The Salutogenic Approach to Developing Healthy Eating Behaviors in People with Diabetes Type 2: A Literature Review

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ABSTRACT

***Background**: This literature review examines the rising prevalence of Type 2 Diabetes Mellitus (T2DM), which is largely influenced by unhealthy dietary behaviours and the limited effectiveness of traditional cognitive-based interventions. It explores the Salutogenic Model as an alternative framework that emphasizes individuals' capacity to use available resources and maintain a strong Sense of Coherence (SoC) to support healthy eating behaviours. **Purposes**: The aim of this review is to identify and analyze current evidence on how the salutogenic approach supports the development of healthy dietary behaviours and enhances well-being in people with Type 2 Diabetes. **Method**: This review followed the PRISMA method to systematically search PubMed, Scopus, and Google Scholar (2015–2025) for studies on the salutogenic approach, Sense of Coherence, and healthy eating in individuals with Type 2 Diabetes Mellitus. Study quality was appraised using the CASP Qualitative Checklist for qualitative research and the JBI Critical Appraisal Checklists for quantitative designs, ensuring rigorous and design-appropriate evaluation of methodological validity. **Results**: The review found consistent evidence that the salutogenic model, particularly through the SALUD program, significantly improves Sense of Coherence, stress regulation, and healthy eating behaviours among individuals with Type 2 Diabetes Mellitus. Empirical findings also show strong peer support effects and sustained behaviour change up to six months post-intervention. **Conclusion**: The salutogenic model changes T2DM care by focusing on building personal and social resources. It has the potential to improve resilience, promote healthy eating, and encourage long-term self-management. However, its effectiveness relies on sufficient support, trained professionals, and adjustments at cultural and system levels.*

***Keywords**: Healthy Eating Behaviour, Health Promotion, Salutogenic Model, Sense of Coherence, Type 2 Diabetes Mellitus*

INTRODUCTION

The global incidence of Type 2 Diabetes (T2D) has surged dramatically over recent decades (Pot *et al.*, 2019), affecting approximately 400 million individuals worldwide and being widely recognized as a chronic and progressively worsening condition. This escalating trend is largely attributed to modifiable lifestyle behaviours, further influenced by population ageing and genetic predisposition. As a major non-communicable chronic disease, T2D develops through the interaction between genetic susceptibility and behavioural factors, where unhealthy lifestyle patterns, such as inadequate diet, physical inactivity, poor sleep quality, and chronic stress were play a critical role in its development and progression. In this context, behavioural modification has been regarded as a key element in strategies for preventing and managing such conditions (Pot *et al.*, 2019). Among various lifestyle determinants, metabolically unhealthy dietary behaviours have been identified as major contributors to both the onset and progression of T2D. Accordingly, it is reasonable to emphasize the importance of nutrition and overall lifestyle management in the prevention and treatment of T2D. Moreover, emerging evidence suggests that T2D can be potentially reversible, as indicated by normalized HbA1c levels and a reduction or complete withdrawal of diabetes medications (Pot *et al.*, 2019). The interventions to promote healthy dietary behaviours among individuals with Type 2 Diabetes Mellitus (T2DM) remain suboptimal. Adherence to nutritional

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therapy has often been reported as low, primarily due to factors such as insufficient motivation, weak self-regulation, and limited nutritional understanding. From the patients' point of view, however, these difficulties may also be linked to the foundational assumptions of the interventions themselves. Many of these programs have been developed within a cognitive– psychological paradigm, which operates on the belief that healthier choices can be achieved by altering individuals' internal cognitive mechanisms, such as by enhancing problem recognition or reshaping behavioural patterns. However, in practice, most barriers to healthy eating emerge through interpersonal contexts. In real-life situations, food and eating are not limited to understanding macro and micronutrient content; they also serve as social acts of sharing, caring, celebration, and connection (Polhuis *et al.*, 2021). This indicates a need for alternative approaches that move beyond individual cognition and consider the broader social and contextual meaning of eating.

The Salutogenic Model emphasizes that health emerges from the continuous interaction between individuals and the unavoidable social, economic, cultural, physical, mental, and biochemical stressors encountered in everyday life. From this perspective, the state of health is shaped by how effectively individuals utilize their available resources and organize their daily activities to manage these ongoing challenges (Langeland *et al.*, 2022); (Polhuis *et al.*, 2020). At the core of the salutogenic framework lies the concept of the *Sense of Coherence* (SoC), which reflects an individual's capacity to recognize and utilize resources that support health. These health-enhancing assets, which assist individuals in managing and adapting to various stressors, are known as *General Resistance Resources* (GRRs) and *Specific Resistance Resources* (SRRs) (Polhuis *et al.*, 2021).

