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Review

Review of therapeutic groups for type 1 diabetes mellitus patients

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The present review examines therapeutic groups for type 1 diabetes mellitus patients. There is a report on the history of group therapeutic interventions for diabetes patients and a presentation of the four types of groups namely: a) medical, b) educational or psychoeducational, c) psychotherapeutic or social and emotional support groups, and d) groups with combined approaches and techniques. The transition from medical to educational and then psychotherapeutic groups for diabetes treatment represents the evolution of groups for diabetes patients over time, which has eventually led to the need for more holistic approach of the disease and thus to the formation of a model that combines all aspects of the disease and the patient.

Key words: Type 1 diabetes mellitus, patients, group therapy.

INTRODUCTION

Diabetes mellitus is a chronic disease and a significant public health problem, as diabetes complications are responsible for high morbidity and in many cases premature mortality (Atkinson and Maclaren, 1994; Jörgens et al., 2002; Mygdalis, 2000). Type 1 diabetes mellitus is developed early in a person's life and insulin injection is an integral part of the medical therapy of the disease. As a chronic disease, type 1 diabetes mellitus brings patients up against complicated psychological challenges, as the changes induced by the appearance of type 1 diabetes mellitus may be detected on a biological as well as an emotional level (Cox and Gonder-Frederic, 1992; Winkley et al., 2006).

In clinical practice, therapeutic groups are used in parallel with medical therapy for the treatment of type 1 diabetes mellitus. The therapeutic group refers to a system that consists of at least three people who share a common target and co-operate towards the accomplishment of that target. Group therapy aims at helping the members obtain self-awareness, improve interpersonal relations, modify dysfunctional beliefs and change dysfunctional behaviors (Kataki, 2009; Nudelman, 1986; Papastylianou, 2006).

The present study aims at reviewing group therapy for type 1 diabetes mellitus patients. The following four basic types of group interventions in type 1 diabetes mellitus treatment are being examined: 1. Medical groups, 2. Educational or Psychoeducational groups, 3. Psychotherapeutic or Social and Emotional support groups, and 4. Groups with combined approaches and techniques.

Abbreviations: DM, Diabetes mellitus; HbA1c%, glucosylated haemoglobin.

GROUP THERAPEUTIC INTERVENTIONS IN TYPE 1 DIABETES MELLITUS TREATMENT

History

Group interventions in general have a long history. In 1905, Dr. Joseph Pratt organized educational and support groups for tuberculosis patients (Sabin, 1990), in 1919, Dr L. Cody Marsh created educational groups for institutionalized psychiatric patients run by the nursing staff (Marsh, 1931) and Freud in 1921, organized group interventions that aimed at reducing patients' anxiety and

levels of neurosis. During the 1930s, Slavson created groups for children (Scheidlinger, 1995). Right after World War II, group psychotherapy began to spread as people appreciated the low cost and effectiveness of this type of therapy, and also the fact that a large number of people could be simultaneously treated by one therapist. During the 1950s, the psychodynamic model of therapy prevailed, whereas during the next decade, new types of groups were introduced, which were oriented more towards the development of the self and less towards treating psychopathology. Group therapy for chronic disease patients is a phenomenon that appeared in the 1970s. At the same period, Skynner, together with Foulkes established the group-analytic practice (Schlapobersky, 2001). In the 1980s, groups for inpatients began to develop and new types were introduced, such as self-help and support groups for the patients' families (Antoniou-Karaolidou, 1992; Nudelman, 1986).

The reference contains numerous articles on group therapy for diabetes mellitus patients (Royle et al., 2005). The American Association of Diabetes Educators (AADE) supports that diabetes treatment is multifactorial (Fisher et al., 2007). Group therapy for diabetes mellitus patients began in the 1970s (Tattersall et al., 1985), when the first group sessions were mainly unstructured (Van der Ven, 2003). The first groups for diabetes patients were clearly educational, they involved a brief schedule of 5 daily sessions and the leaders were usually a nurse and a nutrition specialist, who provided the members with information on the disease and trained them in skills useful for diabetes treatment compliance (Mensing and Norris, 2003). Diabetes group intervention has evolved over the years, and today it is considered to be a crucial part of diabetes treatment.

