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Occupational therapy and obesity: An integrative literature review

Authors

Kirsti Haracz[1], MSc(OT), BAppSc(OT), Lecturer

Professor Susan Ryan[1], PhD

Professor Michael Hazelton[2], PhD, MA, RN, FACMHN

Dr Carole James[1], PhD, MSc(OT), BSc(OT), DipCOT, Senior Lecturer

[1] School of Health Sciences, University of Newcastle, Callaghan, NSW Australia

[2]School of Nursing and Midwifery, University of Newcastle, Callaghan, NSW Australia

Corresponding Author

Kirsti Haracz

Lecturer, Occupational Therapy

School of Health Sciences

Hunter Building

University of Newcastle

Callaghan, N.S.W. 2308

Email: kirsti.haracz@newcastle.edu.au

Phone: 02 49216338

Fax: 02 49216984

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Abstract

Background/Aim Obesity is a significant public health concern globally. It is associated with poor physical health, mental health and subjective wellbeing and limitations on occupational participation. With its focus on the relationship between occupation, health and wellbeing, occupational therapy would appear to be well placed to address both the causes and consequences of obesity. The aim of this review is to explore the scope of the role and evidence base for occupational therapy practice this field.

Methods Searches were conducted of four online databases and nine occupational therapy journals. Articles were included if they were theoretical, quantitative or qualitative research, explicitly related to occupational therapy and obesity, published in peer reviewed journals, in English between 2002 and 2012. All research articles were critically reviewed and thematic analysis was conducted across all of the articles in the review.

Results Eight theoretical articles, 12 quantitative and two qualitative research studies were included. Only three were outcome studies. Thematic analysis identified four categories of focus of occupational therapy intervention; health promotion and prevention, increasing physical activity participation, modifying dietary intake and reducing the impact of obesity. Four categories of intervention strategies were also identified; assessment, modifying the environment, education and introducing and adapting occupations.

Conclusion and Significance The findings of this review suggest a comprehensive role for occupational therapy in addressing obesity. The paucity of outcome studies however mean that significantly more research is required to further define and provide a strong evidence base for occupational therapy practice in this emerging field.

Key words obesity, occupational therapy, review

Introduction

Obesity has been described as a global epidemic with the number of people affected worldwide doubling in the years between 1980 and 2008 (WHO, 2012). In Australia 25% of people over the age of 18 are obese, with another 37% overweight (ABS, 2010). Significant numbers of children are also affected, with 8% of Australian children between the ages of seven and fifteen obese and 17 % overweight (ABS, 2010). The World Health Authority (WHO) defines overweight and obesity as, 'abnormal or excessive fat accumulation that may impair health' (WHO, 2012). The global obesity epidemic is a significant public health concern with increased body mass index (BMI) identified as a risk factor for a range of physical and mental health issues.

Obesity is associated with poor physical health and is a major risk factor for several non-communicable diseases including diabetes, ischaemic heart disease and some cancers (Cameron et al., 2009; WHO, 2012). Obesity is also associated with poor mental health and lower perceived quality of life. Individuals with obesity have reported lower health related quality of life in studies both with adults (Cameron et al., 2012), and children and adolescents (Griffiths, Parsons, & Hill, 2010; Keating, Moodie, & Swinburn, 2011). Direct links have also been identified with low self-esteem (Griffiths, et al., 2010) and poor mental health (Morris, Koehn, Happell, Dwyer, & Moxham, 2010; Sanderson, Patton, McKercher, Dwyer, & Venn, 2011; S. L. Thomas, Hyde, Karunaratne, Herbert, & Komesaroff, 2008). The impact of BMI on health related quality of life and mental health may be, at least in part, attributable to the experience of stigma(Lillis, Levin, & Hayes, 2011). Of the 74 people with obesity interviewed by Thomas et al,(2008), almost all had experienced stigma and discrimination.

