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The role of spousal support for dietary adherence among type 2 diabetes patients: a narrative review

Ariana M. Albanese, B.A.[1], **Jeff C. Huffman, M.D.**[1,2], **Christopher M. Celano, M.D.**[1,2], **Laura M. Malloy, LICSW**[3], **Deborah J. Wexler, M.D.**[1,4], **Melanie E. Freedman, B.S.**[1], and **Rachel A. Millstein, Ph.D., M.H.S.**[1,2]

[1]Department of Psychiatry, Massachusetts General Hospital, Boston, MA

[2]Harvard Medical School, Boston, MA

[3]Benson-Henry Institute for Mind-Body Medicine, Boston, MA

[4]MGH Diabetes Center, Department of Medicine, Massachusetts General Hospital, Boston, MA

Abstract

Healthy eating is key to successful management of type 2 diabetes (T2D). As discussed in this narrative review, there are strong indications that spousal support is an important element affecting dietary adherence in T2D. To provide a synthesized review of this evidence, Google Scholar and PubMed were searched, 28 relevant studies were selected, and the results were narratively summarized. A framework for information synthesis was developed which categorized results into three major themes: how gender roles and spousal dynamics function in spousal support for dietary adherence, the role of race and ethnicity in the influence of spousal support on dietary adherence, and the extant interventional work specifically targeting spousal support for T2D. The reviewed studies indicate that gender role performance is the principal factor in the relationship between spousal support and dietary adherence in T2D, though race and ethnicity also contribute. Despite this evidence, interventions that specifically target spousal support to improve dietary adherence in T2D have had limited efficacy. A better understanding of the relationship between spousal support and dietary adherence, as well as a subsequent utilization of this information to create targeted and effective interventions, would be of great benefit to the field of diabetes management.

Keywords

diabetes; type 2 diabetes; spousal support; health behavior; diet; social support; adherence

Introduction

Type 2 diabetes mellitus (T2D) is a highly prevalent chronic disease that is projected to become even more widespread. Diabetes affects 9.3% of Americans (Centers for Disease

Address for Correspondence: Jeff C. Huffman, MD, Massachusetts General Hospital, 55 Fruit Street/Wang 805D, Phone: (617) 724-2910 Fax: (617) 724-9155, jhuffman@partners.org.

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Control and Prevention, 2015), and the prevalence in the US is expected to continue to increase, with projections that it will rise to 13.9% in 2030, and 17.9% in 2060 (Lin et al., 2018). Pre-diabetes is also increasingly prevalent, with estimates of 84.1 million adult cases in the US in 2015 (Centers for Disease Control and Prevention, 2017). Globally, the prevalence of diabetes is estimated to increase from 425 million to 629 million affected individuals by 2045 (International Diabetes Federation, 2017). T2D accounts for up to 95% of cases in adults (Go et al., 2014), and if left untreated, T2D can lead to complications such as neuropathy, renal failure, and cardiovascular disease (Centers for Disease Control and Prevention, 2015). Importantly, patients with diabetes are recommended to follow a healthy eating plan, usually involving low-fat, low-carbohydrate and/or low-sugar foods (Centers for Disease Control and Prevention, 2018a), typically prescribed by a health care provider, diabetes educator, or nutritionist. Though adherence to a healthy diet that is low in carbohydrates and processed foods can be integral to disease management (American Diabetes Association, 2016), patients frequently report difficulty in following recommended dietary practices (Vijan et al., 2005).

Social support is an important factor in patient self-management in T2D (Gallant, 2003). Appropriate self-management activities are things that individual patients can do to delay or prevent complications associated with diabetes, and include physical activity, diet, checking and maintaining healthy blood glucose levels, and foot care (Centers for Disease Control and Prevention, 2018b). Spousal support, a term applied here to long-term partners as well as legal spouses, plays an especially important role in health behavior performance (Jackson, Steptoe, & Wardle, 2015). For example, social support can play an intermediate role between acquisition of health behavior knowledge and putting recommendations into practice (Savoca & Miller, 2001). Furthermore, support coming from spouses may have a specifically influential effect on diet, in both positive ways and, when effective support is lacking, negative ways (Savoca & Miller, 2001). Despite the potential importance of these connections, we are aware of no prior literature review focusing specifically on the effects of spousal social support on dietary adherence in T2D. While a recent systematic review and meta-analysis examined the relationship between social support and diabetes management generally—as well as potential mediating factors—it did not focus on spousal support or diet specifically, and it excluded qualitative research studies (Song, Nam, Park, Shin, & Ku, 2017).

