

National recommendations: Psychosocial management of diabetes in India

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ABSTRACT

Although several evidence-based guidelines for managing diabetes are available, few, if any, focus on the psychosocial aspects of this challenging condition. It is increasingly evident that psychosocial treatment is integral to a holistic approach of managing diabetes; it forms the key to realizing appropriate biomedical outcomes. Dearth of attention is as much due to lack of awareness as due to lack of guidelines. This lacuna results in diversity among the standards of clinical practice, which, in India, is also due to the size and complexity of psychosocial care itself. This article aims to highlight evidence- and experience-based Indian guidelines for the psychosocial management of diabetes. A systemic literature was conducted for peer-reviewed studies and publications covering psychosocial aspects in diabetes. Recommendations are classified into three domains: General, psychological and social, and graded by the weight they should have in clinical practice and by the degree of support from the literature. Ninety-four recommendations of varying strength are made to help professionals identify the psychosocial interventions needed to support patients and their families and explore their role in devising support strategies. They also aid in developing core skills needed for effective diabetes management. These recommendations provide practical guidelines to fulfill unmet needs in diabetes management, and help achieve a qualitative improvement in the way physicians manage patients. The guidelines, while maintaining an India-specific character, have global relevance, which is bound to grow as the diabetes pandemic throws up new challenges.

Key words: Diabetes, India, management, psychosocial, recommendations

INTRODUCTION

As India moves from a high prevalence of acute to chronic disease, type 2 diabetes mellitus (T2DM) is becoming a major health concern. Diabetes has been known in India since ancient times and finds mention in the well-referenced

sambita texts, *Charaka Sambita* and *Susruta Sambita*. Together with *Atharva Veda*, they are among the oldest texts to describe and classify diabetes.^[1] The *Susruta Sambita* treats diabetes in great detail and lists numerous symptoms that are included in the classical symptomology of diabetes, viz. excess urination, “sweet” urine, weight loss, impotence, and ulcers. Even the differences between hereditary, early-manifesting “thin” diabetes and later-onset, food-related “fat” diabetes was identified, which evidently correspond to modern types 1 and 2. Both *Charaka Sambita* and *Susruta Sambita* recognize unbalanced nutrition and lack of sufficient physical activity as probable causes of diabetes, and recommend dietary control and regular exercise for managing diabetes (in addition to treatment options from the ayurvedic pharmacopeia).^[1]

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Since the introduction of insulin for management of diabetes in 1922 by Dr. Frederick Banting, several important breakthroughs have been seen in diabetes management strategies.^[2] (Nonetheless, successful diabetes management has remained elusive even with a wide variety of therapeutic options now accessible to clinical practitioners.^[3]) Certainly, a purely pharmacological approach to successfully contain and, perhaps, even reverse the effects of diabetes, is insufficient; factors beyond the pale of pharmacological interventions, which dwell upon the holistic approach of supporting the patient psychologically, socially, and emotionally through the treatment process must be given due consideration.

The importance of emotional issues in diabetes was first noted over 300 years ago in 1674 by Thomas Willis, who claimed that diabetes was caused by “extreme sorrow.”^[4] It has been emphasized that there is more to diabetes than just glucose control, and emotions play an important role in diabetes.^[5] The emotional and psychological needs of people living with diabetes are complex. Indian diabetes patients have one of the lowest levels of psychological well-being on the World Health Organization-5 (WHO-5) Well-being Index, which is similar to the global trends. Indian patients also showed a significantly higher perception of burden of social and personal distress associated with diabetes.^[3] These not only impact the patients’ ability to adhere to therapy but also their psychosocial well-being.

Acknowledging that psychosocial factors play an important role in diabetes therapy, several national and international stakeholders have included guidelines seeking to incorporate psychosocial management of diabetes as a part of standard clinical practice. The American Association of Clinical Endocrinologists (AACE) not only makes specific mention of psychosocial impact in evaluating therapeutic options but also gives independent recommendations for the treatment of comorbidities like depression, inclusion of team care and counseling. The AACE recommends using cultural and faith-based aspects of therapy during counseling.^[6] The Scottish Intercollegiate Guidelines Network (SIGN)^[7] for the management of diabetes also introduced psychosocial management in 2010. Similar trends are seen in many national guidelines in Europe and in the American Diabetes Association (ADA).^[3,8]

Similarly, the global guideline for type 2 diabetes by the International Diabetes Federation (IDF) devotes an entire chapter to recommend standards of minimal, routine and comprehensive care for psychological management. The IDF clinical guidelines task force states in its rationale that “psychosocial factors are relevant to nearly all aspects of diabetes management.” In its recommendations for

psychosocial care, the IDF recommends the inclusion of a mental health specialist in the multidisciplinary team for diabetes and indicates the need for counseling the person with diabetes in the context of on-going diabetes education and care. Particularly important is the recognition that signs of cognitive, emotional, behavioral and social problems, which may be complicating self-care, be considered a part of minimal care required for diabetes patients.^[9] The International Society for Paediatric and Adolescent Diabetes (ISPAD) guideline also devotes a chapter on psychological care of children and adolescents with diabetes. The ISPAD Consensus Guidelines 2000 stated that “psychosocial factors are the most important influences affecting the care and management of diabetes,” and went on to make the following three general recommendations:^[10]

- Social workers and psychologists should be part of the interdisciplinary health care team.
- Overt psychological problems in young persons or family members should receive support from the diabetes care team and expert attention from mental health professionals.
- The diabetes care team should receive training in the recognition, identification and provision of information and counseling on psychosocial problems related to diabetes.

Despite the availability of international guidelines and multiple treatment options globally, the management of diabetes in clinical practice remains sub-par.^[11] The available guidelines in most cases do not have cross-cultural applications and contribute little to the local understanding of diabetes. In the Indian context, less than one-third of the doctors reported using clinical guidelines in their practice. The biggest hindrances to the use of these guidelines locally are poor knowledge and the non-applicability of western guidelines in the Indian context.^[12] The linguistic, social, cultural, economic, and ethnic heterogeneity of the Indian population and the enormous scale of the diabetes epidemic in India suggest the development of India-specific guidelines for psychosocial management, forged specifically for our sociocultural context. Both in terms of variety and in terms of the scale of challenges, the Indian diabetes landscape is unique and warrants the creation of country-specific guidelines, sensitive to our needs and limitations and based on our sociocultural strengths and resources.

PSYCHOSOCIAL FACTORS INFLUENCING DIABETES MANAGEMENT IN INDIA

Psychosocial factors are important modulators of the success of treatment and long-term prognosis of diabetes. At the same time, optimal diabetes management

is associated with considerable physical, social, and psychological well-being. As the diabetes patient is at the core of executing the care process in diabetes, the outcomes of the care process and its effect on long-term prognosis depend on the social, cultural, familial and professional context that informs the patients' psychosocial condition.^[13] There is growing awareness of the importance of these factors both among providers and among patients. At the first Oxford International Diabetes Summit (2002), virtually all (98%) the participants representing medicine, politics, nursing and patient groups called for psychosocial aspects of diabetes to be included in national guidelines.^[14]