Stigma and discrimination, as well as barriers in the physical environment and their own physical capacity contribute to reduced occupational participation by people with obesity. Three types of stigma related to obesity have been described; direct, environmental (which includes such things as not being able to fit into seats), and indirect (Lewis et al., 2011). Experience of stigma and internalisation of stigmatising attitudes has been found to lead to avoidance of activities and situations in which stigma is anticipated, and not pursuing work and lifestyle goals (Lewis et al, 2011, Thomas et al, 2008). Population studies in both America and Australia have demonstrated an association between obesity and reduced functional capacity in older adults, independent of chronic conditions (Bannerman et al, 2002, Chen & Guo, 2008, Wee et al, 2011).

Australian Clinical Practice Guidelines for the Management of Overweight and Obesity (NHMRC, 2003), cite lifestyle change, specifically around food intake and physical activity, as being core to successful interventions for obesity. Occupational therapy focuses on the relationship between occupation, health and wellbeing, and would appear to be well placed to address both the factors contributing to, and the occupational effects of obesity. The American Occupational Therapy Association published a position paper about the role of occupational therapy in obesity in 2007 (AOTA, 2007). While this paper outlined a range of possibilities for occupational therapy intervention related to obesity, it is was only supported by two references about obesity from the occupational therapy literature. The purpose of this review is to explore the scope of the role and evidence base for occupational therapy practice in relation to obesity as represented in peer reviewed publications.

Methods

Design

An integrative literature review design was employed, based on the procedures described by Whittemore & Knafl (2005). Integrative literature reviews are a form of research that, 'reviews, critiques and synthesises representative literature on a topic in an integrated way'(Torraco, 2005, p. 356). Integrative reviews have been used previously in occupational therapy (Pettersson, Pettersson, & Frisk, 2012). They are an appropriate means of forming a holistic conceptualisation of the literature on new or emerging topics (Torraco, 2005). Integrative reviews have also been identified as useful for evidence based practice (Whittemore & Knafl, 2005).

Search strategy

Searches were conducted in four online databases, CINAHL, Medline, AMED and PsycInfo, using the search terms, "occupational therapy" and "obes*" or "*weight". Searches of the following occupational therapy journals were also conducted using the same search terms; American Journal of Occupational Therapy, Australian Occupational Therapy Journal, British Journal of Occupational Therapy, Canadian Journal of Occupational Therapy, Swedish Journal of Occupational Therapy, Occupational Therapy in Health Care, Occupational Therapy International, Occupational Therapy in Mental Health and Occupational Therapy Journal of Research.

Selection Criteria

Inclusion criteria included articles explicitly relating to occupational therapy practice and obesity. Integrative reviews are the broadest type of review methods allowing for the inclusion of empirical literature, as well as theoretical literature(Whittemore & Knafl, 2005). Accordingly, this review includes articles describing both qualitative and quantitative research as well as theoretical articles, including program descriptions or evaluations. Letters, conference abstracts and unpublished thesis were excluded. Only articles published in peer reviewed journals, in English, between 2002 and 2012 were included. The number of articles included and excluded at each stage of the selection process are illustrated in figure one.

Analysis

Critical Appraisal

Each of the research studies included in the review was critically appraised using the Mc Master University Guidelines and Appraisal Forms for Quantitative and Qualitative Research(Law et al., 1998a, 1998b). These tools were designed for use in evidence based practice in occupational therapy and have been used in other occupational therapy reviews (Alexandratos, Barnett, & Thomas, 2012; Barras, 2005; Y. Thomas, Gray, & McGinty, 2011) A scoring system has been applied to these forms for use in other occupational therapy literature reviews. (Alexandratos, et al., 2012; Barras, 2005; Y. Thomas, et al., 2011). However the authors of this study decided not to implement the scoring system due to the varied nature of the research articles included in the review and the finding that some types of articles would incur lower scores due to the nature of the study rather than because of lower quality. No studies were excluded based on methodological quality however quality was reported on in the findings and taken into consideration in the discussion and implications for practice.