Accordingly, in this article, we present a narrative review of both qualitative and quantitative studies that examine the role of spousal support for dietary adherence in T2D. In limiting our scope to spousal support specifically, and through including qualitative literature, we seek to provide a more nuanced discussion of patients' perceptions of the links between spousal support and dietary adherence that may capture information that was not found by Song and colleagues.

Our review focuses on three main topics. First, we discuss spousal interaction patterns and gender role dynamics (the behavior learned by an individual to be appropriate to their gender in accordance with cultural norms (Freeman, 1985) that impact adherence to dietary recommendations for individuals with diabetes. Second, we describe the influence of the demographic factors of race and ethnicity on the connection between spousal support and

dietary adherence. And third, we review the efficacy of existing interventions targeting spousal support for improved dietary adherence in T2D. We conclude with suggestions for future work in this area.

Methods

A literature search was conducted primarily using the databases Google Scholar and PubMed. Key terms used in the databases searched included the following: spousal, spouse, support, diabetes, diet, gender, and marriage. These terms were searched in combination utilizing the Boolean logic term "AND." These searches were conducted between July 2016 and October 2016. As the present review is the first to undertake this particular question, the timeframe for publication years reviewed was not limited. Additionally, given the heterogeneity of study designs adding to the knowledge base in this arena, all study types were included. The sample of articles reviewed was limited to those published in English. The availability of all studies was confirmed between July-October 2016. The complete list of studies reviewed is presented in Table 1.

A narrative review was utilized, as many of the studies collected were of a qualitative design, thus better suiting the body of research to a review style which allows for more description of the studies (Collins & Fauser, 2005; Mays, Pope, & Popay, 2005; Posthuma, Morgeson, & Campion, 2002). Further, the heterogeneity of: study designs (e.g., 50% of studies were qualitative in nature), outcome measures, and analytic techniques precluded the possibility of performing a meta-analysis.

Results

Ultimately, we narratively reviewed 28 studies. Thirteen were qualitative, twelve employed an observational survey design, two were intervention studies, and one was a combination of survey and qualitative. Results from relevant studies were categorized into three major emergent themes: the function of gender roles and spousal dynamics in spousal support for dietary adherence, the role of race and ethnicity in the influence of spousal support on dietary adherence, and interventions specifically targeting spousal support for T2D.

Gender roles, spousal dynamics, and dietary adherence in T2D

Gender roles.—One critical factor affecting the role of spousal support for dietary adherence is gender. There is much evidence to suggest that social support for diabetes self-management differs for men and women (Mathew, Gucciardi, De Melo, & Barata, 2012). For example, as expressed in focus groups as well as individual interviews, women report feeling less social support overall compared to men, yet endorse utilizing more socially oriented resources outside of their family such as support groups and educational classes (Mathew et al., 2012). Also, as also expressed in focus groups and individual interviews, men specifically cite their spouse as a primary source of social support for their diabetes management, while women cite a more diverse mix of other family members and friends as their sources of social support (Mathew et al., 2012). While, as supported by survey data, women appear more able to manage their diabetes independently compared to men (Rook, August, Stephens, & Franks, 2011), their attempts to seek support outside the home through

external relationships and groups, combined with persistent survey reports of dissatisfaction and distress (Undén et al., 2008), seem to indicate that the spousal relationship is not providing support for women with T2D the way that it does for men. Encapsulating this, one 22-year-long prospective study among men found that being unmarried, and particularly becoming a widower, was associated with an increased risk of developing T2D, perhaps due to unhealthy lifestyle changes, such as poor diet, after losing one's wife (Cornelis et al., 2014).

A substantial body of previous work indicates that traditional gender roles afford men with T2D an advantage in their dietary adherence specifically. In traditional marital roles, wives are expected to be responsible for procuring and preparing meals, and typically provide men with the healthy food they require (Wong, Gucciardi, Li, & Grace, 2005). Indicative of this, in one large ethnically diverse sample capturing survey data, married men were the demographic group most likely to be the recipient of attempts to regulate their health behaviors by members of their social network (August & Sorkin, 2010). Additionally, one recent study conducted interviews with diabetes patients and found that most of the men sampled relied on the support of others such as their spouse to manage their diet (Weaver, Lemonde, Payman, & Goodman, 2014). Another study featuring in-depth semi-structured interviews with T2D patients found that over half of the men had their food prepared by their wives and considered their wife integral to their diabetes management via preparation of healthy meals (Savoca & Miller, 2001). A focus group found similar results, with men endorsing a feeling of dependence on their female spouses to prepare their meals (Beverly, Miller, & Wray, 2008a). Not only are men's spouses a key source of support in eating, but also, data from focus groups and individual interviews support the notion that men's entire families frequently adjust their eating to match the new dietary needs of the men (Mathew et al., 2012). Consistent with this, other focus group data found that men with diabetes reported that their wives involved themselves in their care through dietary education and monitoring the men's eating (Koch, Kralik, & Taylor, 2000). Thus, traditional gender roles within a family seem to allow for increased support, and subsequent improved dietary adherence, for male diabetes patients from their wives. These findings reaffirm the literature stating that wives are a potentially high impact target for dietary interventions in men with T2D (Whittemore, Chase, Mandle, & Roy, 2002).