Nonetheless, the number of patients receiving psychosocial care as a part of their therapy is not commensurate with its impact. It has been shown that as many as 41% of the patients had poor psychological well-being. These psychological problems were recognized by providers as affecting patients' diabetes self-care. However, despite this, only about 10% of these patients received psychological care.^[14] Additionally, there is a paucity of accurate, usable data to understand the exact impact of psychosocial factors on care, as studies investigating the relationships among psychological and social variables and diabetes outcomes are generally cross-sectional in nature, rather than longitudinal, and often fail to report pre-diagnosis baseline data.^[13] In India, many of the psychosocial problems differ considerably from those encountered in the western society.^[15] Some of the prominent factors that impact diabetes management, in the Indian context, by modifying acceptance of modern health care, include economic and cultural factors and traditional medicine, which are discussed below.^[16]

Economic factors

In India, with about 25% of the population living under poverty and 41.6% of the population living under 1.25\$ a day, cost of a therapeutic option/economic burden diabetes has a major impact on diabetes care. The direct medical cost to identify one subject with glucose intolerance is INR 5278.^[17] The cost of insulin amounts to 350.00 USD (16,000 Indian Rupees) per year, while medication for non-insulin-requiring patients costs about 70.00 USD per year.^[18] Out-of-pocket payments for hospital treatment for diabetes claim 17% of the annual household expenditure in poor households, a majority of whom finance the expense through borrowing.^[19] Poor households can spend up to 25% of their annual household income on diabetes care.^[9]

Cultural and religious factors

Health behaviors are guided by continuous interactions of intrapersonal factors with the cultural environment.^[20] Endemic cultural practices and attitudes that hamper

appropriate health-related behavior make diabetes management in India challenging. The low rate of literacy contributes to poor diabetes care. Lower levels of literacy in the country are associated with lower awareness of diabetes and its complications,^[21] and are reported to be significantly associated with higher glycated hemoglobin (HbA1c) levels.^[22] It has also been suggested that specific myths about diabetes management can modulate the success of diabetes management.^[9] Another example where cultural practices impact diabetes management is the relative difference in diabetes control of both genders. It has been reported that there is significantly lesser awareness of diabetes and poorer rates of compliance to therapy among housewives. Unfortunately, in one study it was reported that all the patients who were non-compliant due to financial constraints were women. This is despite the fact that women are known to have a higher rate of prevalence compared with men.^[23]

Traditional and alternative medicine

India has a wide range of alternative healthcare systems, which are patronized by the general population. A considerable number of patients (14%) still utilize the indigenous forms of medicine and one-third prefers non-allopathic medical systems for treatment. The reasons given for preferring traditional medicines were safety (31%), cost (30%), effectiveness (25%) and availability (11%).^[24] Furthermore, contribution of ancient Indian medicine to patient-centered care (PCC), as evidence by the Quadruple of Atreya, has been highlighted earlier.^[25] However, critics often point to the lack of acceptance of PCC in traditional, oriented culture, which follows a system of eminence and age-based hierarchy. On the other hand, there have been calls for testing the safety of traditional therapies,^[26] in light of questions on their safety, due to incidents of death as a result of administration of folk remedies for diabetes.^[27]

Given the scale of challenges that are bound to present themselves as the Indian diabetes management scenario evolves, it behooves a country taking India's growth trajectory to gear up to face these challenges head-on. As noted earlier, the western guidelines have limited applicability in everyday clinical practice in India, but might serve as valuable guides to help frame our own national guidelines. India has a linguistically, culturally, religion-wise and socioeconomically heterogeneous population. Furthermore, it is a developing country and the limited resources severely restrict the availability of resources for diabetes care.^[9] At the same time, its strong sociocultural ethos can be utilized to manage diabetes more efficiently at the individual, family, and community level. Given these challenges and strengths, our objective is to frame a clinical practice guideline (CPG) for the psychosocial management

of diabetes, sensitive to and appropriate for, the Indian context. We hope that these guidelines will find acceptance across the world.

METHODOLOGY

The recommendations have been developed in response to the need for national guidelines for psychosocial management of diabetes in India. The target is all diabetes care professionals in India. The current recommendation has been developed in accordance to the AACE protocol for CPG production [Table 1].^[6] Recommendations are assigned evidence level (EL) ratings on the basis of the quality of supporting evidence, all of which have also been rated for strength [Table 2]. A thorough search of the literature pertaining to each of the classes of recommendations is presented, which are pertinent to the Indian clinical context of diabetes. A total of 94 recommendations are made. The guidelines have been written by a core group of 11 authors and reviewed by a committee of six multidisciplinary experts from India. It has been refereed by a South Asian panel of 10 reviewers.

The recommendations incorporate the subjectivity of a complex clinical scenario with the objectivity of evidence-based medicine. As individual patient

circumstances and psychosocial environments differ, the ultimate clinical management should be based on what is in the best interest of the individual patient and what is appropriate for the local scenario, involving shared decision making by patient and clinician.

RECOMMENDATIONS ON PSYCHOSOCIAL ASSESSMENT AND MANAGEMENT

While the current guidelines are intended as a comprehensive picture of psychosocial management in clinical practice, to make their application and utility more topical, they have been grouped based on their utility in different clinical contexts. This arrangement lends itself to contextualizing the recommendations in a given clinical scenario more accurately, while still remaining a part of the larger picture, to present a flavor of the guiding principles of psychosocial management. Current recommendations have been broadly presented in three clinical domains [Table 3]:

- General issues
- Psychological assessment and management
- Social assessment and management.

GENERAL ISSUES

Improving awareness/skills of healthcare professionals

- **Recommendation 1:** Healthcare professionals should receive at least informal and, preferably, formal training in psychological interventions involving coping and counseling for improved patient satisfaction and therapeutic outcomes^[28] (Grade A; EL 1).
- **Recommendation 2:** Healthcare professionals must be made aware of the bio-psychosocial model of managing diabetes and obtain basic grounding in psychosocial aspects of diabetes^[15] (Grade A; EL 3).
- **Recommendation 3:** Ability of health professionals to counsel patients with diabetes must be enhanced by receiving training in specific courses associated with teaching and counseling techniques, such as “Effective Patient Teaching and Problem Solving”^[29] SWOT analysis^[30] and CARES^[31] (Grade A; EL 3).
 - **SWOT analysis**^[32-34]: SWOT (strength, weaknesses, opportunities, threats) analysis is an effective tool for personal growth and development. This tool aids doctors in evaluating patient’s current strengths and weaknesses and decide the best strategy which can be utilized for patient’s development as it will provide information about future threats which can be taken care off with insight into available opportunities for a win–win situation for both doctor and patient.
- **Recommendation 4:** Healthcare professionals should adopt approaches like WATER that involve patients

Table 1: Evidence rating according to American association of clinical endocrinologists protocol 2010^[6]

Evidence level*	Semantic descriptor (Reference methodology)
1	Meta-analysis of randomized controlled trials
1	Randomized controlled trials
2	Meta-analysis of non-randomized prospective or case-controlled trials, systemic literature review
2	Non-randomized controlled trial
2	Prospective cohort study
2	Retrospective case-control study
3	Cross-sectional study
3	Surveillance study (registries, surveys, epidemiologic study, retrospective chart review, mathematical modeling of database)
3	Consecutive case series
3	Single case reports, observational study, pilot study
4	No evidence (theory, opinion, consensus, review, or preclinical study)

* 1: Strong evidence, 2: Intermediate evidence, 3: Weak evidence, and 4: No evidence

Table 2: Recommendation grading according to the American association of clinical endocrinologists protocol 2010^[6]

Grade	Strength of recommendation
A	Strong
B	Intermediate
C	Weak
D	Not evidence-based

Table 3: Recommendations for psychosocial management of diabetes in India

Domain	Category with proposed recommendations
General issues	Improving skills of healthcare professionals Improving awareness among patients with diabetes Improving community awareness Patient-centered approach Relationship-centered approach
Psychological assessment and management	Psychological assessment Strategies for assessment Follow up after assessment Psychological management Cognitive behavioral therapy Motivational therapy Problem-solving therapy Coping and counseling therapy Family therapy Yoga and meditation Folk dance therapy Sexual dysfunction counseling Eating habits Management of type 1 diabetes in adolescents Psychiatric assessment Strategies to address psychiatric co-morbidities Assessment of depression Assessment of anxiety Psychiatric management Psychopharmacologic medication Management of depression Management of anxiety
Social assessment and management	Multiple social structures Family structure, setting and bonding Gender discrimination Custom and religion Urban and rural settings Community reaction Affordability

actively, ensure provider-patient bonding and improve therapeutic outcomes^[31] (Grade A; EL 4).