Thematic Analysis

Inductive thematic analysis, following the procedures outlined by Braun and Clarke (2006), was conducted across all of the articles included in the review. Firstly all papers were reviewed and notes made of initial ideas. Initial coding involved ascribing codes to sections of text in the articles that described aspects of occupational therapy practice in relation to obesity. The text relating to each of the codes was compiled using a spread sheet. The codes were then reviewed and collated into themes. Themes were refined through a process of comparing them back to the codes and the original articles. Finally definitions and names for each of the themes were defined as was their relationship to each other.

Results

A total of 22 articles were included in the review, 12 quantitative or mixed method research articles, two qualitative research articles and eight theoretical articles. The majority of articles (15), focused on children and young people. Four articles were about people with mental illness, and four specifically about people who were obese. Two of the articles focused on the knowledge and attitudes of occupational therapists and finally there was one article about African American women. Three articles were represented in two of these groups as they were about children or young people who also either also had a mental illness or obesity.

Critical Appraisal

Quantitative Studies

The critical analysis of the 12 quantitative and mixed methods studies is summarised in Table 1. Only three of these studies evaluated outcomes of interventions. Two studies evaluated the effectiveness of the introduction of Nintendo Wii Fit on increasing physical activity participation. Bacon, Farnworth and Boyd (2012), introduced the Wii Fit to patients in a forensic mental health setting using group sessions as well as access in between these sessions. Jacobs et al (2011), provided the Wii Fit to university students for use in four weekly sessions. Both studies found some improvement in attitude to and engagement in physical activity. They were both however identified as pilot studies and had less than ten participants limiting the generalizability of their findings. The third outcome study evaluated the effectiveness of games in increasing knowledge and changing dietary habits in children who were obese (Munguba, Valdés, & Da Silva, 2008). While there was some evidence of increased knowledge this did not translate into behaviour change. The small sample size was also identified as a limitation. Other limitations common to all of the intervention studies included short time frames, use of convenience sampling and lack of established reliability and validity of data collection tools.

The majority of the papers in the quantitative analysis (eight) were cross sectional studies with a describing specific needs of identified population groups including children (McMullan, Chin, Froude, & Imms, 2012; Ziviani, Kopeshke, & Wadley, 2006; Ziviani, Poulsen, & Hansen, 2009; Ziviani et al., 2008), people with mental illness (Northey & Barnett, 2012), people with severe obesity, (M. Forhan, Law, Vrkljan, & Taylor, 2011), and African American women,(Blanchard, 2009) One was a validation study of an assessment tool, (Stanley, Boshoff, & Dollman, 2007). Many of these studies also had limitations related to their sampling, including small sample sizes, and decreased generalizability due to use of convenience sampling resulting in homogenous samples from discrete locations.

Qualitative Studies

The critical analysis of the qualitative studies is summarised in Table 2. Both of the articles included in the qualitative synthesis explored experiences of participation, identifying needs and strategies to support increased participation. Forhan, Law, Vrkljan & Taylor (2010), explored the participation in everyday occupations of people with extreme obesity while Ketteridge and Boshoff, (2008) explored the perceptions of adolescents regarding why they participated in physical activity. In both cases transferability of findings was limited due to characteristics of sampling and neither study identified reaching redundancy in data analysis.

Thematic Analysis

Two themes, each with four categories, emerged during thematic analysis (figure 2). The first theme was *the focus of occupational therapy intervention*, which had four categories, *health promotion and prevention, increasing physical activity participation, modifying dietary intake and reducing the impact of obesity*. The second theme was *occupational therapy intervention strategies*, which included the categories, *assessment, modifying the environment, education*, and *introducing and adapting occupations*.