The evolution of group interventions involves the transition from the typical medical model of treatment to a more human-oriented intervention (Mensing and Norris, 2003). Fisher et al. (2007) reviewed interventions in diabetes management from 1990 to 2006 and found out the following important points: 1) there is a relation among diabetes management, state of health, quality of life and psychosocial factors, 2) diabetes is related to certain psychosocial and emotional issues, and 3) interventions in diabetes management are useful as they improve quality of life, metabolic control and the general clinical state.

More specifically, the researchers support that a large number of interventions including cognitive-behavioral therapy for depression, problem-solving interventions for adolescents, young people and adults, support groups, cognitive-analytical therapy and co-operative therapies that include case management, support in the use of pharmacotherapy and problem-solving consulting (Pathways Intervention or AIME Program) resulted in the improvement of DM patients' quality of life (Fisher et al., 2007). Moreover multisystemic therapy and family behavioral therapy has been found to achieve improvement in the function of the family system and thus improvement of the patient's quality of life. The same result was found also in various self-management interventions, which are based on support, encouragement, and emotional factors and also in an intervention based on the fear of long term diabetes implications (Fisher et al., 2007). The interventions, which are found to result in improvement in metabolic control, are cognitive-behavioral therapy for depression, stress-management interventions, problem-solving interventions for adolescents, young people and adults, multisystemic therapy, psychodynamic therapy and anti-depressive pharmacotherapy (Fisher et al., 2007; Mannucci et al., 2005; Rabin et al., 1986; Snoek et al., 2001).

Types of group intervention

The three basic types of group intervention in type 1 diabetes mellitus treatment are:

1. Medical groups, which mainly involves consultation on medical treatment compliance and in some cases, skills training.
2. Educational interventions or psychoeducational groups, which are structured, brief and focus on the transference of knowledge and information regarding skills mainly, whereas the interactions among the members are more of a question-answer type.
3. Group psychotherapeutic interventions or social and emotional support groups, where the agenda is basically formed by the members and the leader facilitates open expression within a context of trust and safety.

These three types of group interventions are discussed later in more detail. The aforementioned distinction among the types of interventions may be considered theoretical as the evolution of group interventions has resulted in the integration of multiple techniques and models within a single intervention (Van der Ven, 2003). This has lead to a fourth type of group intervention, which is a model that combines various theoretical approaches and different techniques in order to achieve the desired outcome. This model is described later on. Finally, there is a fifth type of group intervention for type 1 diabetes mellitus patients, namely peer support group, which is a type of self-help group intervention and is not being examined further in the present review.

Generally, self-help groups have been found to improve patients' psychological state and quality of life. However,

specifically in the case of diabetes mellitus, this type of group intervention has been found to have poor effectiveness on patients' metabolic control, as it does not involve structured provision of appropriate information (Mannucci et al., 2005).

Medical groups

The medical part of diabetes treatment consists of diagnostic and treatment guidelines (http://care.diabetesjournals.org/cgi/content/full/25/1/213). Diabetes care is a complicated procedure and there is need for a large number of medical factors to be monitored, apart from blood glucose levels, such as: blood pressure, cholesterol levels, weight, and possible diabetes implications. Moreover, insulin injection is considered an integral part of type 1 diabetes mellitus treatment.

Medical groups for diabetes mellitus patients include consultation and education, and aim at preventing symptom deterioration and potential hospitalization. Research in that area is limited. However, existing evidence show the effectiveness of medical educational groups on the improvement of diabetes care and management and also that this type of intervention is cost-effective and leads to improved course or shortening of hospitalization, and reduced percentages of mortality (Bernbaum et al., 2000; Clement et al., 2004). Research has shown that intensive medical interventions for diabetes inpatients have been proven to be significantly effective in improving metabolic control (De Vries et al., 2004; Müller et al., 1999).