In line with this view, the conceptual foundation of the salutogenic approach offers a useful lens for understanding how healthier eating behaviours may develop among individuals living with T2DM. The strength of SoC influences how a person perceives stressors associated with dietary management and determines the extent to which GRRs and SRRs can be accessed (Voseckova, 2017; (Polhuis *et al.*, 2020). When individuals are able to identify and mobilize these resources, they are more capable of selecting effective coping strategies (Eriksson and Langeland, 2025). This process facilitates the transformation of tension into adaptive behavioural responses, such as more consistent and health promoting eating practices. Over time, such adaptive eating behaviours contribute to improved well-being and support the movement toward the more favourable end of the health ease continuum. This perspective highlights that healthy eating is not solely a biomedical requirement but a dynamic outcome of successful tension management shaped by lived experience, resource availability, and the evolving sense of coherence (Polhuis *et al.*, 2020).

This research addresses the need for a shift in perspective by exploring the salutogenic approach as a promising framework for developing healthy eating behaviours in individuals with T2D. Therefore, this literature review aims to systematically examine and synthesize the current evidence regarding the application of the salutogenic approach in promoting positive dietary change and overall well-being among people living with T2DM.

METHODS

This study used a literature review method and did not require ethical approval. A systematic search was performed in September 2025 across three databases: PubMed, Scopus, and Google Scholar. The search string combined MeSH terms and keywords, "salutogenic" "diabetes mellitus type 2" and "healthy eating" Searches were limited to publications from 2015–2025**.** No language or study-design restrictions with the following **Inclusion** criteria:

1. Original empirical studies (qualitative, quantitative, or mixed-methods) that explicitly used the salutogenic approach or core salutogenic concepts (e.g., Sense of Coherence, GRRs/SRRs).
2. Study population included individuals with T2DM**.**
3. The study addressed healthy eating, dietary behaviour, or nutrition-related interventions/outcomes.

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4. Published in peer-reviewed journals between 2015 and 2025.
5. Full-text article was accessible for review.

And with the exclusion criteria:

1. Systematic reviews, literature reviews, meta-analyses, conference abstracts, protocols, editorials, and another non-primary research.
2. Articles without available full text.

Study selection and data extraction the initial search retrieved 4,041 records (PubMed n = 8; Scopus n = 93; Google Scholar n = 3,940) resulting in 5 studies included in the final qualitative synthesis. The selection followed PRISMA guidelines (see Figure 1).

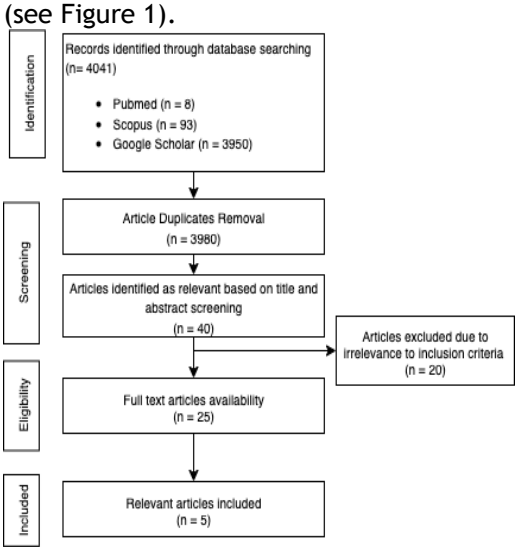

Figure 1. Literature search result using PRISMA method

Quality appraisal was conducted using two validated tools based on study design:

1. The CASP Qualitative Checklist was used to assess methodological rigor, credibility, and trustworthiness of qualitative studies.
2. The JBI Critical Appraisal Checklists were used for quantitative studies due to their design-specific criteria, allowing accurate assessment of internal validity, sampling, measurement reliability, and confounding control.

These tools were chosen because they provide design-appropriate and widely accepted frameworks for evaluating methodological quality in qualitative and quantitative research, respectively.