Focus of Occupational Therapy Intervention

- Health promotion and prevention

The articles described interventions across the spectrum of prevention activities. The term 'health promotion', was primarily used in the articles about children and young people and in describing interventions at a primary level. The goal of intervention in these articles was generally increasing levels of physical activity. Some of these articles, suggested intervention at population level through influencing policy and public health agendas (Pont, Ziviani, Wadley, & Abbott, 2011; Poulsen & Ziviani, 2004), and urban design and transport planning (Ziviani, et al., 2006; Ziviani, et al., 2008). Others described occupational therapy intervention at a community level or in schools, (Cahill & Suarez-Balcazar, 2009; Dwyer, Baur, Higgs, & Hardy, 2009; Ziviani, Desha, Poulsen, & Whiteford, 2010; Ziviani, et al., 2009). Secondary prevention activities were also evident in the articles about children and young people (Munguba, et al., 2008), as well as those addressing the needs of people living with a severe mental illness (Bacon, et al., 2012; Knis-Matthews, Richard, Marquez, & Mevawala, 2005; Lloyd, Sullivan, Lucas, & King, 2003; Northey & Barnett, 2012). A tertiary prevention role, was also identified in working with adults who were severely obese, to support occupational balance (M. Forhan, et al., 2011; M. A. Forhan, et al., 2010) and to optimise motor adaptation in children with obesity (Gill, 2011).

- Increasing physical activity participation

Sixteen of the articles had a primary focus on increasing participation in physical activity in order to prevent obesity or achieve weight loss. The occupational therapy role in helping to increase participation in physical activity was generally framed in terms of the professions focus on the relationship between occupation and health the use of occupations to promote health and wellbeing (Ketteridge & Boshoff, 2008; Pont, et al., 2011). Similarly some authors also drew on the International Classification of Functioning and physical activity as a component of participation as described in this frame work (McMullan, et al., 2012; Northey & Barnett, 2012; Ziviani, et al., 2010). Others were more specific in framing physical activity in the context of leisure participation or recreation (Lloyd, et al., 2003; McMullan, et al., 2012).

An occupational therapy role was advocated at a population, or community level to help increase the physical activity level of children and young people (Ketteridge & Boshoff, 2008; McMullan, et al., 2012; Pont, et al., 2011; Poulsen & Ziviani, 2004; Stanley, et al., 2007; Ziviani, et al., 2010; Ziviani, et al., 2006). Interventions were also described which targeted the needs of groups identified at increased risk of obesity, such as children from low socio-economic and urban areas who may have decreased access to opportunities for participation (Cahill & Suarez-Balcazar, 2009; Knis-Matthews, et al., 2005; Ziviani, et al., 2008), university undergraduates who are identified as being prone to gaining weight (Jacobs, et al., 2011), and people living with severe mental illness who are at risk of obesity as a result of a range of factors including decreased physical activity contributed by illness and medication side effects, as well as reduced access (Lloyd, et al., 2003; Northey & Barnett, 2012) and those held in forensic settings for whom access is a significant issue (Bacon, et al., 2012).

- Modifying dietary intake

A less prevalent focus of intervention was changing dietary intake with the goal of preventing obesity or achieving weight loss. Only one of the articles had this as its primary focus. Munguba et al, (2008), described the outcomes of a nutrition education program for children affected by obesity. Diet was a consideration in broader lifestyle focused interventions described in four other articles for children (Cahill & Suarez-Balcazar, 2009; Ziviani, et al., 2010), people with mental illness (Lloyd, et al., 2003) and people affected by weight gain and obesity (Lloyd, et al., 2003).

- Reducing the impact on those who are obese

The final focus of intervention was on reducing the impact on those already affected by obesity. Forhan et al, (2010) and Blanchard (2009) advocate a role in enabling participation in the occupations of daily living for adults with obesity to reduce its impact on everyday living. More specifically, based on their finding that adults with extreme obesity are affected by occupational imbalance, Forhan et al, (2011), suggest occupational therapy interventions should aim to reduce the energy expenditure and increase the efficiency of time use in self-care and participation in work and leisure activities. Gill (2011), also identified a specific role in improving motor adaptation in the context of occupational performance to reduce injuries in children who were obese.