Improving awareness among patients

- **Recommendation 5:** In patients with low health literacy and numeracy, diabetes education may be facilitated using interactive modules such as diabetes literacy and numeracy education toolkit^[35] (Grade A; EL 1).
- **Recommendation 6:** Self-awareness tools such as “Johari Window” is recommended in patients with diabetes to enhance his/her knowledge about oneself that aid in better handling of one’s emotional and personal issues, which will further boost one’s self-esteem^[36] (Grade A; EL 4).
 - o **Johari window**^[36,37]: Johari window model developed by Joseph Luft and Harry Ingham is an effective tool for self-awareness to handle one’s emotions and personal issues. This tool helps in enhancing patient’s knowledge about oneself and thus exploring facts about who he/she is as an individual by following 360° feedback approach and sharing information with others. The expansion

of open arena by the patient will make him/her confident and comfortable which will further boost one’s self esteem.

- **Recommendation 7:** There is a need to create interactive modules for India, where most patients present with low health literacy/numeracy (Grade A; EL 4).

Improving community awareness

- **Recommendation 8:** Improving community awareness about diabetes is necessary^[16] (Grade A; EL 1).
- **Recommendation 9:** Creating public awareness about psychiatric comorbidities with diabetes, and diabetes occurring with psychoactive drugs, is recommended^[38,39] (Grade B; EL 4).

Patient-centered approach

PCC is now an accepted part of medical practice today. Initially proposed in psychology as client-centered care, this term was popularized by bodies such as the Picker Institute and Institute of Medicine, through popular publications.^[40,41] Recent guidelines on the management of diabetes have further reinforced the need for patient-centeredness, using the term “patient-centered approach” in their nomenclature,^[42] which is defined as an approach to “providing care that is respectful of and responsive to individual patient preferences, needs and values and ensuring that patient values guide all clinical decisions.”^[43] This approach customizes seeking and accepting the patient’s ideas, seeking and giving recognition and encouragement, treatment recognition and decision making in response to the individual patient’s perspective. Patient-centered approach has a beneficial impact on improving the health status of type 2 diabetes in terms of biological (glycemic control) and behavioral indicators (eating and exercise, compliance, symptoms of diabetes).^[44] Experts also accept the need for, and importance of, therapeutic patient education through patient-centered approach in diabetes management.^[45]

- **Recommendation 10:** Patients should be encouraged to participate in patient empowerment programs that result in improved psychosocial self-efficacy and attitudes^[46] (Grade A; EL 1).
- **Recommendation 11:** Physicians are recommended to practice patient-centered professionalism, which encompasses competence, accessibility, respect, empathy, and honesty, best described by CARES^[47] (Grade A; EL 4).
- **Recommendation 12:** Physicians should explore the social situation, attitudes, beliefs and worries related to diabetes and self-care. Physicians are responsible for assessing the well-being and psychological status of the patient using questionnaires or validated measures^[15] (Grade B; EL 2).

- **Recommendation 13:** In communicating with a patient, physician should adopt a whole-person approach, and discuss outcomes and clinical implications if necessary^[48] (Grade B; EL 3).
 - Five attributes of diabetes care professionals: CARES^[47]
 - C = Confident competence
 - A = Authentic accessibility
 - R = Reciprocal respect
 - E = Expressive empathy
 - S = Straightforward simplicity

Relationship-centered approach

Relationship-centered approach is a framework that recognizes the nature and quality of relationship between patient and provider, which needs to be given due importance.^[49] It involves extending the principles of a patient-centered approach to encompass other participants in the medical system. Successful management of disease requires a development goal and is facilitated by stronger physician–patient relationships, where communication is a core tool.

- **Recommendation 14:** Open communication between patient and physician must be encouraged for treatment that is logical, acceptable and feasible to both^[50] (Grade A; EL 4).
- **Recommendation 15:** Health professionals should aim for greater integration with patients based on cultural, social, cognitive and linguistic comprehension, and must be responsive to cognitive, motivational and emotional barriers in the provider–patient relationship^[51] (Grade B; EL 4).

PSYCHOLOGICAL ASSESSMENT AND MANAGEMENT

Although many people with diabetes cope well and live normal, healthy lives with diabetes, several studies, including diabetes attitudes and the wishes and needs (DAWN) study, emphasized that psychological support is under-resourced and inadequate in both adults and children with diabetes, resulting in poor quality of life and reduced general well-being.^[3] It is important to establish ways to achieve emotional well-being as part of diabetes management and to include psychological assessment and treatment into routine care rather than wait for the identification of a specific problem or deterioration in psychological status.^[52] Furthermore, improved access to health care professionals trained in identifying patients’ needs for providing counseling and psychosocial support is needed for effective management of diabetes.^[53] Psychological interventions that use the therapeutic alliance between patient and therapist are understood in emotional, cognitive, and behavioral

context.^[54] It is known that addressing psychological needs has a positive effect on diabetes outcomes in terms of reduced glycosylated hemoglobin^[55] as well as co-morbid depression and systolic blood pressure.^[56]

Evidence-based guidelines for psychosocial care in adults with diabetes have been included in the Canadian Diabetes Association,^[57] SIGN,^[7] National Institute of Health and Clinical Excellence (NICE),^[58] Institute for Clinical Systems Improvement,^[59] German Diabetes Association^[60] and, for the first time in 2005, in the ADA standards of care,^[8] indicating the importance of psychological interventions in different problem areas.

Psychological assessment

The considerable impact that diabetes and its treatment can have on quality of life is, perhaps, that this disease has spurred a large number of attempts to develop patient-assessed health outcome measures specific to diabetes. Several reliable instruments useful in assessing psychosocial adjustment to diabetes have been included in various evidence-based guidelines for psychosocial care, such as Well-being Questionnaire (WHO-5)^[61] (in SIGN, ADA, IDF-2005; Patient Health Questionnaire-9 (PHQ-9)^[62] by SIGN, German Diabetic Association; Problem Areas in Diabetes (PAID) Scale^[63] by NICE and ADA guidelines. Studies reported several other diabetes-specific psychological screening instruments with good evidence of reliability and validity, which are currently being implemented [Table 4].^[64]

- **Recommendation 16:** When psychosocial problems are identified, healthcare professionals should explain the link between these and poorer diabetes control. They should advise patients where best to obtain further help, and facilitate this if appropriate^[65,66] (Grade A; EL 1).
- **Recommendation 17:** Assessment of the patient’s psychological and social situation must be part of the diabetes management using reliable, validated

Table 4: Populations in which the instruments were evaluated^[64]

Instrument	Clinical setting/region
Appraisal of diabetes scale	USA out patients
Diabetes impact measurement scale	
Diabetes quality of life measure	
Diabetes-39	
Diabetes distress scale	
Psychological integration scale (ATT39)	UK, Netherlands, and Denmark
Audit of diabetes-dependent quality of life	
Diabetes health profile	
Diabetes-specific quality of life scale	Germany
Questionnaire on stress in diabetes-revised	
Well-being enquiry for diabetics	Italy

tools that include instruments and questionnaires^[53] (Grade A; EL 1).