RESULTS AND DISCUSSION

According to the inclusion criteria, five studies were selected from an initial 4,041 records (8 from PubMed, 93 from Scopus, and 3,940 from Google Scholar). The description of these studies is presented in **Table 1**. All included studies were peer-reviewed journal publications focusing on theapplication of the salutogenic model in T2DM management. Most studies (80%) employed qualitative approaches to explore participants' experiences, coping strategies, and perceptions related to healthy eating and psychosocial well-being, while one study utilized a mixed-method approach to strengthen program evaluation. The majority of research was conducted in the Netherlands, reflecting the country's growing interest in salutogenic-based diabetes care. Collectively, the reviewed studies examined how strengthening the Sense of Coherence (SoC) and enhancing social and psychological support could improve health-promoting behaviours, demonstrating the potential of salutogenic interventions, for instance the SALUD program, to foster long-term self-management and well-being among individuals with T2D.

Table 1. Summary of Reviewed Studies on the Salutogenic Approach in Type 2 Diabetes Management

Authors, year of publication	Title	Population	Objectives	Outcomes
Voseckova et al., 2017	Application of salutogenic concept in social work with diabetic patients.	Diabetic Patients	The aim of this study is to evaluate specific salutoprotective factors among individuals living with diabetes.	Evaluating salutogenic factors helps determine patients' coping abilities and supports the creation of more effective, holistic therapies. Since

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Authors, year of publication	Title	Population	Objectives	Outcomes
				salutoprotective factors involve medical, psychological, and social aspects, collaboration across healthcare disciplines is essential to help patients maintain independence and well-being
(Polhuis *et al.*, 2020)	Salutogenic model of health to identify turning points and coping styles for eating practices in type 2 diabetes mellitus	Participants with Type 2 Diabetes Mellitus (T2DM) from the Gelderland province in the Netherlands Eligible participants met the following criteria: (1) low socioeconomic status, (2) native Dutch background, (3) officially diagnosed with T2DM for at least six months, and (4) aged over 18 years.	This study explored everyday life experiences that shaped key turning points in their eating habits and coping strategies for healthy eating.	The study finds that healthy eating is largely shaped by social context and psychosocial support throughout life. Effective coping strategies stem from self- awareness, a positive outlook, and strong social support rather than isolated experiences.
(Polhuis *et al.*, 2021)	Development of a salutogenic intervention for healthy eating among Dutch type 2 diabetes mellitus patients	T2DM patients [mean age of 62 (range 58–73) years, diagnosed on average 16 Years ago (range 10–21), all had previous experiences of lifestyle interventions)].	The SALUD (Salutogenic intervention for Diabetes Type 2) program intend to promote healthy eating habits among individuals with Type 2 Diabetes Mellitus (T2DM).	The study highlighted the rarity of detailed reporting on intervention development and emphasized the need for transparency in documenting processes, structures, and content.
(Siffels, 2022)	Evaluation of SALUD: Impact and Experiences of People T2DM	The study involved adult participants aged 18-75 years diagnosed with T2DM in the Netherlands	The aims of this study are to assess whether the salutogenic approach used in the SALUD program strengthens participants Sense of Coherence (SoC) and to explore their experiences throughout the program	The SALUD program demonstrated how salutogenic health promotion can improve the well-being of individuals with T2DM.
(Polhuis *et al.*, 2023)	Qualitative Evaluation of a Salutogenic Healthy Eating Programme for Dutch People with Type 2	The study targeted Dutch-speaking men and women aged 18-75 years who had been officially diagnosed with T2DM and were	This study aims to explore participants' experiences and perceptions regarding the content and	These findings deepen the vital role of peer support within a safe, positive, and reflective setting in diabetes care.

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Authors, year of publication	Title	Population	Objectives	Outcomes
	Diabetes	capable of making independent decisions.	significance of the SALUD program.	

DISCUSSION

Diabetes Mellitus (DM) is a chronic and heterogeneous condition that can arise from various mechanisms, including genetic predisposition, autoimmune-related impairment of insulin production, and increased resistance of insulin receptors. Despite these differing causes, all forms of DM share a common feature, elevated blood glucose levels (hyperglycemia). Specifically, T2DM is characterized by impaired regulation of blood glucose, resulting in persistent hyperglycemia that can negatively affect vascular function and overall metabolic health (Voseckova et al., 2017; (Siffels, 2022). Although dietary modification is as effective as pharmacotherapy in managing T2DM, conventional cognitive-behavioural interventions often produce only short-term improvements. This indicates a need for approaches that foster sustainable lifestyle change by acknowledging the lifelong social, cultural, psychosocial, and environmental factors that shape eating behaviour (Polhuis *et al.*, 2023). The salutogenic model offers such a perspective by emphasizing the strengthening of personal resources through the Sense of Coherence (SoC), which enables individuals to perceive life as comprehensible, manageable, and meaningful. Building on this framework, the SALUD (Salutogenic Intervention for Diabetes Type 2) study adopted core salutogenic principles in a bottom-up approach to develop a program that enhances essential resources supporting healthy eating among individuals with T2DM (Siffels, 2022).