Occupational therapy intervention strategies

- Assessment

Assessment was only discussed in the context of interventions to prevent obesity among children, and specifically in relation to physical activity participation. Assessment of habitual levels of physical activity in order to identify children at risk of not meeting adequate levels of participation was advocated as a key role and responsibility of occupational therapists working with children (Dwyer, et al., 2009; Poulsen & Ziviani, 2004). A number of strategies and tools for assessing both patterns of participation and factors influencing participation were described. Dwyer et al (2009) advocated self-report, with reporting by parents for children under the age of nine or ten years. They also advocated the need to consider contextual factors such as parental attitudes, access to safe play areas, climactic conditions and socio-economic status. The SCOPE-IT model of time use was suggested by Poulsen & Ziviani (2004), while Stanley et al (2007) provided evidence for the validity of the Three Day Physical Activity Recall (3dPAR) with females aged 12-14. Both of these tools provide information not only on the amount of physical activity but the activity context and distribution throughout the day which assist in developing occupation focused interventions. An occupational

focus was also evident in the Childrens Assessment of Participation and Enjoyment (CAPE) and the Preferences for Activities of Children (PAC), (McMullan, et al., 2012) and the Model of Childrens Active Travel (M-CAT), (Pont, et al., 2011).

- Environmental modification

Modifying the environment was advocated in nine of the reviewed articles. In most cases the goal of environment modification was to increase physical activity participation. A number of the articles suggested a role for occupational therapists at a wider policy and population level to help modify environments through influencing healthy policy (Pont, et al., 2011; Poulsen & Ziviani, 2004) and to influence bodies responsible for urban design, transport and traffic planning, to increase accessibility of facilities for leisure time physical activity as well as active travel options. Access was also the target of some interventions which aimed to alter the social environment. Two of the articles described programs which aimed to increase access to community based facilities for leisure based physical activity by altering social environments in those organisations. Lloyd et al (2003) described reducing stigma and facilitating community integration of people with severe mental illness through, 'building partnerships' with a mainstream gym. Similarly Ziviani et al(2009) described 'scaffolding pathways to participation' in community based recreation activities for children with some of the strategies addressing the 'motivational climate' of organisations. Changing the social environment in schools and families was also a target for intervention addressing childhood obesity (Cahill & Suarez-Balcazar, 2009; Ziviani, et al., 2010).

- Education

Providing education for families or communities was suggested as a core prevention strategy. This was most frequently described in relation to combatting the rise in childhood obesity through increasing physical activity participation by children. This involved providing information to parents and community groups about the importance of children's physical activity participation facilitation of this(Cahill & Suarez-Balcazar, 2009; Dwyer, et al., 2009; Poulsen & Ziviani, 2004). Education was also identified as part of direct service provision by occupational therapists for client groups identified at risk of obesity, with the aim of changing behaviours. Munguba et al (2008) trialled nutritional education programs for children who were obese. Education about diet and exercise was part of a multifaceted fitness and lifestyle program for people with severe mental illness described by Lloyd et al (2003). Northey and Barnett(2012) also advocated education about physical activity for people with severe mental illness. Education of occupational therapists, and students about obesity was also described as important in two of the papers, (M. Forhan & Law, 2009; Vroman & Cote, 2011) who suggested that this was necessary to overcome stereotyped beliefs and prejudicial attitudes and ensure quality service provision.

- Introducing and adapting occupations

The final intervention strategy focused directly on occupation and involved either introducing new occupations, or modifying participation in existing occupations with the goal of preventing or reducing obesity. This strategy was most commonly discussed in relation to increasing physical activity participation. Many of the articles identified the importance of occupations aimed at increasing physical activity being enjoyable, and meaningful and therefore motivating to ensure regular and ongoing participation. To that end, two of the research articles described introducing a new occupation of playing Wii Fit, to forensic mental health patients (Bacon, et al., 2012), and university students(Jacobs, et al., 2011).