- **Recommendation 18:** From the Indian perspective, consider Self-perception of Health Questionnaire,^[54] WHO-5, PAID and other diabetes-specific questionnaires available in local languages as suitable tools^[15,46] (Grade B; EL 2).

Psychological management

In medical and mental health settings, psychological treatments are routinely used to improve outcomes, e.g., to reduce psychological distress and improve adherence. The need for effective, well-evaluated psychosocial interventions to help people to deal with the routine stress of diabetes (diabetes distress) has been widely noted in the literature.^[67] Especially now that treatment regimens are becoming more and more intensive, comprehensive behavioral changes are required. Additional psychosocial support is called for to help people to make these changes and to preserve and sustain their efforts with the goal of optimizing both glycemic control and quality of life.^[54]

Cognitive behavioral therapy

Cognitive behavioral therapy (CBT), also called “Socratic Dialogue,” is an approach that helps patients recognize the power of “self-talk” (what they say to themselves) and enhances emotion-focused coping skills in dealing with emotional distress. CBT has gained much prominence as psychotherapy for depression and other problems.^[68,69] In CBT, individuals are educated and trained on changing habitual patterns of responding to challenges or problems. It uses measurement tools designed to determine the individual’s perception (cognition) and understanding of diabetes and its self-management (behavioral changes). Thus, the cognitions and behaviors are intertwined and the cognitions are changed the same way one would change other behaviors, through identifying alternatives.

CBT is recommended as a primary psychological intervention for looking at “negative behaviors” and “dysfunctional thoughts” among people with diabetes by the NICE, SIGN, ADA and IDF guidelines.^[70] Studies have shown that CBT is either similar or more effective than medication in the treatment of psychological problems, including depression, anxiety, and stress.^[71,72] Several reviews concluded that cognitive behavioral interventions have beneficial effects on mood and metabolic control with improvements in course and outcome.^[73,74] It has been suggested that integrating CBT with the current practice of diabetes management would be ideal for the future.^[75] As evident from a randomized controlled trial, CBT was shown to improve glycemic control in patients with diabetes when combined with patient education.^[76]

The questions used in CBT are termed the five W’s: What, where, when, why, and whom, and the model used is termed FIND: Frequency, intensity, number of times and duration of the individual’s problem. However, implementing CBT requires a fair amount of experience and skill, which demand substantial clinical training with backgrounds in counseling, nursing, psychiatry, psychology, or social work. Discussing patient’s behavior, resistance, rituals and consequences aligned with interpersonal problems can further increase the healthcare professional’s understanding of the patient’s perspective.^[77]

- **Recommendation 19:** CBT should be recommended either alone or in combination with other strategies to diabetes patients with co-morbid psychiatric disorders or to improve glycemic control and emotional well-being^[78,79] (Grade A; EL 1).
- **Recommendation 20:** Healthcare professionals should receive formal training in CBT^[28] (Grade A; EL 1).
- **Recommendation 21:** A simple method that can be followed in the Indian context is the Karnal Model for counseling^[80] (Grade A; EL 1).
- **Recommendation 22:** Healthcare professionals should have at least eight sessions with the patient during the therapy^[76] (Grade C; EL 3).
 - o **Karnal model^[31,80]:** The Karnal model relies on the cognitive behavioral therapy approach, which follows the “antecedents’ lead to behavior’ leads to consequences” (ABC) framework which will be effective only if a complete history of the patient is considered. The model represents an easy, simple and acceptable method of counseling applicable to various psychological disorders and can be used in all health care situations, including similar resource-challenged settings with social constraints.

Motivational therapy

Motivational enhancement therapy is a brief counseling method for enhancing motivation to change problematic health behaviors by exploring and resolving ambivalence. Although it has successfully been used in the field of addictions, it lacks sufficient evidence for effectiveness in improving diabetes control.^[78] It is more patient-centered and empowering than traditional care.^[81] The therapy has been recommended by IDF, ADA and SIGN for improving the psychological well-being in patients with diabetes.

This therapy involves a patient-centered counseling through motivational interviewing (MI), and has been shown to enhance glucose control in specific patient groups (older obese women with non-insulin-dependent DM).^[82] MI appears to be a promising approach for adolescents as well, with initial studies showing improved glycemic control.^[83,84] A recent multi-center randomized trial demonstrated that

MI with adolescents improved long-term glycemic control and quality of life.^[85] A modified version of MI, known as “WATER,” involves a checklist designed for healthcare professionals to change the patient’s attitude toward problematic behaviors and improve diabetes care-related behaviors.^[86]

- **Recommendation 23:** Physicians should receive formal training in interventions involving MI, like WATER^[86] (Grade A; EL 3).
- **Recommendation 24:** Patients should be motivated to initiate or intensify insulin using motivational approaches, such as analogy building, which reduce clinical inertia as well as patient resistance related to insulin usage^[31,86] (Grade A; EL 4).
- **Recommendation 25:** Long-term motivational therapy with suitable follow-up is recommended in combination with CBT for improvement in HbA1c levels in poorly controlled type 1 diabetes mellitus (T1DM) adults^[87] (Grade B; EL 1).

Problem-solving therapy

Problem-solving is a learned behavior involving strategies for problem resolution. In this, the individual is required to select, apply and evaluate the effectiveness of a chosen strategy.^[88] It is a prerequisite for decision making to help reinforce healthy behaviors on a daily basis and involves problem specification, goal and barrier identification and application of skills, and knowledge and experiential learning.^[89]

Several tools are available to assess the problem-solving approach, such as the Diabetes Self-Management Assessment Report Tool (D-SMART[®]),^[90] Diabetes problem-solving inventory,^[91] Assessment of primary care resources and supports for chronic disease self-management tool, to facilitate assessment and improvement of support for patient self-management.^[92]

- **Recommendation 26:** Therapy should be individualized, and is recommended in children/adolescents for improvement in behaviors and adherence and in adults for dietary behavior^[93] (Grade A; EL 1).
- **Recommendation 27:** Problem-based approach should be used in conjunction with diabetes self-management education, patient empowerment and life-long management programs to improve diabetes-related outcomes and quality of life^[94] (Grade A; EL 1).
 - o Modified version of MI: WATER approach^[86]
 - W = Welcome warmly
Body Language
The OPD encounter
 - A = Ask and assess
Identifying and using cues
Internal, external, laboratory

Hierarchy of questioning

The insulin encounter

- T = Tell truthfully
Mid-sentence analysis
Verbal/non-verbal cues
Analogy building
- E = Explain with empathy
Examples/Experience-sharing
Demonstration
Coping skills training
- R = Reassure and return
Prochaska’s theory of motivation
Minimizing discomfort of change
Working the environment (Eco-sensitivity)

Coping and counseling therapy

The basic idea of a coping strategy is that it should ease stress, provide comfort or enhance one’s mood in a difficult situation and have a constructive, lasting impact on the mind and body. Coping is a complex process that can be defined as “constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person.”^[95] Tools like Ways of Coping Questionnaire are available to assess parents in coping with their child’s insulin-dependent diabetes.^[96]