Conversely, prior work suggests that traditional gender roles do not promote dietary adherence for women with T2D, and in fact sometimes overtly undermine adherence. One focus group-based study found that women perceived a lack of support from their husbands (Beverly et al., 2008a). Furthermore, as uncovered through interview data, women are much more likely to be passively supported by their husbands with respect to diet, compared to husbands being more actively supported by their wives in general (Wong et al., 2005). Indeed, findings from focus groups and interviews in T2D patients have further asserted that women report less support with meal preparation and that women do not cite their spouses as sources of social support for their diabetes management in their lives with the same frequency that men do (Mathew et al., 2012).

For women with T2D, their role as meal provider to their family can also impede their own dietary management. For example, interview data revealed that in families with low spousal

support, the food preferences of other family members can gain preference over the dietary needs of a woman with T2D (Weaver et al., 2014). Similarly, survey data has found that women with T2D report less support from their family in their self-care, and more family-related barriers to their disease management (Piette et al., 2010). A study of semi-structured in-depth interviews with T2D patients found that over half of the women reported that they either prepared two meals (a meal for themselves and one for their spouse) or continued to accommodate their spouse preferentially in their food preparation (Savoca & Miller, 2001). Rather than families adjusting in support of the new dietary needs of a husband with diabetes, as men report, women often experience their spouse's diet preferences as a stable entity that can stand in the way of their own diabetes self-management.

Of note, expectations of support from one's spouse appear to vary by gender. These differences in expectations may play a major role in how attempts at spousal support can impact dietary adherence in T2D. For example, survey data has found that men often expect their spouse to be involved in their dietary management, and a shared expectation of involvement within a dyadic pair is associated with better dietary adherence for men (Seidel, Franks, Stephens, & Rook, 2012). In contrast, additional survey data has found that women often react negatively to their spouse's attempts to exert influence over their diabetes management particularly when their husband's action is unexpected (Rook et al., 2011). Simply put, what may be intended as support by the male partner may be perceived as unwanted attempts at control by the female partner. Therefore, in some cases, husbands may not purposely withhold support from their wives, but negative reactions to their unexpected attempts at support may function to reduce support extended from a husband to his wife over time.

Spousal Dynamics.—The spouse of a patient with T2D occupies a unique role in disease management. A recent systematic review of the interrelation between adults with T2D and their family found that one's partner had a significant effect on health behavior adherence (Rintala, Jaatinen, Paavilainen, & Astedt-Kurki, 2013). Similarly, in a large diverse sample of patients with T2D who were surveyed concerning health-related social control, married individuals most frequently reported their spouse as a source of social influence relevant to their health behaviors (August & Sorkin, 2010). As uncovered through focus groups, it seems that in positive scenarios, spouses can be instrumental to patient adherence to providers' recommendations, particularly given the opportunity a spouse has to provide encouragement and facilitate good diabetes self-management (Nagelkerk, Reick, & Meengs, 2006). Additionally, a study employing both interview and survey data found that while a positive or neutral impact seems to be most frequent, spouses also represent a potential threat to healthy eating, even sometimes undermining the dietary regimen of their spouse with T2D (Henry, Rook, Stephens, & Franks, 2013).

On the positive end of the scale, many spouses report motivation to help with diet management, and, in many cases, success in doing so. For example, one study employing qualitative interviews to examine significant others (e.g. spouses or long-term partners) of patients with diabetes found that significant others report concern for their partners' health and wanted to be involved in their diabetes management and care (Stodberg, Sunvisson, & Ahlstrom, 2007). Additionally, another studying employing interviews found that spouses

and long-term partners report playing a positive role in their partners' dietary regimen (Paisley, Beanlands, Goldman, Evers, & Chappell, 2008), and one final interview-based study found that all spouses sampled reported providing some sort of dietary support to their spouse with diabetes in the last month (Franks et al., 2012).

