-users that have an intellectual disability play a key role in the management of obesity and in the promotion of appropriate interventions due to the high level of obesity found within the population.
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Introduction:

The purpose of a literature review is to provide the writer with the “current theoretical and scientific knowledge about a particular interest problem” (Burns & Grove, 2011). The aim of this literature review is to investigate obesity within the intellectual disability population. The World Health Organisation (2002) states that “obesity is a condition of abnormal or excessive fat accumulation in adipose tissue to the extent that the health may be impaired”. The Department of Health and Children (2005) suggest that the prevalence of obesity with the general population had risen dramatically within the past twenty years and has become a major public health problem in Irish society. In 2010 the department of Health and Children reported that from 1998 to 2007 there was a 33.3% increase in the level of obesity in males and a 30% increase of the same in woman, all of whom were 18 years plus. It is evident that obesity is a health risk for the general population and therefore it could be assumed that it is also a factor for people with intellectual disability. According to the World Health Organisation (2000) within the intellectual disability population “obesity and cholesterol levels are generally higher than for the general population”. For this reason the writer has chosen to discuss obesity within intellectual disability.

A search of the literature was conducted using the following databases: CINAHL, The Allied and Complementary Medicine Database, PsycINFO, MEDLINE and PsycARTICLES. Combination of the following key words and phrases were inputted into the databases: obesity, implications of obesity, intellectual disability/learning disability, health promotion, nurses’ attitudes nursing care and nursing interventions. Within the search of databases many of the journals were over ten years old. A manual search of journals included the Journal of Intellectual Disability Research and the Journal of Intellectual & Developmental Disability, was used to obtain more recent research. A total of 28 research articles were retrieved, of these 12 were proven to be relevant to the writers chosen topic. Nine studies were found to be quantitative with the other three being qualitative. The four common themes that emerged from the literature are: prevalence of obesity, implications of obesity on health, and implications of obesity on nurses’ attitudes and health promotion towards obesity. The writer will discuss each theme individual.
Prevalence of Obesity within Intellectual Disability:

As already discussed obesity is a major health issue for Irish society and 32% of our population stating that they are concerned with becoming obese (Department of Health and Children, 2000 & 2004). However the aim of this theme is to identify the level of obesity affecting a margin of our society.

In a quantitative study, Allen et al (2008) identified the prevalence of obesity within a sample of people with intellectual disability carried out in Scotland. Semi-structured interviews with nurses based in primary care and targeted physical examinations of persons with intellectual disability were used to identify the prevalence of obesity. Body mass index (BMI) was calculated by dividing the individuals’ weight (kg) by their height squared ($m^2$). Obesity was categorised using the world health organisation expert committee, 1995 (see appendix one). The prevalence of obesity was then compared with data from the general population sourced from the Scottish Health Executive in 2003. The study suggests that there is a higher prevalence of obesity for people with intellectual disability when compared with the general population, with 39.3% of women with intellectual disability obese compared to 25.1% of women in the general population and for men the same was 5.1% higher within the intellectual disability population. There is also a suggestion that obesity is more prevalent in women with intellectual disability depending on their accommodation. Woman who live within the community were 2.4 times more likely to be obese according to the study.

Likewise in another quantitative study carried out in the United Kingdom (UK) by Bhaumik et al (2008) investigating the Body Mass Index of people with intellectual disability. The study used the Leicestershire Learning Disability Register. The register contains information about adults with intellectual disability, over the age of 19 years living in Leicester, Leicestershire and Ruthland. The information contained results of four-yearly health checks between the years 1987 and 1999. The prevalence study consisted of all adults who had a health check within two years of the 1 July 1998 and interviews within three years of the health checks. Anyone with missing information on age, sex, height, weight and accommodation were excluded from the study. B.M.I was calculated using the World Health Organisation Expert Committee, 1995 (see appendix one). Restrictions included only people over the age of 25 when being compared with the general population. BMI results of this population were then compared with the general population using a Health Survey conducted in 1998 by the Department of Health. Results of the study
suggest that there is a higher prevalence of obesity in woman (29%) than in males (15%) with intellectual disability. It also suggests that males with intellectual disability are more likely to be underweight (21%). Compared to the general population the study found that woman with intellectual disability were 9% more likely to be obese whereas male with intellectual disability were 5% less likely to be the same.