- **Recommendation 28:** Group-based counseling programs in conjunction with psychological counseling, CBT and behavioral family systems therapy-diabetes (BFST-D) are recommended to reduce diabetes-related stress as well as achieve glycemic control in problematic diabetics^[5] (Grade A; EL 1).
- **Recommendation 29:** It is recommended that healthcare professionals should receive formal training in psychological interventions involving coping and counseling for improved patient satisfaction and therapeutic outcomes^[28] (Grade A; EL 1).
- **Recommendation 30:** Greater social support, patient empowerment and supporting coping skills must be considered among women with diabetes for better psychosocial adjustment to illness^[46,97] (Grade A; EL 2).
- **Recommendation 31:** Family physicians should encourage patients with diabetes to integrate positive coping skills and de-learn negative coping mechanisms such as rumination (excessive thinking about the disease), catastrophizing (assuming undue negative impact to the disease), self-blame (blaming oneself for the illness) and other-blame (blaming others for one’s condition) in their daily life^[98] (Grade A; EL 2).
- **Recommendation 32:** Therapy to improve resilience resources and coping strategies of patients is recommended in patients finding difficulty in adjustment with treatment and lifestyle modification^[99] (Grade B; EL 3).

Family therapy

Several studies have shown the link between high levels of non-diabetes-specific family factors, such as conflict, stress and family cohesion, with poorer glycemic control and adherence.^[100] Family therapy helps to reduce diabetic-related conflict between family members and reduces the impact of stress and mental health disorders associated with diabetes, particularly in children and adolescents.^[101] An intervention based on family-focused teamwork increased family involvement without causing family conflict or adversely affecting youth quality of life, and helped prevent worsening of glycemic control.^[102]

- **Recommendation 33:** BFST-D in combination with educational support is recommended in reducing family conflict and improving treatment adherence in patients with diabetes with poor glycemic control and improving overall family communication and problem-solving skills^[15,103] (Grade A; EL 1).
- **Recommendation 34:** Family therapy should be recommended in children to allow for a better balance between parental and self-care of the child^[104,105] (Grade A; EL 4).
- **Recommendation 35:** Physicians should explore the role of family support and family functioning in implementing family-oriented programs for individuals with diabetes^[15] (Grade B; EL 3).

Yoga and meditation

Lifestyle modification through yoga produces consistent physiological changes and can make an appreciable contribution to primary prevention as well as management of diabetes. Yoga has been studied for controlling the symptoms and complications of diabetes. A comprehensive yogic breathing program has been shown to improve the physical, psychological, and social domains and total quality of life in people with diabetes taking oral hypoglycemic drugs (OADs),^[106] and is recommended as an effective complementary or integrative therapy program for diabetes management.^[107,108] Table 5 summarizes the important yoga practices and their advantages.

- **Recommendation 36:** Yoga is recommended as it can improve well-being, reduce weight and improve sleep in individuals with diabetes^[109,110] (Grade A; EL 4).
- **Recommendation 37:** Comprehensive yogic breathing can be prescribed to improve the quality of life in patients with diabetes^[106] (Grade B; EL 1).
- **Recommendation 38:** Patients with pre-existing complications such as cardiovascular and other comorbidities are recommended to practice yoga regularly for the better management of diabetes^[111] (Grade B; EL 1).
- **Recommendation 39:** Physicians should use stress management educational programs like yoga to improve the subjective well-being scores of people with diabetes and to contribute to the primary prevention as well as management of diabetes^[112] (Grade C; EL 3).

Folk dance therapy

Dance/movement therapy is a popular form of physical activity that deals with individual's physical, emotional, cognitive and social integration. A total body movement such as dance enhances the functions of other body systems, such as circulatory, respiratory, skeletal and muscular systems, and is known to increase neurotransmitter and endorphins in the brain, which create a state of well-being. Today, dance/movement therapy is a well-recognized form of complementary therapy used in hospitals for special settings associated with physical and psychological problems.^[107]

- **Recommendation 40:** Dancing twice a week for 8-12 weeks is recommended for diabetes patients for improved outcomes of HbA1c, weight, body fat and blood pressure^[113] (Grade B; EL 2).
- **Recommendation 41:** Group activities such as round dances, where singing, dancing, and socializing are to be embedded in the Diabetes Prevention Program under a community-based participatory research approach, can improve outcomes in patients with diabetes^[114] (Grade C; EL 3).

Table 5: Benefits of yoga practices on management of diabetes^[108]

Yoga practice	Advantage
Surya namaskar	Improves metabolic function, helping in utilizing excess glucose while toning up the musculoskeletal system
Tadasan	Evokes a sense of stability and balance both physically and mentally
Parivritta trikonasan, Padahastasan, Ardhakatchakrasan, Vakrasan, Paschimottanasan, Pavanamuktasan, Bhujangasan, Dhanurasan	Stimulating intra-abdominal organs such as liver and pancreas thus producing benefits in the lipid profile
Ardha halasan and Viparitarakrani	Harmonizing psycho-neuro-endocrine function as seen in reaction time
Chandranadi pranayam	Normalizing autonomic balance
Pranav pranayam, Nadi shuddhi, and Savitri pranayam	Contribute toward a sense of calmness that enhances inherent healing potentials
Kayakriya and Shavasan	Creates a sense of mind-body harmony that corrects the psycho-somatic component of diabetes mellitus
Mandukasan	Activates pancreas for sufficient insulin secretion and is beneficial for diabetes

Sexual dysfunction counseling

Chronic medical conditions, particularly diabetes, are frequently associated with sexual difficulties and problems, which are often underreported and underdiagnosed. Furthermore, patients and physicians may feel uncomfortable while discussing such issues. They may feel that sexual problems are not important enough to be mentioned in the context of disease, resulting in poor glycemic control. The situation gets worse with the presence of a comorbidity such as depression. Patients should be encouraged to talk about their sexual problems with the therapist or physician, as both biomedical and psychosocial factors have to be explored. Therapeutic interventions should include basic counseling, biomedical treatment of atrophy and lubrication difficulties, as well as treatment of comorbidities and/or sex therapy.

- **Recommendation 42:** Physicians should be trained to evaluate sexual problems in both genders in order to facilitate recognition and possible treatment^[80,115] (Grade A; EL 3).
- **Recommendation 43:** Diabetic hypertensive/neuropathic patients should be evaluated for sexual dysfunction and appropriate therapy should be considered^[116] (Grade A; EL 3).
- **Recommendation 44:** Therapeutic interventions should include basic psychological counseling, biomedical treatment as well as treatment of comorbidities and/or sex therapy^[117] (Grade A; EL 3).

Eating habits

Diet adherence and managing wrong eating habits are crucial in the management of diabetes. Eating disorders are frequently seen in patients with T1DM, especially children and adolescents who also skip insulin as a form of weight control. This leads to an earlier than expected onset of diabetes-related microvascular complications, particularly retinopathy.^[118] There is also evidence that adolescents with diabetes, especially girls, have a higher incidence of eating disorders, and that eating disorders are associated with poor glycemic control.^[119-121] A dietary regimen adherence in diabetes mellitus (DRADMS) questionnaire was developed to obtain a measure of the T2DM patients' problems in preventing adherence to the regimen.^[122]

- **Recommendation 45:** Management of eating disorders requires a multidisciplinary team: Endocrinologist/diabetologist, nurse educator, nutritionist, psychologist and, frequently, psychiatrist^[118] (Grade B; EL 4).
- **Recommendation 46:** While treating T1DM patients with eating disorders, physicians should consider including diabetes treatment, nutritional management, and psychological therapy^[118] (Grade B; EL 4).
- **Recommendation 47:** For T2DM patients with non-adherence to diet, closer scrutiny, use of

DRADMS questionnaire and psychosocial counseling are recommended^[122] (Grade B; EL 2).