Both interview and survey-based literature suggests that spousal relationships promoting dietary adherence are those in which 1) the member of the couple with diabetes feels supported by their partner in disease management but retains self-efficacy over his or her own care (Beverly et al., 2008a), and 2) healthy diet maintenance is viewed as a shared responsibility between the members of the couple (Stephens et al., 2013). The distinction between encouragement and control is a critical one. Encouragement, marked by a gentle, positive approach in which the patient maintains self-efficacy over his or her disease management, appears to be well-received and effective, as positive spousal encouragement to exercise and eat healthy foods has been linked through survey data with increased dietary adherence (Stephens, Rook, Franks, Khan, & Iida, 2010). Additionally, positive actions like well-timed reminders to eat well appear to be effective for encouraging adherence. Also, in couples for whom the responsibility for T2D management is shared, there is a higher level of reported dietary adherence as gleaned from survey data (Stephens et al., 2013). Indeed, couples in which the patient with T2D feels cared for and understood by their partner are more likely to practice good diabetes self-management. One focus group-based study conceptualized the goal of spousal support for diet in T2D as working towards: 1) high self-efficacy of the patient in his or her dietary regimen, and 2) high spousal support (rather than control) (Beverly et al., 2008a). The evidence suggests that a high degree of knowledge of healthy dietary behaviors (Beverly et al., 2008a) combined with a team-oriented approach between the members of the couple offers the best chance for success (Beverly, Wray, & Miller, 2008b).

However, even with the best motivations and intentions, not all spousal interaction patterns function to promote dietary adherence. For example, controlling and negative spousal behaviors such as nagging, which remove self-efficacy from disease management, are viewed as non-helpful and non-supportive by diabetes patients as expressed in focus groups (Trief et al., 2003). Indeed, as gleaned from survey data, spousal utilization of the tactics of persuasion and applying pressure (Stephens et al., 2013), as well as issuing warnings related to food consumption (Stephens et al., 2010), have both been linked to poorer dietary adherence. T2D patients have reported in focus groups feeling resentful when their spouses attempt to control their diet, and this can even result in counterproductive reactions from patients such as hiding food out of sight from the spouse (Beverly et al., 2008a).

The impact of race and ethnicity in spousal support for dietary adherence

One key set of demographic factors affecting the role of spousal support in T2D dietary adherence is race and ethnicity, particularly as they are impacted by gender roles. These factors are especially important, as the prevalence of T2D in the US is higher in some racial and ethnic groups, such as non-Hispanic black (21.8%), Asian (20.6%), and Hispanic populations (22.6%) (Menke, Casagrande, Geiss, & Cowie, 2015). Additionally, a recent

systematic review of the role of families in diabetes care found that familial traditions and cultural norms and preferences influence eating behavior (Rintala et al., 2013).

East Asian Americans.—One demographic group in which spousal support for dietary adherence has been studied is East Asian Americans, particularly Korean Americans and Chinese Americans. For Korean American couples, survey data suggests that the dynamics of traditional gender role performance related to food preparation are particularly intensified, which is consistent with traditional Korean (American) gender roles, in which women serve as the primary caretakers for the other members of the family (Song et al., 2012). Specifically, men seem to garner a greater benefit from increased levels of support from their spouse, while women, placed in a role of caretaker for the family by traditional gender dynamics, report an unmet need for support. Illustrative of this, one survey study found that the positive effect of self-reported family support for diabetes management (as indexed by hemoglobin A1c [A1C]) was substantially stronger for men (independent effect of self-reported strong support on A1C=0.52 mg/dl) compared to women (0.038 mg/dl) (Choi, 2009). Also, one survey-driven report found that 83% of Korean American men sampled sought support from their wives for their diabetes, while only 60% of women sought support from their husbands, and women endorsed a greater unmet need for support (Song et al., 2012). This spousal relationship is particularly relevant for diet in this population. In one focus group study of Korean Americans, diet was found to be the primary area of diabetes management for which spousal support was relevant, and women reported not getting support even when they asked for it (Choi, Lee, Park, & Sarkisian, 2014). Additionally, diet changes (such as reducing white rice intake) were cited as a source of spousal tension when recommendations conflicted with cultural eating habits (Choi et al., 2014).

For Chinese Americans as well, familial and spousal concerns appear to be of high relevance to health behaviors. It has been found through survey data that the quality of the emotional relationship between spouses in this population has an effect on T2D self-management (Fisher et al., 2004). Similarly, two studies involving interviews with T2D patients and their spouses found that the effect of the disease on family dynamics was particularly important in the management of diabetes in the context of a Chinese American family (Chun & Chesla, 2004). An important response to the diagnosis of T2D for this group involved accommodation of disease management (particularly as it relates to eating) on the part of all nuclear family members (Chesla & Chun, 2005). Given the influence of familial emotional well-being on health, the spousal relationship appears particularly important for successful management of T2D in this population.