Further evidence to support the prevalence of obesity with the intellectual disability population is found in a quantitative study by Emerson (2005). However this study also identifies the level of exercise among the specific population. Emerson (2005) used audit-based reviews of supportive services. Information on participants was collected using the audit reviews. Information included height, weight and sex of each participant from which BMI was calculated. A Physical Activity Scale used by the Health Survey between 1993 and 1998 was used to identify the amount and level of physical activity engaged in by the participants. BMI for the study population was compared with the generic population, using the Health survey conducted in 2003. Overall the results suggest the level of obesity within the sample populations (27%) is higher than the generic population. Like Bhaumik et al (2008) study, the present study also found that men with intellectual disability are more likely to be underweight than the general population. However within this study, it is only evident in the 55-64 years age sample.

In summary the literature within these studies establishes the prevalence of obesity within the intellectual disability population. The studies highlight that people with intellectual disability endure obesity more than the general population. All three of the studies suggest that obesity is a greater problem for woman within the intellectual disability. However Bhaumik et al (2008) and Emerson (2005) studies argue that being underweight is a key issue in male health whereas Allen et al (2008) study contradicts this argument, as the study found a high prevalence of obesity in both men and woman in the sample population. Because of the high prevalence of obesity, it is a key issue to be addressed by services and nurses working with the population, this will be discussed in further themes.

**Implications of Obesity on Health:**

Levy et al (2009) examined the impact of obesity on the health statues of people with intellectual disability in a quantitative study in the United States. Date was collected from a community based specialty medical practice for people with intellectual disability using
administrative service records, medical records and developmental disabilities profile. Participants were required to have had a primary care visit between 1 July 2001 and 30 June 2005. Information obtained included height, weight, diagnosis of hypertension, diagnosis of hypercholesterolemia (high cholesterol), diagnosis of diabetes mellitus, smoking statues and if there was any use of psychotropic medication. BMI was calculated using the World Health Organisation expert committee (see appendix one). Results exhort a direct link between the level of obesity and the presents of any other health condition investigated within the study. Out of the 43% of people that were obese, 35.7% suffered hypercholesterolemia, 25.4% had hypertension, 19.3% displayed frequent behavioural problems and 7.1% had diabetes mellitus. However if people with intellectual disability were able to establish a comprehensive source of care they may not suffer from these chronic illness (Levy et al, 2009).

Similar finding to support Levy et al (2009) were also found in a quantitative study by Albertini et al (2008) to establish the effect of obesity on coronary heart disease in people with intellectual disabilities. Data on participants was collected over a four year period. Information upheld from medical records included height, weight, lab result containing cholesterol levels and fasting blood sugar level, also if there was a diagnosis of hypertension and diabetes. The findings suggest that there is a direct link between obesity and the prevalence of coronary heart disease, with 39% of the coronary risk factor being obese. Due to the high prevalence of obesity within this study, it suggests that people who are overweight or obese also suffer from health factors such as hypertension and diabetes.

Another study that further sustains both Levy et al (2009) and Albertini et al (2008) findings was conducted by Davidson et al (2002). A quantitative large cohort study was established to identify the health states of the aging intellectual disability population. Questionnaires that were directed to be completed by nursing staff were sent to community homes within the target area. Findings of the study showed that 55% of the sample group were obese with 50% participating in no physical exercise. Results also suggest that there is a higher prevalence of neurological, cardiovascular or gastrointestinal disease in people with higher BMIs. Similarly to Levy et al (2008), the present study upholds a link between behavioural and psychiatric with the prevalence of obesity.

In summary all three studies suggest an impact of obesity on the health states of people in the intellectual disability population. Both Levy et al (2009) and Davidson et al (2002) findings identify a direct link between BMI and major health conditions. However even
though Albertini et al (2008) study only investigated the impact of obesity on cardiovascular conditions; the findings did still suggest a link between obesity and poor general health. It important to note that there is little literature on the impacts of obesity and Davidson et al (2002) state that this may be due to the fact that “health practitioners may be accepting obesity as normal with in intellectual disability”.

Impact of Obesity on Nurses’ attitudes:

Brewins et al (2007) qualitative study investigated the clinical practise, beliefs and attitudes of nurses in primary care services towards people who are obese. A questionnaire survey was sent to four neighbouring primary care services in Northern England. Information obtained included basic personal information about staff, clinical practise, attitudes towards patients who are obese and obesity related practise. Finding showed that 88% of nurses felt obesity was not being underestimated and 58.5% of nurses felt that obesity lead to secondary complications for patients. However only 8.2% of the group believed that people who are obese are motivated to change. Nurses within the study do feel that weight management is part of their role (82.2%) and only a minority expressed feels of disgust when working for the specific population (4.3%). Similarly Brown & Thompson (2007) qualitative study explored nurses’ attitudes and belief towards obesity management. Participants had responded to a postal study completed in primary care settings in Northern England. Following response nurses were invited to participate in simple interviews. The study suggests that for nurses within a health care setting obesity is an extremely sensitive issue. All participants expressed some form of sensitivity when dealing with patients that are obese, with one nurses stating “I feeling a little bit uncomfortable about it” and they “find it quite difficult as I don’t want to offend anyone”. Similarly to Brewin et al (2007) the present study also found that nurses found achieving change for obese patients difficult. However Brown & Thompson (2007) study found that nurse found this area sensitive to manage, with nurses stating that “You can’t ignore it but I think to have it as an issue every time they come in an issue”.

Further evidence to support Brewin et al (2007) and Brown & Thompson (2007) is found in Poon & Tarrant (2008) qualitative study. The study investigated both pre-registered and registered nurses’ attitudes towards obese persons and obese management. Self administered questionnaire were conducted with nurses in Hong Kong. Questionnaires consisted of three components, used to establish nurses’ attitudes. Finding showed that
overall nurses did not feel uncomfortable (52.6%), impatient (65.1%) or disgusted (70.6%) when caring for persons who were obese. Even thought the nurses did not feel obese patients any more demanding, 47.1% did express that they found carrying for obese patients physically exhausting.

In summary all literature discussed within the theme identifies that attitudes toward obesity does not affect the quality of care delivered to patients according to nurses. However Poon & Tarrent (2007) study highlight that nurses experience physical exhaustion when working with the specific group, suggest a higher burnout rate for nurses that work closely with patients that are obese. Brown & Thompson (2007) stated that nurses find dealing with obesity patients difficult as they feel it is a sensitive area and do not know how to approach the topic with patients.

**Health Promotion towards Obesity:**

The final theme which the writer will discuss is health promotion in relation to people who are obese and have an intellectual disability. In a two- part study conducted in Northern Ireland, Marshall et al (2003) investigated the impact of nurse-led screenings and health promotion activities for people within services run by the Health and Social Service Trust. The study was carried out within a clinic run by two registered nurses. Participants that were ten years plus attended health screenings carried out either in the clinic or within the special school, following a questionnaire aimed to gather information on their health history. BMI was calculated by dividing persons weight (kg) by height squared ($m^2$) and then categorised using the 1998 World Health Organisation Guidelines (see appendix two). Following the screening participants who had excessive weight were invited to participate in a six week weight reduction programme that had been adapted for people with intellectual disability. Within the sample group 36% were overweight, 12% obese and 32% very obese. Results of the study suggest that there was an overall reduction in weight within the group. The average BMI of participants fell from 33.5 to 31.9. The study suggests that pro- active interventions can be effective for people with intellectual disability.

Similarly in another quantitative study by Bradley (2005) investigating whether physical exercise and dietary advice had any effect on obesity levels within a group of people with learning disabilities. A questionnaire containing a combination of pictures and simple
questions was used to identify the baseline information of participants’ knowledge and food intake. A pictorial food diary sheet was given over a two week period to establish the dietary intake of the sample group. The sample group participated in 34 healthy eating sessions, each lasting a maximum of two hours between September 2003 and July 2004. Weight loss was recorded on weekly bases. Following the healthy eating sessions participants were invited to undergo a health assessment and fitness programme sponsored by Sandwell primary care trust in March 2004. The findings suggested that overall health promotion significantly decreases obesity within people with learning disabilities. There was a 3% decrease in the average BMI of the participants. There is also a suggestion of 88.8% increase of a healthier dietary intake of the group and an overall decrease in the amount of unhealthy snack items consumed by the group following the programme.

However Carmeli et al (2008) study exploring the physical training in adults with intellectual disability challenges both Marshall et al (2003) and Bradley (2005). This cohort study was both quantitative and qualitative. The non-random sample was created using two residential care settings in Israel. The study excluded anyone with Down syndrome due premature aging. Participants were evaluated prior to the programme on their BMI and perception of well-being using a directed interview with a simple questionnaire. BMI was calculated by dividing persons’ weight (kg) by height squared ($m^2$). Participants were then invited to carry out a physical training programme three times a week for a ten month period. There was also a control group whom did not participate in any new activities. Results suggest there was no significant decrease in the level of BMI over the ten month programme but no findings are given for this. However there was a positive change in the level of well-being perception, with an increase of 0.7% in the experimental group.

