



## A Framework for Assessing the Health Needs of Disabled Adult Patients with Autoimmune Disorders and Depression in Madinah, Saudi Arabia

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### ABSTRACT

Depression remains one of the biggest global challenges, requiring an active approach to tackle it across the different healthcare sectors. Given depression's widespread prevalence and its association with chronic autoimmune conditions, such as diabetes mellitus, it has been predicted to be one of the significant causes of added disability worldwide and in Saudi Arabia (SA). To address this issue efficiently, organized efforts should be taken, which are proposed in this report as a corporate health needs assessment (HNA). In this study, a framework for a five-step HNA to detect depression among disabled adult patients in Madinah, SA, is proposed that can be used by health policymakers. These steps include getting started, identifying health priorities, assessing a health priority for action, planning for change, and moving on/project review. This proposal should provide a practical stepwise guideline to healthcare policymakers when planning healthcare services in Madinah.

### KEYWORDS

autoimmune disorders, depression, diabetes, disability, health needs assessment, Madinah, mental health, public health, Saudi Arabia

## INTRODUCTION

A community is a group of individuals who share several characteristics, e.g. location, health condition, or shared interest, that distinguish them from the rest of the population (World Health Organization, 2020). The term “health” does not mean the same thing for different people. Naidoo and Wills (2000) described health as the absence of disease. In contrast, the cohort in Horne and Costello's (2003) study defined it as the ability to live and maintain independence (Wang et al., 2020; Qian and Jiang, 2022). So, the health needs and demands of communities vary accordingly between them. In the context of this report, a health need is Bradshaw's normative need, defined and determined by experts based on standards previously established by professionals, e.g. doctors and other healthcare professionals (Bradshaw, 1972). It is important to consider which definition is used to justify this report's proposed framework.

Depression is a global problem with no border and has been estimated to exceed 260 million cases globally (Dhama et al., 2020). It has been predicted to be the second and the first cause of disability in developed and developing countries, respectively (Banerji et al., 2021). Years lived with disability due to depression exceeded 43 million years (Dhama et al., 2020). In the United States, the overall prevalence of

depression was estimated to be 9.2%, and exceeded 17% in a subset of the population aged 18-25 years (Sayed, 2021). More worryingly, out of the 8.9 million adults diagnosed with depression, over 30% of them were classified as treatment-resistant requiring more intensive treatment modalities (Amamou and Ben-Ahmed, 2023). Similarly, around 11% of the studied populations were found to suffer from depression in the United Kingdom and Sweden (Alanzi et al., 2021b; Khan et al., 2021b).

Although there were no nationwide studies evaluating the prevalence and predisposing factors for depression in Saudi Arabia (SA), the available studies, with their limited sample size, demonstrated a higher prevalence of depression among those with chronic diseases than those determined in other populations. Depression is estimated to affect from 23% up to 49% of the Saudi population and has been consistently linked to chronic comorbidities such as diabetes mellitus (Allam and Sayed, 2021; Assiri et al., 2021; Khan et al., 2021a; Khatrawi and Sayed, 2022). Other factors that possibly contribute to the development of depression include several social determinants of health, such as poverty, living in a single room and rural areas, and lack of access to medical services (Almusbah et al., 2021; Alsalloum et al., 2022; Sayed, 2022).

Dealing with depression is neither straightforward nor easy and has always been tangled with challenges. Missed clinical diagnosis is considered one of the most common issues related to depression. It is estimated that half of the patients who visit primary healthcare facilities are not screened or assessed for depression (Alzahrani et al., 2019; Al-Rasheedi et al., 2022).

This study aims to address a health need, which is the mental health of disabled patients with autoimmune disorders, in which diabetes will be used as an example in the city of Madinah, SA. It is estimated that over 18% of the Saudi population is diabetic, which has been well established as a risk factor for depression (Alanzi, 2021a; Almansour et al., 2022; Khatravi and Sayed, 2022). Furthermore, Madinah is the fourth most populated city in SA and despite its historical and religious significance, it has the third lowest average household income across SA (Kucharski et al., 2020). Diabetic patients in Madinah are at higher risk of developing undetected depression, so their health needs should be addressed. Given the well-established and reported concordance of depression among both forms of diabetes mellitus (Alhuthali and Sayed, 2022; Sayed et al., 2023), reaching depression in over 40% and 30% of patients with type 1 and type 2 diabetes mellitus, respectively. Such a persistent link justifies the need for addressing this issue.