African Americans.—Gender role expectations in African American populations have an important effect on spousal support for dietary adherence in some unique ways that can affect dietary management. In one survey-based study, African American patients who are married reported more positive support and more satisfaction with their support compared to unmarried peers, and crucially, this support is a predictor of healthy eating (Tang, Brown, Funnell, & Anderson, 2008). Also in line with a traditional family model, in this study women endorsed a greater responsibility for caretaking and a perception of less support compared to men (Tang et al., 2008).

One survey-based study of African American women found that filling multiple caregiving roles in a household was associated with putting the family's needs first and having difficulty saying 'no' to family members, which can be detrimental to self-care (Samuel-Hodge, Skelly, Headen, & Carter-Edwards, 2005). The authors of this work did note that it may not be accurate to simply assume that taking on more caregiving roles impedes self-care, as elements such as the quality of the relationship between the woman and the receivers of care, as well as the satisfaction and social interaction that caretaking provides, can influence the degree to which caretaking serves as a self-care barrier (Samuel-Hodge et al., 2005). In essence, strong caretaking connections can have the potential to motivate self-care, rather than always serving as a barrier. Conversely, for African American men, gender identity has been found through interview-based study to be of key importance, as cultural expectations regarding masculinity could cause African-American men to behave in ways that may not result in effective management of their T2D (Liburd, Namageyo-Funa, & Jack Jr, 2007). For example, cultural beliefs that it is "feminine" to eat healthy foods and reduce alcohol intake may function to discourage these practices in men with T2D.

Hispanic and Latino Americans.—Hispanic and Latino populations also appear susceptible to gender differences in spousal support for dietary adherence largely due to a heavily culturally reinforced emphasis on traditional gender role performance. Within these populations, which are diverse and do not always conform to one gender norm, focus group data has revealed that women are often responsible for providing support to the rest of the family, which can come at the expense of their own self-care (Cherrington, Ayala, Scarinci, & Corbie-Smith, 2011). However, particularly in immigrant populations for whom the impetus for moving to the United States is employment opportunity, there are also logistical factors for men (such as long working hours and limited access to healthy foods) which act as prominent barriers to their diabetes dietary management (Cherrington et al., 2011). Yet, as revealed in survey data, as in other demographic groups, greater perceived family support, and living with family members (including a spouse) are associated with higher reported levels of dietary adherence for both genders (Wen, Shepherd, & Parchman, 2004), emphasizing the relevance of gender-related and logistical factors to effective spousal support for diabetes management to this population.

Interventions targeting spousal support for dietary adherence in T2D

There have been few studies that have targeted spousal support in an effort to increase dietary adherence in T2D, with limited efficacy. One such study piloted a couples-focused intervention that involved goal-setting focusing on dietary behavior as well as collaborative communication between the members of the couple. Compared to an intervention targeting individuals, the couples condition was associated with lesser improvements in hemoglobin A1c, cholesterol levels, and waist circumference (Trief et al., 2011). A systematic review of six controlled intervention studies targeting social support in T2D found differences by gender (van Dam et al., 2005). Only one study in this review, however, specifically targeted *spousal* social support. This study compared a couples' treatment program in dietary education for weight loss to an individual education program. Interestingly, this study found women were more successful in losing weight in the couples condition and men were more successful when treated individually (Wing, Marcus, Epstein, & Jawad, 1991).

Though we are only aware of these two prior intervention studies for spousal support to promote dietary adherence in T2D, couples interventions in chronic illness (including T2D) for outcomes other than diet (such as depressive symptoms or pain) have proved efficacious (Martire, Schulz, Helgeson, Small, & Saghafi, 2010). This successful work lends credence to the idea that, with further development, couples interventions for dietary adherence among patients with T2D may have promise.

Discussion

Overall, in this narrative review, we found that: 1) there are distinct interaction patterns among spouses that can promote or hinder dietary adherence for T2D, 2) demographic factors such as race and ethnicity impact the relationship between spousal social support and T2D, with gender role performance playing a major role, and 3) interventions to date targeting spousal support for dietary adherence have been limited and have not consistently yielded the outcomes that would be expected based on relevant qualitative and survey data. In observational studies, women have reported not receiving spousal support, and, indeed, fared better in a couples intervention which functioned to strengthen support received. Conversely, men, who receive more spousal support (based on reports from both men and women), benefited from individual intervention which inculcates a stronger ability to manage diet independently. Given that eating is a fundamental component of diabetes self-management which is frequently mismanaged, understanding the ways in which spousal support can most effectively promote or undermine attempts at behavior change is a crucial, underexplored area of potential intervention.

As aforementioned, a recent systematic review and meta-analysis by Song and colleagues examined the relationship between social support and diabetes management and how various factors impact this relationship (Song et al., 2017). However, this review further adds to the knowledge base of spousal support for dietary adherence by: first, narrowing down the examination of social support on diabetes management to the specific role of *spousal* support for *dietary adherence*, and second, by including qualitative studies in our narrative synthesis. As a result, this review presents a more focused view of the dynamics occurring between spouses and how this impacts dietary adherence specifically, and it provides opportunity for a broader discussion of patients' perceptions of the links between spousal support and dietary adherence as informed by qualitative work.