Building on this foundation, several studies have provided supporting evidence for the application of the salutogenic approach in diabetes care. Voseckova et al., (2017), demonstrated that evaluating salutoprotective factors helps identify patients' coping capacities and informs the design of holistic therapies. In this study, coping with diabetes was viewed as a dynamic process across the biopsychosocial dimensions of health. The focus was not on curing the disease, but on helping patients accept and live independently with it by strengthening their Sense of Coherence (SoC). Practically, this approach has been implemented by incorporating assessments of subjective well-being, social support, and stress-coping ability into diabetes care, highlighting the importance of interdisciplinary collaboration to maintain patients' independence and overall well-being.

Integrating Salutoprotective Resources into A Conceptual Model Healthy Eating in T2DM

Based on the empirical evidence, a Salutogenic Conceptual for Healthy Eating Behaviours can be constructed, integrating salutoprotective factors, lived-experience processes, and practical intervention strategies:

a. Internal Resources
   Optimism, self-efficacy, psychological resilience, and SoC influence how individuals appraise stressors and select adaptive coping strategies (Voseckova et al., 2017). The SALUD evaluation showed that participants with initially low SoC experienced the greatest increases, suggesting that the model is effective for high vulnerability groups.
b. External Resources (Social and Environment Supports)
   External resources include family support, peer support, healthcare professionals, and broader social environments act as protective buffers that strengthen coping capacity and maintain dietary motivation. Family support, peer support, health professionals, and social environments act as protective buffers. Findings indicate that group-based interventions strengthened group cohesion by 40 percent, which was associated with improved dietary adherence (Polhuis *et al.*, 2023).
c. Meaningful Engagement and Identity Formation
   Interventions that encourage personal reflection, goal setting, and exploration of one's healthy self-

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identity enable patents to find meaning in lifestyle change. Developing positive self-identity's supports for long term behavioural consistency (Polhuis *et al.*, 2020).

d. Self-tuning and adaptive coping
The pause sense reflect cycle (Langeland *et al.*, 2022) improved emotional regulation, with 67 percent of participants reporting reduced stress related to diabetes self-management in the SALUD evaluation (Shiffels et al., 2022).

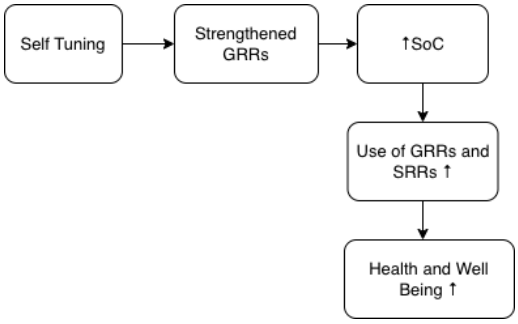

Figure 2. Conceptual of Self-Tuning related to Health and Well Being

Greater self-tuning enhances an individual's General Resistance Resources (GRRs), which in turn strengthens the Sense of Coherence (SoC). A stronger SoC facilitates the effective mobilization of both GRRs and Specific Resistance Resources (SRRs) when responding to challenges, thereby promoting improved health behaviours and overall well-being.

Empirical Evidence Supporting Salutogenic Diabetes Care

Voseckova et al. (2017) demonstrate that mapping salutoprotective factors enables clinicians to assess patients' coping capacities and tailor diabetes care according to individual needs, emphasizing collaboration, autonomy promotion, and resource-oriented education. Complementing this theoretical foundation, new findings from the SALUD evaluation provide concrete empirical support for the salutogenic approach, showing that participants experienced a significant improvement in Sense of Coherence (SoC), with an average increase of 9.4 points following the intervention (Groen et al., 2022).