Discussion

The articles in this review suggest a clear health promotion role for occupational therapy in relation to obesity. Health promotion has long been recognised as an arena where occupational therapy can make a meaningful contribution and has been discussed in professional literature since the 1960's (Scriven & Atwal, 2004). Health promotion is generally recognised as encompassing activity at three levels, primary, secondary and tertiary (Scriven & Atwal, 2004). Earlier explorations of the literature regarding occupational therapy practice in health promotion suggested involvement primarily at the secondary level which focuses on changing health damaging habits in those at high risk or exhibiting some degree of ill health to prevent the development of chronic conditions, and tertiary level which is concerned with optimising the potential for healthy living in those with chronic conditions (Scriven & Atwal, 2004). Interventions at both secondary and tertiary level, which are consistent with traditional roles for occupational therapists' are both well represented in the articles reviewed. There is however a strong representation of interventions at a primary level which target the well population and aim to prevent ill health (Scriven & Atwal, 2004). This trend is generally in the articles about children and young people and is identified by the authors of some of the articles reviewed as consistent with changes in the profession generally (Ziviani, et al., 2009) and with children and young people specifically (Poulsen & Ziviani, 2004). The trend towards increased involvement of occupational therapists in primary health promotion activities is also reflected more recent studies exploring occupational therapy in health promotion, (Quick, Harman, Morgan, & Stagnitti, 2010). In addition to the increased attention to primary health promotion activities, the articles reviewed also described interventions that gave greater consideration to the five health promotion actions recommended in the Ottawa Charter (World Health Organisation, 1986). Previous studies have suggested that occupational therapy has tended to focus on the action of developing personal skills (Flannery & Barry, 2003; Quick, et al., 2010). In contrast, papers in this review also described activities consistent with three other of the five actions, building healthy public policy, creating supportive environments and strengthening community action.

Interventions described in this review primarily focused on increasing physical activity participation and, to a lesser extent modifying dietary intake which are identified as key to success in addressing obesity in the Australian clinical guidelines on obesity for both adults (National Health and Medical Research Council, 2003) and children (NHMRC, 2003). There was however strong evidence of an occupation focused approach and recognition of the need to consider the interaction between person, environment and occupation in supporting sustainable behaviour change. This occupation focussed approach to health promotion is argued for by Wilcock (1998, 2006), who has long been an advocate for occupational therapists contribution to health promotion. This is also reflected in the suggestion by Parnell and Wilding (2010, p. 346) that occupational therapy, 'apply an occupational perspective to many of the challenges that plague contemporary life', citing as an example the increasing incidence of obesity.

Limitations

Due to the small number of outcome studies included in the review much of the content of the discussion in each of the themes draws on discussion and recommendations for practice rather than study findings. Where outcomes of interventions are reported they should be interpreted with caution due to the small number of studies on which they are based and the limitations of these studies.

Conclusion

The papers examined in this review provide a framework for a comprehensive role for occupational therapy in addressing the challenges posed by the current obesity epidemic. Interventions are described which focus on the person, environment, and occupation. Occupational therapy intervention is described at all stages of prevention. As well as contributing to multidisciplinary strategies addressing diet and exercise, specific occupational therapy interventions which consider behaviour change in the context of a person's overall occupational participation are also identified. However, while the scope of the role identified is broad, and the potential contribution of occupational therapy exciting, the body of literature on which this picture is built is limited, both in size and in quality. The findings of this review must therefore be considered in this context and seen as indicators for further research rather than an evidence base for practice. There is considerable scope for development of occupational therapy in this emerging practice area.