Limitations and future directions

Several steps may be useful to improve the potential impact of a spousal support intervention for T2D dietary adherence. Principally, there is a need to increase the body of prospective observational studies of spousal dynamics in the context of T2D and how this impacts dietary adherence. Much of the work reviewed has been qualitative and non-longitudinal in nature, and while this is informative, without more quantitative and longitudinal data, it is hard to clarify the key mechanisms in the relationship between spousal support and dietary adherence in T2D. This more exploratory work would also set up the field well for informative randomized controlled trials of interventions targeting spousal support for dietary adherence. Additionally, the timing of studies is important when interpreting

findings. As the literature reviewed here spans nearly 30 years of research, conclusions concerning social norms must accurately reflect current cultural norms. Particularly concerning issues such as gender role performance, it is important that researchers stay up to date with changing gender role norms in different racial and ethnic groups. How these spousal dynamics change over the lifespan is another variable of key consideration, as responsibilities and stresses burdening the couple vary by stage of life. Additionally, though beyond the scope of this review, other concerns, such as socioeconomic status, stress, other medical conditions, and the impact of overall social support for T2D (Weaver et al., 2014) are critical to understanding successful T2D self-management. Lastly, all research to date has examined heterosexual couples. Particularly as gender seems to play such an important role in the relationship between spousal support and dietary adherence in T2D, further work should look into the relationship between social support and dietary adherence for couples of other sexualities.

It should be noted that this review has a number of limitations. A first methodological limitation is that searches were performed only in PubMed and Google Scholar and not in other psychology-focused databases. Though we believe our searches identified many of the key articles examining this topic, future reviews may utilize searches of other databases to confirm these findings. However, we do believe that our results are sufficient to answer the main questions of our review. A second limitation is that we utilized a non-systematic search strategy, opting for a narrative review instead. We selected a narrative review as opposed to a systematic review as our topic is broad and difficult to operationalize into a systematic application of search terms. Our review focuses on three questions: how gender roles and spousal dynamics function in spousal support for dietary adherence, the role of race and ethnicity in the influence of spousal support on dietary adherence, and the extant interventional work specifically targeting spousal support for T2D. Each of these likely would have required a different set of searches, which would have been prohibitive for one cohesive systematic search and would have been difficult to present in a digestible way to the reader.

In conclusion, dietary management is a fundamental component of effective diabetes self-management, and because eating is frequently a social activity, social support is of great importance. As has been demonstrated, when spouses eat together or prepare food for each other, there is an opportunity to support or undermine efforts at dietary modification. While women want and seem to benefit from support, men receive support but may do better with individual education that empowers them to take charge of their own eating behavior. It is also critical that this support respects the self-efficacy of the patient with diabetes and does not attempt to control every aspect of a diabetes patient’s food consumption. With further study, and an emphasis on background and social context, these social patterns could be given the empirical backing to generate effective interventions to help improve the health and well-being for not only the hundreds of millions of individuals with T2D worldwide, but their spouses and families as well.

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Table 1.