## Health needs assessment models

Identifying the health needs of a community using health needs assessment (HNA) ensures proper healthcare provision and delivery to this community (Zaki et al., 2012). Three main approaches have been described for performing an HNA: epidemiological, corporate, and comparative. Each of these approaches has its strengths and drawbacks that may favor the use of one over the other.

Epidemiological HNA addresses specific health issues by using available data, e.g. national databases. This approach gives a close, objective estimate of the extent of the problem as it is unbiased. However, it faces issues regarding the availability, accuracy, and eligibility of the data used in carrying out the HNA, e.g. inadequately handwritten and ineligible documents (Algaissi et al., 2020). As this approach relies mainly on recorded data, it cannot be used to explore unrecorded aspects of the service, such as how approachable the healthcare staff are or the accessibility of the healthcare service to those living in remote areas. Additionally, the epidemiological approach is the most time- and resource-consuming compared to the other two main approaches.

Applying an epidemiological HNA to the chosen problem (undetected depression among diabetic patients) will entail reviewing the medical records of diabetic patients and identifying how many of them were screened for depression and referred to a mental health specialist if depression is suspected. Also, the records of patients diagnosed with depression could be reviewed to identify those with comorbid diabetes and then review whether the diagnosis of depression was based on a referral from the diabetes-treating physician.

Comparative HNA is based on comparing the status of the service provided in a community (availability, accessibility,

and delivery of the service) to another demographically similar community across several geographical areas. This approach is ideal when the “optimum” service cannot be identified, so it would help assess what the service in an area lacks. However, it requires robust databases for comparison, and it assumes that the needs of two communities are the same which is practically difficult given the difference in the social determinants of health (Cavanagh and Chadwick, 2005).

Applying a comparative HNA to the current problem would include comparing the service provided to diabetic patients in Madinah to that provided in other cities in SA with similar population density and income levels. This comparison could be made on a local level (different healthcare centers of the same city), regional level (comparing two different cities in the same administrative region), or national level (comparing the service provided in different regions). Alternatively, the mental health service provided to diabetic patients could be compared to the service provided to patients with similar chronic conditions, e.g. hypertension.

Corporate HNA depends on the inputs of stakeholders, e.g. public health practitioners and the community, e.g. community leaders and individual service users. It is the preferred approach for problems of sensitive nature and where data are not readily available. The stakeholder and community engagement sheds light on unanticipated issues related to the studied population/service. However, corporate HNA may be biased and influenced by its participants. Experts participating in HNA may not be familiar with the community's circumstances. Additionally, community leaders may not be entirely reflective of their community due to their self-interest (Zaki et al., 2012; Algaissi et al., 2020).

Epidemiological HNA cannot be used for this study as there is no reliable local or national data regarding depression among diabetic patients in SA. Also, the likelihood of a patient developing depression is not routinely recorded. Hence, an epidemiological approach would not be appropriate to address this issue.

Similarly, comparative HNA also relies on the availability of reliable stored data in practices and national databases, which may not be available. As depression is a sensitive social issue with an ill-perceived stigma (Roeloffs et al., 2003), a corporate HNA that includes key stakeholders would be the most suitable approach for this study.

The objective of this study is to present a framework of a corporate HNA that addresses a targeted population (diabetic patients) in a defined area: Madinah, SA. The proposed framework can be used by healthcare policymakers to better understand the health needs of diabetic patients and devise action plans accordingly.

## MATERIALS AND METHODS

Conducting an HNA is usually carried out in a stepwise manner; however, there is not a single universally accepted method. This report will use the steps provided in the HNA practical guide by the Cavanagh and Chadwick, 2005. These steps are as follows:

- Getting started: A step is needed to set the scene and the overall objectives of the HNA. This step includes

identifying the targeted population, what needs to be achieved in this HNA, the personnel needed to conduct this HNA, the required resources, and the potential risks that may arise from conducting the HNA.