On the other hand, medical groups seem not to be as effective in treating outpatients as they are in the case of inpatients. A common practice of medical groups is the provision of medical advice, and guidelines by the experts regarding eating and drinking habits, smoking, physical exercise and/or medication regulation (Rollnick et al., 1993). In this way, the traditional medical model of diabetes treatment places the physician in control of the interaction with the patient; the latter remains a passive receiver of advice who is asked to comply with the expert's guidelines (Anderson et al., 1995). For some patients, behavioral change and compliance with medical guidelines may be a challenging procedure and may have time limited effects. Inpatients are more likely to comply with treatment guidelines as the medical context facilitates and is responsible for their behavioral change. On the other hand, outpatients who are asked to follow medical advice are more likely to fail in changing their behavior regarding their every day habits in the long run. This often leads to non compliance on the part of outpatients.

Furthermore, the effectiveness of medical groups has been found to be correlated with the good organization and functionality of the medical setting where they take place (Solberg et al., 2006). Solberg et al. (2006) studied a medical group for patients who suffered from cardiovascular diseases and diabetes in order to identify the factors related to the effectiveness of the group. The results showed that the following factors: strong leadership and group co-ordination, focus on the individual, strong support in the physician-patient relationship, group orientation, implementation of all physicians and experts, highly organized management, focus on one issue at a time, orientation towards change and improvement, sense of responsibility on behalf of the physicians, reliability, flexibility, data bases, pride and satisfaction account for the effectiveness of the medical group in addition to external motivation, technological equipment and small number of group members. Additionally, Berger and Mühlhauser (1999) support that 1) evidence based diagnostic procedures and treatment management, 2) the patient's active role in disease management and 3) regular assessments are three factors that ensure good quality of care provided by a medical setting and therefore high effectiveness of medical groups.

Educational groups

The discovery of insulin injection initiated the need for diabetes mellitus patients' psychoeducation, as it was important for the patients to be taught how to apply the specific treatment (Weigner, 2003). In the 1960s, various educational programs (Fain et al., 1999) for diabetes inpatients were developed; the target of these programs was to provide information concerning the disease and treatment after release from the clinic.

Education or Psychoeducation is based on the combination of education, practice and discussion within the group and aims at providing information on diabetes and modifying dysfunctional behaviors regarding its treatment (Van der Ven, 2003). Psychoeducational interventions are usually brief, 6 to 10 sessions, structured and typically involve training in problem-solving, management skills, cognitive restructuring and stress management. Achieving Independence and Medical Empowerment (AIME) (Holleman et al., 2004) is one such Psychoeducational group for chronic disease patients. Research and meta-analyses (Lorig et al., 1999; Weingarten et al., 2002) have shown that group education for chronic patients contribute to the improvement of a large number of behaviors, emotional states symptoms and situations such as the following: frequency of exercise, management of cognitive factors,

contact with doctors, negative emotions about health, self-reports on health, fatigue, impotence, limited social activity, hospitalization, medical attendance, treatment compliance and control over the disease.

Over 80 years of experience on educational programs for diabetes in the United States of America has led to the creation of a common educational model for diabetes treatment for all clinical settings throughout the country in order to provide high quality service (Funnell and Haas, 1995). According to the American Diabetes Association (1986), there are specific standards for the design and application of educational programs for diabetes. The standards are as follows:

1. Statutes in a written form containing the structure, aim and organization of the institution that provides diabetes education.
2. The institution should define the target group, estimate its educational needs and identify the appropriate resources to cover those needs.
3. There should be a committee consisted of professionals who will systematically perform data analyses and measurements in order to supervise and review the activities and also to be able to answer the questions of the broader community.
4. The institution should appoint an expert (group leader) who will supervise the design, application and evaluation of the program.
5. The program should involve a group of experienced and trained experts including: behaviorist, physician, ophthalmologist, optician, pharmacist, doctor, podiatrist, nutritionist, nurse and other medical experts or paramedical staff.
6. The group of experts should be continuously updated on their area of expertise.
7. There should be a full system of evaluation of the program, the professionals, and the patients, so as to ensure the improvement of the program.
8. Records should be kept so as to facilitate the co-operation among the experts (Mensing et al., 2003).