Articles Reviewed

Articles Related to Gender Roles and Spousal Dynamics				
Authors	**Study Type**	**N**	**Demographics**	**Key Social Support Findings Related to Dietary Adherence**
August & Sorkin (2010)	Survey	1477	Race/Ethnicity: Not reported Gender: 58.8% male Mean Age: 66 years old	• Married men are the demographic group in which attempted regulation of health behaviors (such as dietary adherence) by members of one's social network was received most often
Beverly, Miller, & Wray (2008a)	Qualitative (Focus Groups)	60	Race/Ethnicity: Not reported Gender: 70% male Mean Age: 66 years old	• In couples, a team-oriented approach to T2D diet management in T2D offers the best chance for dietary adherence
Beverly, Miller, & Wray (2008b)	Qualitative (Focus Groups)	60	Race/Ethnicity: Not reported Gender: 70% male Mean Age: 66 years old	• Patients feel resentful when spouses attempt to over-control their diet, sometimes hide unhealthy food as a result • Families of male T2D patients adjust their eating in accordance with patient's needs
Cornelius et al. (2014)	Survey	41, 378	Race/Ethnicity: 94% white Gender: 100% Mean Age: 54 years old	• Being unmarried, and particularly becoming a widower, is associated with an increased risk of developing T2D in men, perhaps due to the loss of support for dietary adherence.
Franks et al. (2012)	Qualitative (Interviews)	230	Race/Ethnicity: 79% white Gender: 50% male Mean Age: 66 years old	• All spouses report providing some sort of dietary support to their spouse with diabetes in the past month
Henry et al. (2013)	Combination of Survey and Qualitative(Interviews)	258	Race/Ethnicity: 76% white Gender: 50% male Mean Age: 66 years old	• Spouses represent a potential threat to the healthy eating of their partner with diabetes through behaviors which subvert dietary adherence
Koch, Kralik, & Taylor (2000)	Qualitative (Focus Groups)	6	Race/Ethnicity: Not reported Gender: male Mean Age: Not reported	• Men report: they are not responsible for cooking, spousal support is key in their disease management, and their wives are involved in their care through education and dietary monitoring
Mathew et al. (2012)	Qualitative (Combination of Focus Groups and Interviews)	35	Race/Ethnicity: Not reported Gender: 49% male Mean Age: 57 years old	• Women report perceiving less social support overall • Men cite their spouse as a primary source of social support for their T2D management (including dietary adherence), women cite a more diverse mix of family and friends as their primary source of support
Nagelkerk et al. (2006)	Qualitative (Focus Groups)	24	Race/Ethnicity: white Gender: 50% male Mean Age: 62 years old	• Spouses can be instrumental in diet adherence as they can provide encouragement and facilitate good self-management
Paisley et al. (2008)	Qualitative (Interviews)	84	Race/Ethnicity: Not reported Gender: 50% male Mean Range *: 23–79 years old **Mean age not reported*	• Spouses and long-term partners report playing a positive role in their partners' dietary regimen
Piette et al. (2010)	Survey	439	Race/Ethnicity: Not reported Gender: 50% male Mean Range *: 25–75 **Mean age not reported*	• Women report less support from family (including spouses) in their care and report more family-related barriers to their disease management, such as managing their diets

Articles Related to Gender Roles and Spousal Dynamics				
Authors	**Study Type**	**N**	**Demographics**	**Key Social Support Findings Related to Dietary Adherence**
Rook et al. (2011)	Survey	191	Race/Ethnicity: 94% white Gender: 63% male Mean Age: 67 years old	• Women appear more able to manage their diabetes independently compared to men • Women react negatively to their spouse's attempts to exert control over their diabetes management particularly when their husband's action is unexpected
Savoca & Miller (2001)	Qualitative (Interviews)	45	Race/Ethnicity: 64% white Gender: 42% male Mean Age: 53 years old	• Over half of the men sampled had food prepared by their wives and considered their wives integral to their diabetes management • Half of the women sampled reported that they either prepared two meals (one T2D-friendly one for themselves and one non-T2D friendly one for their spouse) or continued to accommodate their spouse preferentially in food preparation
Seidel et al. (2012)	Survey	278	Race/Ethnicity: 95% white Gender: 50% male Mean Age: 66 years old	• Men expect their spouse to be involved in their diabetes diet management
Stephens et al. (2010)	Survey	218	Race/Ethnicity: 94% white Gender: Not reported Mean Age: 67 years old	• Spousal issuing of warnings related to food consumption is associated with poorer dietary adherence • Spousal encouragement to eat well and exercise are associated with increased dietary adherence
Stephens et al. (2013)	Survey	252	Race/Ethnicity: 77% white Gender: 50% male Mean Age: 66 years old	• Spousal utilization of the tactics of persuasion and applying pressure in an attempt to improve diet adherence are linked to poorer adherence • When the responsibility for diabetes management is viewed as shared there is a higher level of dietary adherence on average
Stodberg, Sunvisson, & Ahlström (2007)	Qualitative (Interviews)	15	Race/Ethnicity: Not reported Gender: Not reported Mean Age: Not reported	• Significant others (e.g., spouses or long-term partners) wanted to be involved in their partner's diabetes management and are concerned for them
Trief et al. (2003)	Qualitative (Interviews)	74	Race/Ethnicity: 96% white Gender: 42% male Mean Age: 49 years old	• Spousal reminders to eat well appear effective and helpful in encouraging adherence
Weaver et al. (2014)	Qualitative (Interviews)	45	Race/Ethnicity: Not reported Gender: 42% male Mean Age: 60 years old	• Most men sampled relied on the support of others, such as their spouse, to manage their diet • For women, as meal providers to their families, in low family support scenarios the food preferences of other family members can gain preference over their dietary needs • Social influence for health behaviors can vary by amount of access to economic wealth
Wong et al. (2005)	Qualitative (Interviews)	19	Race/Ethnicity: Not reported Gender: 59% male Mean Age: Not reported	• Women are more frequently responsible for food shopping and cooking • Women are much more likely to be passively supported by their husbands with respect to diet while men are generally more actively supported by their wives
Articles Related to The Impact of Race and Ethnicity				
Cherrington et al. (2011)	Qualitative (Focus Groups)	45	Race/Ethnicity: Latino Gender: 47% male Mean Age: 40 years old	• Latina women are responsible for providing support to the rest of the family often to the detriment of their own dietary self-care • Employment-related logistic factors get in the way of dietary adherence for Latino men