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Fig 1. Modified PRISMA flowchart (Moher, Liberati, Tetzlaf, & Altman, 2009)

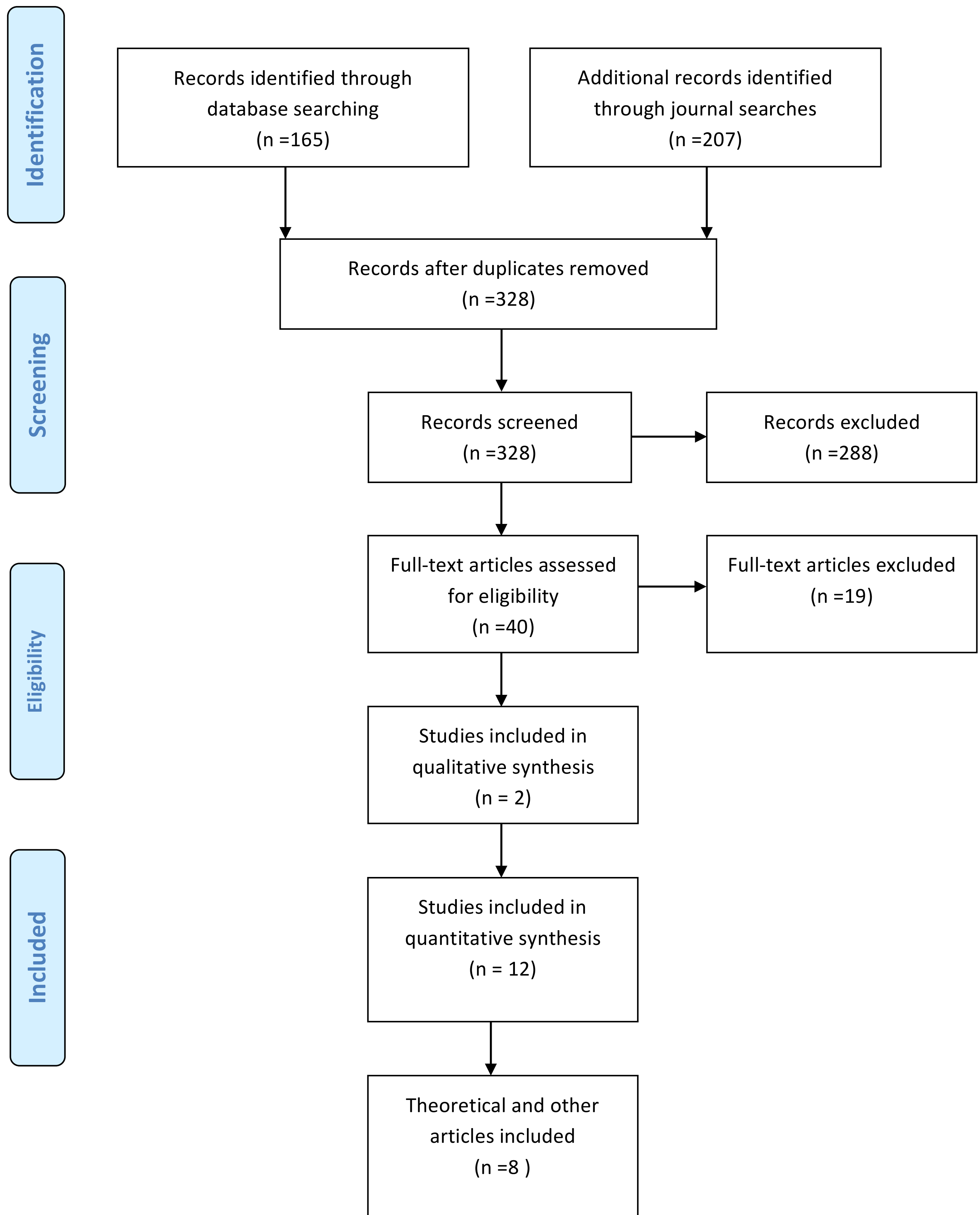

Figure 2