Diabetes education groups are usually choice treatment over individual education in terms of cost-effectiveness (Mensing and Norris, 2003). Comparison between group and individual diabetes education is conducted with caution as research is limited. Existing evidence shows that there is no statistically significant difference in terms of the improvement of metabolic control (Broers et al., 2005; Rickheim et al., 2002); in other cases, results have shown that group interventions, which focus on nutrition and exercise are more effective than individual ones (Trendo et al., 2002), and finally there is evidence that both approaches are equally effective (Mensing and Norris, 2003). Weigner (2003) reports in her review that few researchers have found that group education is more cost-effective than individual education and even fewer studies have found the opposite result.

A large number of group interventions for diabetes patients (Weigner et al., 2002) are based on the principles of cognitive-behavioral therapy and rational-emotive therapy, and use cognitive-behavioral techniques such as cognitive restructuring, problem solving, stress management, relaxation etc. The aim of these interventions is to improve diabetes patients' mental health, quality of life and metabolic control through decreasing levels of diabetes-related stress and self-blaming, minimizing obstacles in diabetes self-care, and training in disease management skills (Karlsen et al., 2004; Van Der Ven et al., 2005). According to the aforementioned research, cognitive-behavioral approach has been shown to be effective in diabetes mellitus treatment and also patients have been found to be positively disposed towards it.

In the 1990s Empowerment was introduced as a new approach in patients' educational programs (Adolfsson et al., 2004). The aim of this approach was to improve patients' self-management and reinforce their motivation for treatment by transferring the responsibility and control of disease management in the patients' hands; in this way, the patients adopt an active role in terms of diabetes treatment, whereas the experts' role becomes more of that of a treatment facilitator. Research has found that empowerment is an effective approach in diabetes education (Anderson et al., 1995; Funnell et al., 2005).

Norris et al. (2002), reviewed interventions on adult diabetes patients in health organizations and community clinics in the USA and Europe in terms of cost-effectiveness; the results of this study showed that diabetes management interventions are effective in terms of improvement of glycemic control, HbA1c% levels monitoring (HbA1c%: Glucosylated Haemoglobin, the biological index, which counts the quality of diabetes regulation during the last 2 months), and retina implications testing processes. According to the same review, diabetes management interventions are effective in terms of limb lesion and peripheral neuropathy prevention, and also tracing proteins in urine and lipid concentration tests. Finally, strong evidence was found regarding the improvement of glycemic control as a result of good diabetes management.

Glasgow (1997) supports that up until the late 1990s, research on diabetes focused exclusively on metabolic control, whereas diabetes and its management are not merely about that. For instance, cardiovascular and microvascular implications are at least as important as metabolic control in terms of mortality, cost and public health. In line with that, Glasgow proposed a five-dimensional model for the evaluation of diabetes

educational interventions called RE-AIM (Glasgow et al., 1999). The name of the model comes from the initial letters of the words describing the five dimensions on which the intervention is based, which are the following: Reach and Efficacy (on an individual level), Adoption and Implementation (on a group level) and Maintenance (on both individual and group level).

Psychotherapeutic groups

Group psychotherapy involves regular meetings of a usually small number of members and one or two group leaders, and evidence shows that it is very helpful for chronic patients, as well as DM patients, even when they have reached an acute stage, provided that the therapy is adjusted to the patients' demands (Hoge and McLoughlin, 1991). Apart from that, diabetes patients are likely to develop psychological disorders, which in turn may be detrimental to their somatic symptoms and emotional state and thus impede everyday behaviors of self-care (Van der Ven, 2003). Group psychotherapy helps diabetes patients confront psychological disorders, including anxiety disorders, depression and eating disorders. Furthermore, group therapy helps DM patients express negative emotions in a context where the members can obtain self-awareness and feel adequately confident so as to reveal their worries and improve the way they manage their difficulties and their lives in general. Psychotherapy focuses on issues, such as patients' processing, sequence of life events and their impact on the patients, patients' developmental phase, request for therapy, interaction of relationships and generations and therapeutic result in patients' life and disease.

Zrebiec (7th annual Canadian Diabetes Association Professional Conference and Annual Meetings Oral presentation, 2003) supports that living with diabetes is a constant effort of adjustment to situations, such as emotional changes, life events, metabolic control and family relations. The group provides the patient with the opportunity to see how the members react to the disease and observe how they integrate diabetes into their lives, family, social relations, career etc. Psychotherapy involves two different, though interrelated functions (Wolff, 1971). On one hand, it is oriented towards the improvement of the disease symptoms, whereas on the other hand, it concerns the psychological evolution of individuals. Wolff (1971) defines the first as the therapeutic function, and the second as the developmental function of psychotherapy.