In summary two of the studies promote the uses of both physical interventions and health promotion methods to reduce the level of obesity for people within the study population. Carmeli et al (2008) contradicts the effectiveness of interventions on reducing obesity but does argue that these interventions play a major part in improve the quality of life for people with intellectual disability. It is important to note that Carmeli et al (2008) study was cohort study whereas Marshall et al (2003) and Bradley (2005) used large randomised samples.
Conclusion:

The aim of the literature review was to highlight obesity in people with intellectual disability. Twelve research articles were reviews under four major themes: prevalence of obesity within intellectual disability, implications of obesity on health, impact of obesity on nursing attitudes and health promotion for obesity.

Obesity is a key issue within intellectual disability for a number of reasons. The research within the literature review seems to suggest that the prevalence of obesity is extremely high in the intellectual disability population and findings show that the levels of obesity are higher within this population than the generic population.

Studies found obesity to greatly impact the general health of people with intellectual disability. Findings suggest that obesity however doesn’t just affect the physical but also the mental health of suffers. The nurses within the studies agree that obesity management is their responsibility but can find it a challenging task.

The literature also suggests that pro-active health promotion is best practice for reducing obesity within people with intellectual disability. However the findings within these studies do not suggest a high success rate.

In conducting this literature, some gaps became apparent. Many research on obesity it carried out in the United States or Great Britain with only one study being carried out in Northern Ireland. The writer was unable to find research in the Republic of Ireland which is found to be a gap within the literature. In relation to nurses’ attitudes toward obesity; research was only available in correlation with general trained nurses. The lack of research conducted with Intellectual disability nurses in relation to obesity’s impact of nursing attitudes and nursing care is a major gap within the research that may need to be address. Obesity is a complex condition impacting heavily on the quality of life of people suffering with the condition and required great care and attention in research.
Reference List:


• World Health Organisation (2002) Obesity in the Pacific: Two Big to Ignore

Appendix:

Appendix one:


<table>
<thead>
<tr>
<th>Classification</th>
<th>BMI(kg/m²)</th>
<th>Principal cut-off points</th>
<th>Additional cut-off points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>&lt;18.50</td>
<td>&lt;18.50</td>
<td></td>
</tr>
<tr>
<td>Severe thinness</td>
<td>&lt;16.00</td>
<td>&lt;16.00</td>
<td></td>
</tr>
<tr>
<td>Moderate thinness</td>
<td>16.00 - 16.99</td>
<td>16.00 - 16.99</td>
<td></td>
</tr>
<tr>
<td>Mild thinness</td>
<td>17.00 - 18.49</td>
<td>17.00 - 18.49</td>
<td></td>
</tr>
<tr>
<td>Overweight</td>
<td>≥25.00</td>
<td>≥25.00</td>
<td>≥25.00</td>
</tr>
<tr>
<td>Pre-obese</td>
<td>25.00 - 29.99</td>
<td>25.00 - 27.49</td>
<td>27.50 - 29.99</td>
</tr>
<tr>
<td>Obese</td>
<td>≥30.00</td>
<td>≥30.00</td>
<td>≥30.00</td>
</tr>
<tr>
<td>Obese class I</td>
<td>30.00 - 34.99</td>
<td>30.00 - 32.49</td>
<td>32.50 - 34.99</td>
</tr>
<tr>
<td>Obese class II</td>
<td>35.00 - 39.99</td>
<td>35.00 - 37.49</td>
<td>37.50 - 39.99</td>
</tr>
<tr>
<td>Obese class III</td>
<td>≥40.00</td>
<td>≥40.00</td>
<td></td>
</tr>
</tbody>
</table>

Appendix two:

World Health Organisation Guidelines, 1998

Classification BMI according to WHO

<table>
<thead>
<tr>
<th>Classification</th>
<th>BMI</th>
<th>Risk of comorbidities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>&lt; 18.50</td>
<td>Low (but risk of other clinical problems increased)</td>
</tr>
<tr>
<td>Normal range</td>
<td>18.50-24.99</td>
<td>Average</td>
</tr>
<tr>
<td>Overweight</td>
<td>≥25.00</td>
<td>Increased</td>
</tr>
<tr>
<td>Preobese</td>
<td>25.00-29.99</td>
<td>Increased</td>
</tr>
<tr>
<td>Obese class I</td>
<td>30.00-34.99</td>
<td>Moderate</td>
</tr>
<tr>
<td>Obese class II</td>
<td>35.00-39.99</td>
<td>Severe</td>
</tr>
<tr>
<td>Obese class III</td>
<td>≥40.00</td>
<td>Very severe</td>
</tr>
</tbody>
</table>