- **Recommendation 48:** Policy decision about built environment and accessibility of fast foods must be incorporated in residential areas and near educational institutions^[123,124] (Grade B; EL 4).

Management of type 1 diabetes in adolescents

Management of T1DM in adolescents and children is an important psychological aspect that requires utmost care, particularly in the adolescent age group. It is at this period of life when the child desires freedom and independence, and this produces barriers in achieving a good glycemic control. The ISPAD Consensus Guidelines 2000, which stated that "Psychosocial factors are the most important influences affecting the care and management of diabetes," also emphasized the importance of psychological care of children and adolescents with diabetes.^[10] In a 10-year prospective study from diagnosis of type 1 diabetes, it was found that adolescents were at high risk for various psychiatric disorders.^[125,126] Furthermore, there is also evidence that adolescents with diabetes have a higher incidence of eating disorders and are associated with poor glycemic control and early onset of diabetes-related complications.^[118-121]

For adolescents with T1DM family communication, conflict resolution and problem-solving skills are critical elements for the effective management of diabetes. Family communication helps to reduce diabetic-related conflict between family members and reduces the impact of stress and mental health disorders associated with diabetes in children and adolescents.^[101] Other therapies like MI and behavioral family systems therapy appear to be promising approaches for adolescents for improved glycemic control.^[83,84] A recent multi-center randomized trial demonstrated that MI with adolescents improved long-term glycemic control and quality of life.^[85]

- **Recommendation 49:** Therapies such as problem solving and MI should be individualized in children/adolescents with diabetes for enhancement in behaviors, adherence to medication and change in dietary patterns for improved glycemic control^[85,88] (Grade A; EL 1).
- **Recommendation 50:** BFST-D in combination with educational support is recommended for adolescents with diabetes, which helps in refining problem-solving skills for reducing family conflict and improving treatment adherence in order to achieve better glycemic control^[103] (Grade A; EL 1).
- **Recommendation 51:** Problem-focused coping strategies and behavioral coping skills are recommended in adolescents with T1DM for better metabolic control, psychosocial adjustment and treatment adherence^[127] (Grade A; EL 3).

- **Recommendation 52:** Adolescents with difficulty in achieving treatment goals or with recurrent diabetes ketoacidosis should be screened for psychiatric disorders^[128] (Grade B; EL 1).

PSYCHIATRIC ASSESSMENT

The impact of mental illness on diabetes patients has become a major concern for overall health, as they are at least twice as common in them compared with the general population. A study reported that at least 30% of the diabetes patients had anxiety disorders, while 8.5-32.5% had depression.^[129] There is growing evidence, particularly from North America, that young people with diabetes appear to have a greater incidence of psychiatric disorders.^[125,126,130] In a 10-year prospective study from diagnosis of type 1 diabetes, adolescents were at high risk for various psychiatric diagnoses; females were more likely than males to receive a diagnosis, and half of those with a history of poor glycemic control had a psychiatric diagnosis.^[126] Diabetes and psychiatric disorders share a bidirectional association, both influencing each other in multiple ways. The severity of one disorder often contributes to the pathogenesis of the other resulting in comorbidity. For instance, diabetes in individuals results in emergence of psychiatric disorder or psychiatric disorders like depression can not only act as a significant risk factor in the development of diabetes but also interferes with the management of diabetes by influencing treatment adherence. Furthermore, impaired glucose tolerance and diabetes could merge as a side-effect of the medications used in the treatment of psychiatric disorders.^[131] Psychiatric comorbidity with diabetes is associated with impaired quality of life, increased cost of care, poor treatment adherence and poor glycemic control.

Strategies to address psychiatric comorbidities

- **Recommendation 53:** Training of general practitioners and physicians in the identification and management of psychiatric comorbidities in rural and urban areas is recommended^[38] (Grade C; EL 4).

Depression

Diabetes and depression appear to have a consistent bidirectional relationship, with depression often preceding the development of T2DM in adults.^[132] Depression and diabetes may be related through either biological or behavioral pathways. Biological pathways include hormonal abnormalities, alterations in glucose transport function and increased immuno-inflammatory activation.^[133] While negative health behaviors associated with depression, such as inactivity, poor diet, smoking and non-adherence to treatment, recommendations and self-care may be important explanatory behavior factors that may impact diabetes and its complications.

Assessment of depression

- **Recommendation 54:** A careful assessment of depression in diabetes should include the use of a structured clinical interview (Grade A; EL 4).
- **Recommendation 55:** Self-reported measures such as the Beck Depression Inventory,^[134] Centers for Epidemiologic Studies Depression Scale,^[135] PHQ-9,^[136] Hamilton Rating Scale for Depression and Hospital Anxiety and Depression Scale (HADS) are to be considered to assess depression in patients with diabetes.^[137] The Geriatric Depression Scale is used to screen for depressive symptoms in older individuals. Validated diabetes-specific psychological instruments are also available that can be used in diabetes management^[15,46] (Grade A; EL 1).
- **Recommendation 56:** Recognizing and providing treatment for subclinical presentations of depression are recommended^[52,138] (Grade B; EL 3).
- **Recommendation 57:** Differentiating symptoms of depression that are directly associated with diabetes from those that may be more independent of diabetes is recommended based on the International Statistical Classification of Diseases and Related Health Conditions-10 of the WHO and Diagnostic and Statistical Manual of Mental Disorders-IV of the American Psychiatric Association^[131] (Grade C; EL 2).

Anxiety

Diabetes-related stress, including feeling overwhelmed by diabetes and its care, feeling discouraged with the treatment plan and feeling fearful of the future, may contribute to the symptoms of anxiety. The stress of dealing with diabetes may impact patients' psychosocial functioning and quality of life, which may also increase the risk for developing anxiety symptoms.^[139] Diabetes patients may experience short-term, episodic stress related to self-care activities or more long-term, chronic stress related to living with a chronic illness, which may eventually develop into anxiety symptoms or a chronic anxiety disorder.^[13]

Assessment of anxiety

- **Recommendation 58:** Proper identification and diagnosis of anxiety is recommended to distinguish diabetes-related physical symptoms from an anxiety disorder^[140] (Grade B; EL 4).
- **Recommendation 59:** Screening tools such as the HADS^[141] and the Generalized Anxiety Disorder-7 Scale,^[142] PHQ and Symptom Checklist-90 are to be considered (Grade B; EL 1).
- **Recommendation 60:** Physicians should consider standardized scales facilitating diabetes-focused assessment that include the Diabetes Distress Scale,^[143] Diabetes Quality of Life Questionnaire,^[144] hypoglycemia

fear survey^[145] and Diabetes Fear of Injection and Self-Testing Questionnaire^[146] (Grade A; EL 1).

PSYCHIATRIC MANAGEMENT

Psychopharmacologic medication

Psychotropic medications, helpful in reducing the psychological symptoms in individuals with emotional health problems, are most effective when used in conjunction with other approaches such as CBT, Problem-Solving Therapy, etc.,. A number of medications have been shown to effectively treat a variety of emotional health problems^[147] of varying intensity.^[148] Nonetheless, psychotherapy and pharmacotherapy do not show strong differences in effect sizes and, hence, the option of using psychopharmacologic agents in therapy must be made after due consideration of all the factors of patient well-being and empowerment.^[148]

- **Recommendation 61:** Choice of pharmacotherapy should give due consideration to criteria such as contraindications, treatment access or patient preferences, and must be used as a complement to psychotherapy^[39,149] (Grade A; EL 1).
- **Recommendation 62:** Physicians should be aware of the possible metabolic adverse effects of psychotropic medications^[39] (Grade A; EL 4).