For most diabetes patients, treatment compliance is a challenging task (Van Der Ven et al., 2002). Since 1976, various models have been developed to explain the role that cognitive factors and motivation play in self-care. Two widely known models are Becker's "Health Belief Model" (1976) and Lazarus and Folkman's "Stress Coping Model" (1984). These models take into consideration the patients' beliefs about their self (self-efficacy, locus of control, and perceived control), beliefs about the disease (benefits, obstacles, vulnerability to implications, and severity of implications) and finally beliefs about the effectiveness of therapy.

The clinic model that is widely used in psychotherapy, which aims at the modification of dysfunctional beliefs, is Cognitive-Behavioral Therapy (CBT) introduced by Beck (1975). CBT has been applied both on diabetes educational group interventions as mentioned earlier, and also on group therapy, which aims at a more long-term effective disease management. Research shows that in group therapy, the brief and structured nature of CBT seems to have a positive result on patients' assertiveness, maintenance of a positive emotional state, decrease in HbA1c% levels, and improvement of patients' quality of life (Snoek et al., 2001; Van der Ven, 2003; Weinger et al., 2002).

Furthermore, diabetes also raises the need for psychosocial support (Snoek and Skinner, 2000; Tattersall et al., 1985); therefore, support groups have been broadly used in group therapy for DM patients (Mackenzie, 1997; Mitchell et al., 2000; Snoek and Skinner, 2000; Tattersall et al., 1985; Yalom, 2009). This type of therapy focuses on the supportive atmosphere within the group and considers that stress may be related to poor glycemic control either directly (due to the effect of stress hormones) or indirectly (as it impedes self-care behaviors) (Van der Ven, 2003).

Pelser et al. (1979) studied the effect of group discussions on diabetes management and the results showed that:

1. Physicians often neglect patients' emotional needs.
2. Emotional stability is one of the most important factors in metabolic control.
3. Education may not be the best method of providing knowledge.
4. Co-operative communication and therapeutic alliance seem to have better results.

Oehler-Giarratana and Fitzgerald (1980) conducted a brief group therapy with four type 1 diabetes mellitus patients between 19 to 36 years old with long term diabetes and serious implications. The researchers concluded that brief group therapy was very effective in helping the patients adjust to decaying vision. Additionally, the researchers highlight that there is a great need for patients to express their feelings and also to reconsider distorted beliefs on the disease. Warren-Boulton

et al. (1981) designed a group intervention on diabetes management for adolescent and young people, which aimed at improving attachment, self-management and metabolic control. Findings showed significant improvement of glucose, HbA1c% and cholesterol levels. Despite the limitations of the study, the researchers support that group therapy has an important positive effect on metabolic control. Marrero et al. (1982) conducted a pilot study of a long-term group support therapy involving adolescent type 1 diabetes patients and found that depression symptoms were reduced and self-esteem was increased. The participants mentioned that the group was the only place where they could share and explore the disease adjustment difficulties they were facing. Tattersall et al. (1985) in their article about group psychotherapy for diabetes patients maintain that within the group diabetes patients express strong emotions, recount personal experiences and improve their self-confidence as they feel accepted by the rest of the members.

According to Zrebiec (2003) group therapy helps patients to:

1. Develop a sense of belonging and thus, be released of feelings of isolation and stigmatization due to diabetes.
2. Disclose their emotions, worries and problems.
3. Obtain new experiences (e.g. through modeling) and experiment with new behaviors.
4. Explore their self, identify and reconsider dysfunctional beliefs about diabetes.
5. Reduce stress and achieve metabolic control through improvement of management skills and problem solving.