(Polhuis *et al.*, 2020) find that healthy eating practices are shaped by lived experiences, emotional responses, and social contexts. Coping strategies grounded in optimism, self-reflection, and social support indicate the value of interventions based on dialogue rather than directive instruction.

(Siffels, 2022) shows that participants in SALUD report meaningful increases in Sense of Coherence, better goal-setting abilities, stronger social relationships, and improved stress navigation. Furthermore, 85 percent of participants reported improved understanding of healthy eating, while 78 percent reported more consistent dietary habits in the three months following the intervention. The impact evaluation also showed that approximately 72 percent of participants were able to maintain adaptive coping strategies, including self-reflection and stress regulation, which form the core of the self-tuning process.

Preliminary longitudinal findings indicate that these behavioural improvements extend beyond the short term. A six-month follow-up report demonstrated that retention of health promoting behaviours reached 63 percent, particularly among participants who experienced substantial increases in SoC. These results reinforce the theoretical assertion by (Antonovsky, 1996) that SoC serves as a mediator between intervention and long-term behavioural change and now provide stronger empirical support. Complementing this, (Polhuis *et al.*, 2023) highlighted that peer support within a positive, safe, and reflective environment plays a crucial role in fostering health-promoting behaviours and sustaining motivation.

Overall, the reviewed studies demonstrate that applying the salutogenic model in diabetes management fosters a shift from disease-centered to resource-oriented care. Integrating SALUD principles into standard diabetes care could enhance long-term self-management, psychological resilience, and overall well-being among people with T2DM.

Practical Implementation and Its Challenges

Despite its potential, the implementation of the salutogenic model presents several challenges.

a. Dialogical and Reflective Approaches Require Longer Consultation Times
The SALUD evaluation indicated that the most effective sessions lasted between 60 and 90 minutes, which

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may be difficult to integrate into high workload primary care settings.

b. The Approach Requires Comprehensive Training for Health Professionals
   Many clinicians are unfamiliar with reflective facilitation, dialogical communication, or the teach-by-being approach. Support clinicians are important to balance analytic clinical reasoning that is based on empathy, curiosity, and authenticity, as recommended in salutogenic professional practice (Langeland *et al.*, 2022).
c. Scalability in Resource Limited Settings Requires Adaptation. Strategies such as utilizing community health workers, implementing telehealth or WhatsApp based reflective groups, and integrating the approach into existing primary care programs have been shown to maintain effectiveness even with simplified formats.
d. The Cultural Sensitivity
   Salutogenic model originated in Nordic when applied in diverse population it requires cultural adaptation. In Indonesia, collectivistic values, family-based decision making, food norms, and spiritual beliefs strongly influence the acceptance and effectiveness of diabetes interventions. Recommended cultural adaptations include incorporating culturally relevant examples of dietary practices, emphasizing family and community roles, addressing variations in communication styles, and considering differences in age and gender norms. Cross-cultural research suggests that SoC and the effectiveness of coping strategies are significantly influenced by cultural context and social belief systems (Super *et al.*, 2016).

Overall, empirical evidence demonstrates that the salutogenic model, particularly when operationalized through structured interventions such as SALUD, effectively enhances SoC, subjective well-being, stress regulation, and sustainable healthy eating behaviours. Nevertheless, its long-term effectiveness depends on cultural adaptation, system readiness, and the capacity of health professionals to adopt reflective and person centered approaches. These considerations are essential to ensure the successful integration of salutogenic principles into diabetes management across diverse contexts.

CONCLUSION

In summary, using the salutogenic model for T2DM care marks a significant change from the usual disease-focused management to a framework that highlights individuals' inner and outer strengths. However, the effective implementation of salutogenic principles is contingent upon several factors. These include adequate time for reflective dialogue, specialized training for health professionals, and the adaptation of interventions to resource-limited health systems. Addressing these practical and cultural considerations is crucial for ensuring that salutogenic interventions are accessible, equitable, and impactful across diverse settings.

Overall, the salutogenic approach, particularly when implemented through structured programs such as SALUD, demonstrates strong potential to enhance psychological resilience, promote healthier eating patterns, and support long-term self-management among individuals with T2DM.

RECOMMENDATION

Future research and practice should focus on optimizing scalability, strengthening cultural adaptation, and integrating salutogenic principles into mainstream diabetes education and care. By embracing a resource-based, person-centered paradigm, health systems can more effectively support individuals in navigating the complex demands of diabetes and achieving improved health and well-being over the life course.

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