Management of depression

- **Recommendation 63:** Psychotropics such as antidepressants (Phenylzine), antipsychotics (Haloperidol, Ziprasidone, and Aripiprazole) and mood stabilizers (Topiramate) associated with a low risk of impaired glycemic control are recommended to manage depression with diabetes^[131] (Grade A; EL 4).
- **Recommendation 64:** Tricyclic antidepressants, selective serotonin reuptake inhibitors, norepinephrine reuptake inhibitors and serotonin modulators are to be avoided as they have been shown to be associated with increased risk of diabetes following intermittent and continued long-term use^[150] (Grade A; EL 1).
- **Recommendation 65:** Non-pharmacological interventions such as CBT and interpersonal therapy can be used either alone or in combination with pharmacotherapy^[72,131] (Grade A; EL 4).
- **Recommendation 66:** Psychiatrists should be sensitized to understand the multifaceted interactions between diabetes and psychiatric disorders for improved therapeutic outcomes^[131] (Grade A; EL 4).

Management of anxiety

- **Recommendation 67:** Psychological interventions focused on self-care, such as group education programs including coping skills, behavioral-cognitive skills, relaxation techniques, problem-solving skills,

mindfulness-based stress management and family therapy, are to be considered^[139,151] (Grade B; EL 3).

- **Recommendation 68:** Behavioral intervention can be included as an adjunct to routine medical care in the management of young people with T1DM^[152] (Grade B; EL 1).

Electroconvulsive therapy in diabetes

The literature on the effect of electroconvulsive therapy (ECT) on DM remains controversial, with evidence of both amelioration and worsening of hyperglycemia.^[153] Reports of ECT leading to dangerous hyperglycemia in a previously non-diabetic patient suggested the possibility of an unmasking or exacerbation of diabetic pathology during a course of ECT.^[154] But, another more recent study included 19 patients with insulin-requiring T2DM undergoing ECT, none of whom were on oral hypoglycemic drugs. There was no statistically significant difference in the average daily insulin requirements or acute glycemic control associated with ECT, suggesting that ECT in insulin-requiring type 2 diabetes patients is safe and efficacious.^[155]

- **Recommendation 69:** ECT is suggested to be safe and efficacious for T2DM patients requiring insulin in some literature, although caution must be practiced before prescribing it^[155] (Grade C; EL 3).

SOCIAL ASSESSMENT AND MANAGEMENT

Social factors currently play a small role in the treatment plan for diabetes. Nonetheless, social factors have an important role in the acceptance, adherence to treatment and overall outcome of diabetes management. Studies have found the importance of social (economic class, financial expenditure, regional disparities, family structure, affordability to medical care, educational profile) and cultural factors (ethnicity, customs, food habits, fasting conditions, community beliefs) in the prevalence and management of diabetes care.

In resource-limited countries like India, diverse social, cultural as well as religious economic, psychological, regional, educational, and familial factors have consequences on the clinical progression, treatment and outcome of any disease management.^[46] Thus, we need to lay emphasis on working on the environment (eco-sensitivity) and medical anthropology for the better management of diabetes. Further, taking into consideration the perceptions of patients' for different therapeutic agents from different social structures, ethnopharmacy also plays an important role. The socioeconomic status of households/individuals in urban as well as in rural areas in India can be assessed from the scale developed by Tiwari *et al.* 2005^[156] and updated in 2012.^[157] The scale can play a key role in the

development of evidence-based guidelines based on the indication and efficacy of care practices directed at social issues, which is much needed for health care professionals engaged in diabetes care.

Social structure

The influence of social class or socioeconomic status on the incidence and management of diabetes is observed globally as well as in India. In India, cultural diversity and deep-rooted social structures have great implications on the clinical course, treatment and ultimate outcome of any disease. Prevalence of diabetes is reportedly higher in the highest socioeconomic groups, and decreases with decreasing socioeconomic status in India.^[158] However, populations with diabetes from the lower social class and no health insurance were found to be at the greatest risk of not receiving preventive care^[159] in the USA or admission to hospital for diabetes care^[160] in the UK. While diabetes was once considered a disease of affluence, in the last decade, its prevalence rates in the middle and lower income groups have shown a trend toward convergence.^[161] Families with higher average family income and education profile are known to spend more on diabetes care.^[162]

- **Recommendation 70:** Because socioeconomic status and health insurance play an important role in access to diabetes care, physicians are recommended to assess the socioeconomic class of the patient for better disease management^[159] (Grade B; EL 2).
- **Recommendation 71:** Physicians must be sensitive to the income and education profile of patients while choosing therapeutic options, to promote greater adherence to therapy and to improve outcome^[162] (Grade B; EL 4).

Family structure

Several studies from India have demonstrated the importance of family structure in the management of diabetes. In India, it is reported that cost-effective focus for overall diabetes care can be placed on the nuclear family as a unit,^[39] which occupies 60% of the total household units^[163] with mean size of 4.8 persons per house, (rural areas – 4.9 persons, urban areas – 4.6 persons). Other aspects in diabetes management and involving family risk factors associated with the same are^[5] low marital satisfaction; high criticalness, hostility, conflict; poor problem-solving skills; low family coherence; low closeness/cohesion; low family organization; lack of congruence in diabetes beliefs and expectations. For adolescents with T1DM, family communication, conflict resolution and problem-solving skills are critical elements for the effective family management of diabetes. Moreover, social bonds, especially family bonds, are known to influence outcomes of diabetes management, which holds the key to avoiding

negative progression of the disease.^[164] The practical and emotional strains arising out of this affect diabetes management and family beliefs and emotion management and help manage this impact by improving patient morale. However, unresolved family conflicts about diabetes are associated with more depressive symptoms and lower quality of life.

- **Recommendation 72:** Physicians should encourage patients to seek support from family members, based on individual family structures, overcome barriers in adherence to treatment and promote patterns of behavior, which may make diabetes management easier^[165] (Grade A; EL 2).
- **Recommendation 73:** In weight loss programs, healthcare providers should recommend the collaboration of a spouse to actively work together to reach a common goal^[166] (Grade A; EL 2).
- **Recommendation 74:** Diabetes management should be made more flexible and convenient in a familial context to reinforce the patient's personal sense of health, emotional well-being and ability to maintain diabetes care^[164] (Grade C; EL 4).

Gender discrimination

Gender discrimination toward healthcare, including diabetes, is observed all over the world. In India, higher outpatient attendance for T1DM is recorded for men than for women (<30 years age). Interestingly, half of these young women who are at a marriageable age often lose their follow-up to clinic due to perceived social stigma, often leading them to medical consequences, including diabetic ketoacidosis.^[167] The reasons for the same are mainly disbeliefs as “will she be able to cope with the house work, can she have a normal baby, she will require more care and so on.” Women show poorer compliance to therapy due to greater economic dependence on family members.^[23] Differences in functional limitations between adults with and without diabetes are more evident in women than they are in men, due to their strong association with biological and behavioral factors.^[97]

Diabetes is often perceived as a costly disorder in India; parents usually get their daughters married without disclosing that she has diabetes, which has eventually lead to very grave consequences. Another aspect of gender discrimination in diabetes care comes from the role of parents in the management of children with T1DM, where mothers often share a disproportionate burden of diabetes care in the child. If fathers do not share in the responsibility, they feel out of touch with the complexities of management. Therefore, care should be taken to ensure distribution of responsibility between the parents.^[168] Affirmative action is required on the part of diabetes care

professionals to ensure that women are not discriminated against as far as diabetes care is concerned.