Therapeutic groups with combined approaches

As seen earlier, groups for diabetes patients may have a clear medical, educational or psychotherapeutic character, but may also integrate different types of approaches (Mannucci et al., 2005) in an attempt to provide a more holistic approach on diabetes treatment. One of such model is Conjunctive Group Therapy for adult type 1 diabetes mellitus patients (Tsamparli and Siousioura, 2009a; 2009b), as it combines psychoeducation with principles and techniques from various psychotherapeutic models including the Strategic School of Family Therapy (Minuchin, 1974; Minuchin, 2000), Focus on the Strategic School (Mc Lendon et al., 2005) (FDST), Systems-centered Therapy for Groups (Agazarian, 1997), and Supportive Psychotherapy for people suffering from physical disease (Sifneos, 1975; Yalom, 2006; 2009).

Conjunctive Group Therapy (Tsamparli and Siousioura, 2009a; 2009b) includes, focused interviews of the outpatients before and after the participation in the group (Merton and Kendall, 1946; Cohen and Manion, 1994), a combination of psychoeducational and psychotherapeutic models and techniques adjusted to the patients' needs (Collins and Goodman, 1995; Ford and Long, 1977; Groen and Pelser, 1960; Kapur et al., 1988; Karasu, 1979; Minuchin et al., 1975; Mitsibounas et al., 1992; Pratt, 1922; Scheidlinger, 1993; Shoemaker et al., 1955; Thomas, 1943; Yannitsi, 1997) and non-directional agenda. The basic target of the model is the improvement of metabolic control through the following mechanisms: (a) acceptance of the disease; (b) modification of patients' knowledge, attitudes and behaviors of self-care; (c) resolution of psychological conflicts so that the patients obtain control of the disease; and (d) integration of the disease into the self. The patients are expected to develop themselves through the system of the group, a procedure that involves learning of new attitudes, beliefs, roles and behaviors, and making transition from the 'self-centered system' over to the 'systems-centered system' (Agazarian, 1997). Some other specific targets of the model are: modification of the patients' request from 'diabetes regulation' to 'patient regulation', elimination of patient's discomfort to reveal the diagnosis to their social environment, integration of the disease into the self, helping the patients become aware of the connection between emotion, behavior and metabolic control through mirroring among group members, enhancement of quality of life, reinforcement of supportive networks, promotion of self-responsibility for disease management, development of patient's will and responsibility to cooperate with a nutritionist, and redefinition of type 1 diabetes mellitus.

Conjunctive Group Therapy (Tsamparli and Siousioura, 2009a, 2009b) has been conducted in Greek state hospitals and has been applied in parallel with medical monitoring and advice; therefore, it is considered to be a combined intervention towards the psychological and biological aspects of type 1 diabetes mellitus, and care is oriented towards the 'whole person' (Shillitoe, 1988), the 'psychosomatic wholeness' (Karush et al., 1969), and the 'unified self'. Findings showed that after the group intervention, there was an increase in the number of patients who, in comparison to their state before the intervention, achieved better adjustment to the disease, engaged in self-care behaviors, achieved better stress management and good metabolic control, managed to redefine diabetes in their life, and finally, their mood, social relationships and quality of life were improved (Tsamparli and Siousioura, 2009a; 2009b).

CONCLUSIONS

Diabetes mellitus is a chronic disease that may have serious psychological and physical implications if it

Table 1. Group Interventions on DM* Patients.