Articles Related to Gender Roles and Spousal Dynamics				
Authors	**Study Type**	**N**	**Demographics**	**Key Social Support Findings Related to Dietary Adherence**
Chesla & Chung (2005)	Qualitative (Group Interview)	16 families	Race/Ethnicity: Chinese American Gender: 69% male Mean Age: 60 years old	• family dynamics was particularly important in the management of diabetes in the context of a Chinese American family. • An important response to the diagnosis of T2D for this group involved accommodation of disease management (particularly as it relates to eating) on the part of all nuclear family members.
Choi (2009)	Survey	143	Race/Ethnicity: Korean Gender: 48% male Mean Age: 62 years old	• The positive effect of family support for diabetes management, including dietary adherence, is stronger for men than women • Women mentioned not getting support even when it was requested
Choi et al. (2014)	Qualitative (Focus Groups)	33	Race/Ethnicity: Korean Gender: 50% male Mean Age: 68 years old	• ,Diet was found to be the primary area of diabetes management for which spousal support was relevant, and women reported not getting support even when they asked for it. • Diet changes (such as reducing white rice intake) were cited as a source of spousal tension when recommendations conflicted with cultural eating habits.
Fisher et al. (2004)	Survey	158	Race/Ethnicity: Chinese-American Gender: 59% male Age Range*: 25–70 years old **Mean not reported*	• For Chinese Americans, the perception of emotional impact in couples is significant in the context of the performance of key health behaviors (such as adhering to a diet)
Liburd, Namageyo-Funa, & Jack Jr, (2007)	Qualitative (Interview)	16	Race/Ethnicity: African-American Gender: 100% male Mean Age: 50 years old	• For African American men, gender identity has been found to be of key importance, as cultural expectations regarding masculinity could cause African-American men to behave in ways that may not result in effective management of their T2D (e.g. Alcohol consumption).
Samuel-Hodge et al., 2005	Survey	345	Race/Ethnicity: African-American Gender: 0% male Mean Age: 60 years old	• African American women found that filling multiple caregiving roles in a household was associated with putting the family's needs first and having difficulty saying 'no' to family members, which can be detrimental to self-care. • It may not be accurate to simply assume that taking on more caregiving roles impedes self-care, as elements such as the quality of the relationship between the woman and the receivers of care, as well as the satisfaction and social interaction that caretaking provides, can influence the degree to which caretaking serves as a self-care barrier.
Song et al. (2012)	Survey	83	Race/Ethnicity: Korean American Gender: 58% male Mean Age: 57 years old	• 83% of men sampled sought support from their wives for their diabetes, while only 60% of women sought support from their husbands • Women tended to endorse a greater unmet need for support, this is understandable given that women are the primary caretakers in a Korean American family model
Tang et al. (2008)	Survey	89	Race/Ethnicity: African American Gender: 33% male Mean Age: 60 years old	• One's spouse was the most-frequently reported source of social support • Married participants reported more positive support and more satisfaction with their support • Spousal support is a predictor of healthy eating

Articles Related to Gender Roles and Spousal Dynamics				
Authors	**Study Type**	**N**	**Demographics**	**Key Social Support Findings Related to Dietary Adherence**
				• Women endorsed a greater responsibility for caretaking and a perception of less support compared to men
Wen, Shepard, & Parchman, (2004)	Survey	138	Race/Ethnicity: Mexican Americans Gender: 33% male Mean Age: Not reported	• Greater perceived family support and living with family members (including a spouse) are associated with higher reported levels of dietary adherence
Interventions Targeting Spousal Support for Dietary Adherence				
Trief et al. (2011)	Intervention	44	Race/Ethnicity: Not reported Gender: 36% male Mean Age: 61 years old	• Compared to a diabetes self-care intervention targeting individuals, a couples-focused intervention involving dietary goal-setting and collaborative communication between the members of the couple was associated with lesser improvements in hemoglobin A1C, cholesterol levels, and waist circumference
Wing et al. (1991)	Intervention	98	Race/Ethnicity: Note reported Gender: 41% male Mean Age: 53 years old	• When randomized to either an individual or couples intervention for weight loss, women were more successful in losing weight in the couples condition and men were more successful when treated individually

* unless otherwise stated, the social support examined is that of married cohabitating spouses or unmarried longterm partners