- **Recommendation 75:** Inclusion of interventions that increase women's perceived self-confidence and social support for positive health outcomes is recommended^[169] (Grade B; EL 3).
- **Recommendation 76:** Social support and self-confidence of women with type 2 diabetes in determining their individualized goals and strategies must be assessed^[170] (Grade C; EL 4).
- **Recommendation 77:** Diabetes health care professionals treating young women who are at a marriageable age with diabetes should engage in educating parents, the girl to be married and the prospective groom and his parents about the management of the disorder and provide confidence and reassurance that she can lead a normal life if taken care of properly with respect to medication and regular checkup (Grade A; EL 4).

Custom/religion

Cultural differences in the form of language, educational backgrounds, religion, health attributions, beliefs and practices toward illness must be acknowledged and considered by healthcare providers for treatment decisions and to determine how to obtain this information from patients,^[171] especially in people with a South Asian origin.^[172] Because of the vast diversity of cultural and religious health attributions, beliefs and practices, it is important to prioritize such factors in diabetes care and education.^[171] In chronic conditions like diabetes, religious or spiritual beliefs become increasingly important; firstly, because they provide the social and emotional support and, secondly, because they aid in coping with the stress of the disease. Hindus observe fasting and go to strenuous pilgrimage like Amarnathji as part of their religious traditions during various times of the year. Jains may not eat from dusk to dawn, irrespective of the duration of this period. Buddhists observe the 3-month-long Buddhist lent during the rainy season.

People with diabetes are recommended to follow the physician's advice in observing fasts or going to pilgrimages to avoid any glycemic emergencies.^[173] Similarly, worldwide, Muslims fast during the month of Ramadan. People with diabetes, who wish to fast, have been stratified based on the severity of disease, and specific rules and recommendations have been issued.^[174] People with diabetes who are categorized in the "observe fasting" group are further advised to follow the recommended strategies to ensure safety before, during and after the month of Ramadan.

- **Recommendation 78:** "Culturally competent assessment tool" can be used to test the cultural competency of healthcare delivery interventions^[175] (Grade B; EL 1).

- **Recommendation 79:** Indian physicians, who often have to manage a multilingual, multi-ethnic population, should be sensitized to the importance of cultural and religious health attributes, beliefs and practices (Grade A; EL 4).
- **Recommendation 80:** Physicians should recommend pilgrims to undergo pre-pilgrimage health clearance and educate them about hypoglycemia, need of caloric intake, compliance with medications or insulin, glucose monitoring, carrying their medical records and importance of protective wear^[173] (Grade A; EL 3).
- **Recommendation 81:** Those who are medically fit to fast need education about the importance of balanced diet, moderate physical exercise, adherence to advised medications, self-monitoring of glycemia, early recognition of dangerous situations and necessary remedial measures^[165] (Grade B; EL 4).
- **Recommendation 82:** Ramadan-focused patient education should focus on pre-Ramadan evaluation, risk stratification and generous religious exemptions available for deserving individuals^[176] (Grade B; EL 4).
- **Recommendation 83:** Physicians should educate patients on the availability of modern insulin analogues for diabetes care during Ramadan for better control and therapeutic outcome^[176] (Grade A; EL 4).
- **Recommendation 84:** Religious and cultural leaders should be requested and encouraged to speak positively about modern diabetes care^[177] (Grade A; EL 4).
- **Recommendation 85:** Physicians should be trained to enquire about the role of religion and spirituality in patient's life using standardized screening questions^[178] (Grade C; EL 4).
- **Recommendation 86:** Physicians should pose questions about religion and spirituality that are framed specifically in the context of patients' coping and self-managing with diabetes that are comfortable for both the patient and the clinician^[178] (Grade C; EL 4).
- **Recommendation 87:** Physicians should provide information, training and skill-building activities to sensitive patient's cultural context and disseminate diabetes education^[179] (Grade D; EL 3).
- **Recommendation 88:** A culturally competent perspective should be the key for treatment of diabetes in people with diverse cultural and religious backgrounds^[171] (Grade D; EL 4).
- **Recommendation 89:** Important diagnostic and racial differences in religious participation and the supports required for enhanced quality of life for persons with serious mental illness and diabetes at religious participations may be considered^[180] (Grade D; EL 4).

Urban/rural settings

The prevalence of diabetes has increased in the urban and rural areas of India, with an urban-rural split of 2:1

or 3:1 sustained through the last two to three decades.^[181] Lifestyle factors and family history play synergistic roles in increasing the risk of diabetes in the urban population,^[182] which is consistent with the rise in burden of overweight and obesity.^[183] Awareness about diabetes and management are also lower in the rural population.^[184]

Because the demography of India is predominantly rural, even with a lower rate of prevalence, the rural population in India can be expected to constitute a larger proportion of the diabetes population. Unfortunately, lack of access to early diagnosis of disease, quality healthcare, and healthcare infrastructure is impeding healthcare standards in rural India. Affirmative action is required on the part of diabetes care professionals to ensure that no section of society is discriminated against as far as diabetes care is concerned.

- **Recommendation 90:** While treating the rural population with diabetes, physicians should assess people at risk of psychosocial problems and provide counseling on self-care and psychosocial management^[65] (Grade A; EL 4).

Community reaction

Job discrimination and social isolation are common fears about the expected community reaction to a person living with diabetes. In India, families with young female diabetes patients fear ill-treatment at school or college, reduced future marriage prospects, isolation in social relations, etc., as a result of disclosure of their diabetic status.^[167]

- **Recommendation 91:** An understanding of factors that influence patients' decisions to maintain confidentiality about diabetes within their social networks is needed for using community-based interventions to improve diabetes self-management in ethnic minority patients^[185] (Grade A; EL 3).

Affordability

Economic affordability in the context of diabetes depends on the share of annual house hold expenditure spent on diabetes care. In India, out-of-pocket payments form a large share of house hold expenditure and result in a financial strain on the household. According to the World Health Statistics, 2012, currently, India has less than half the global average of physician per 10,000 patients and healthcare expenditure (as a % Gross Domestic Product). A larger share of this expenditure comes from the private sector through the out-of-pocket expenses recovered from patients.

- **Recommendation 92:** Physicians should discuss the cost of medication with the patients, considering the economic status of the patient^[19] (Grade B; EL 4).
- **Recommendation 93:** Physicians should encourage households with individuals involved in diabetes care to seek health insurance^[19] (Grade C; EL 4).

- **Recommendation 94:** For diabetes care in a resource-poor population, physicians should recommend primary prevention through promotion of healthy lifestyles and risk reduction as the most cost-effective intervention (Grade D; EL 4).

CONCLUSIONS

The current guideline on psychosocial aspects of diabetes encapsulates global evidence and experience, while maintaining a uniquely Indian flavor. Publications from a wide range of sources have been considered while designing the recommendations, and represent a vast cross-section of opinions. This guideline bridges a crucial gap in diabetes management and hopes to address the scale and variety of challenges in the psychosocial management of diabetes in India. It should encourage all stakeholders in diabetes care to create and devote adequate time and resources to ensure optimal psychosocial management of people with diabetes.

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