Studies	Disease	Group intervention
Pelser et al., 1979	Type 1 and 2 DM	One year psychotherapy.
Oehler-Giarratana and Fitzgerald, 1980	Type 1 DM with Retina Implications	7 two-hour sessions of brief therapy.
Warren-Boulton et al., 1981	Type 1 DM	18-month Therapy, agenda involved medical and psychological issues.
Aveline, 1986	Type 1 DM	11 sessions Therapy.
Rabin et al., 1986	DM	12 weekly three-hour sessions of Behavioral Therapy on 9 young women patients.
Viinamäki and Niskanen, 1991	Type 1 DM	10 days of intense and disease focused Psychodynamic Therapy.
Cigrang et al., 1991	Type 1 DM	Research involving three different groups: first, Interpersonal Therapy, second, Psychoeducation and third, Control Group. Duration, 8 weeks.
Rubin et al., 1993	DM	2.5-hour Psychoeducation.
Spiess et al., 1994	DM	Consultation on negative emotions reduction and disease adjustment increase.
Zettler et al., 1995	Type 1 and 2 DM	7-session Behavioral Therapy aiming at stress reduction, compliance encouragement and crisis preparation due to fear of implications.
Bernbaum et al., 2000	DM	Education on vision implications and Emotional Support Therapy.
Akimoto et al., 2001	DM	2-week Psychoeducation.
Alloway et al., 2001	Type 1 DM and Eating Disorders	6-session Therapy for women.
Snoek et al., 2001	Type 1 DM	4-week Cognitive Behavioral Therapy.
Olmsted et al., 2002	Type 1 DM and Eating Disorders	Brief Therapy for young women.
Didjurgeit et al., 2002	Type 1 DM with Microvascular Implications	6-month structured, time-limited and problem-solving focused Therapy.
Weigner et al., 2002	Type 1 DM	8-week Cognitive Behavioral Therapy.
DAFNE Dose Adjustment for Normal Eating, 2002	Type 1 DM	5-day structured Psychoeducation for outpatients.
Karlsen et al., 2004	Type 1 and 2 DM	6-month Consultation.
Holleman et al., 2004	Chronic Disease including DM	Support Therapy (Achieving Independence and Medical Empowerment, AIME).

Table 1. Contd.

Mannucci et al., 2005	Type 1 DM	1-year Interactive Educational and Support Group Program (IESG).
Van der Ven et al., 2005	Type 1 DM	6-week Cognitive behavioral therapy.
Funnell et al., 2005	DM	6 two-hour weekly sessions of psychoeducation based on empowerment.
Tsamparli and Siousioura, 2009a; 2009b	Type 1 DM	2 years of two-hour sessions, twice a month of Conjunctive Group Therapy. The agenda was formed according to the patients' needs, phase of therapy and therapeutic targets.

DM(*=Diabetes mellitus).

remains undiagnosed and/or untreated. Disease management depends highly on the patient themselves; their personality, emotional state, coping styles and support network (Mitchell et al., 2000). Mental health experts have recognized the effectiveness of groups combined with the necessary medical intervention in disease treatment. Group interventions have an effect on the factors that lead to poor diabetes regulation and eventually, to poor metabolic control. Medical care, combined with diabetes management and self-care, create an integrated disease treatment, which contributes not only to the achievement of good metabolic control but also to a good quality of life in the long run (Tsamparli and Siousioura, 2009a; 2009b).

Without doubt, all types of groups aim at achieving a degree of behavioral change that will eventually lead to good metabolic control and thus contribute to an effective diabetes treatment. The main differences among the different types, consist in the methods they involve in order to achieve the desired outcome. Medical groups are based on provision of advice and guidelines which the patients are asked to follow in order to change their lifestyle and adjust to the demands that are brought up by the disease. Educational groups involve communication of knowledge and information regarding the disease, and at the same time, training on skills useful for diabetes management and self care. In this way, the patient becomes more empowered to undertake the responsibility of the disease treatment. Psychotherapeutic groups on the other hand involve elaboration on patients' core beliefs, emotional state and behaviors and thus achieve deeper changes and lead to integration of diabetes in patients' lives. The transition from medical to educational and then psychotherapeutic groups for diabetes treatment, as described previously, signals the evolution of groups for diabetes patients over time. This procedure shows clearly how diabetes treatment has evolved through time by moving from focusing exclusively on the physical aspects of the disease, to including aspects related to the patient's emotions, coping styles, relationships and personality in general, as the demands of diabetes treatment have raised the need for more effective and better designed interventions (Snoek and Skinner, 2000; Tattersall et al., 1985). This has led to a more holistic view of disease treatment and to the need of a model that combines all aspects of the disease and the patient as a whole person and a psychosomatic existence.

Table 1 includes a review of group interventions on diabetes mellitus patients from 1979 to 2009. The intention was to include studies concerning type 1 diabetes mellitus patients; however, in a few cases it was considered useful to include interventions on diabetes mellitus in general and also include a small number of studies that involve both type 1 and 2 diabetes mellitus patients. Further research on the effectiveness of the various types of groups in disease treatment is necessary, more specifically in terms of cost, and also comparison among the various models of therapeutic intervention (Weinger, 2003).

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