- Identifying health priorities: In this step, the HNA team attempts to precisely characterize the targeted population and the health priorities that need to be addressed in order to improve their quality of life.
- Assessing a health priority for action: In this step, the HNA team evaluates the actions needed to address the health priorities determined in the previous step.
- Planning for change: The actions determined in the previous step will be formed into a plan, that is agreed by key stakeholders, which should be specific, measurable, attainable and agreed on, result-oriented, and time-bound (SMART).
- Moving on/project review: The last step of the HNA is to carry out an objective assessment of the achieved steps and the various aspects of the steps involved in this HNA (Cavanagh and Chadwick, 2005).

As the HNA framework proposed in this report is of corporate type, it indicates the involvement of various stakeholders. Hence, the procedures that will be adopted are mostly interview-based methods, e.g. focus groups or one-on-one interviews. This will result in the collection of qualitative data that will be analyzed using thematic analysis.

## RESULTS

### Step 1: Getting started

Firstly, the targeted population who would benefit from this HNA is diabetic patients in Madinah, SA. This HNA will address the issue of missed diagnosis of depression among diabetic patients. So, this HNA will highlight the issue, determine the extent of this problem, and provide recommendations on how to best deal with it. As this will be a corporate HNA, a task team which includes key stakeholders is to be assembled and put in charge of carrying out the HNA. The task team will conduct focus groups and meetings involving healthcare professionals, e.g. physicians and nurses, mental health specialists, public health experts, service users, i.e. diabetic patients, and representatives from the Saudi Commission for Health Specialties (SCFHS) and Ministry of Health (MoH).

Physicians, nurses, and public health experts will be able to give insights from their current practice, as well as mental health specialists who will be able to advise on the best interventions to address the HNA. Both SCFHS and MoH are responsible for physicians' training and issuance of practice guidelines. Their involvement will be necessary to approve and apply the recommendations from this HNA. The resources required for the conduction of this HNA will include a working space in which the involved personnel could conduct the focus groups and meetings. It may also include protected time and travel compensations for the involved personnel. This HNA aims to identify better

diabetic patients who suffer from undiagnosed/undetected depression and hence improve their quality of life and general conditions. However, a possible risk of carrying such HNA will result in higher cases of diagnosed depression which may put a strain on the available mental health services, which could be limited in some areas.

### Step 2: Identifying health priorities

This step aims to precisely characterize the targeted population, to identify the issues that affect their health, and to set priorities for the population health needs. Now that we determined the targeted population (diabetic patients), more detailed information will be needed to profile this population. This information includes the number of people included in this population, their location, and their experience with the medical service. Interviews and focus groups are to be conducted with patients to enable us to understand their perception of health and the importance of mental health service provision to them. Similar meetings should also be conducted with healthcare professionals to obtain their perspective on mental health service provision.

These interviews will allow us to determine other health conditions, e.g. hypertension, and determinant factors that affect the target population mental health, e.g. Dahlgren and Whitehead's determinants of health (Dahlgren and Whitehead, 1991). These determinant factors are vital contributors to health inequality across the country and should be considered when conducting these interviews. For example, the average household income (financial condition) varies significantly across SA based on age, the region of residence, level of education, nationality status (Saudi nationals or foreign residents), and gender. The average household income of women is significantly lower than that of men—as low as one-third of men's average household income (Kucharski et al., 2020). Subsequently, women, elderly people, and those who live in remote or poor conditions are more likely to develop depression (Almusbah et al., 2021; Sayed, 2022).

### Step 3: Assessing a health priority for action

After defining the population's health need and determining its influencing factors, the task team will reach an agreement on prioritizing these factors based on the following:

- Impact size: The extent to which these factors affect the functionality of patients, e.g. physically, socially, and mentally.
- Changeability: Whether these factors can be effectively changed/improved.
- Practicality: Identifying which of these factors that can be practically changed through the available resources.

The identification of the priorities with the most impact size, changeability, and practicality will allow for choosing a suitable action to address it. In this step, it is anticipated that the most appropriate action/change will be the introduction

of depression screening instruments into medical practice that is related to diabetes. So, it is essential to identify the key personnel needed for applying this change. The SCFHS representative will be responsible for the incorporation of this change (depression screening instruments) into current medical training programs. MoH representatives will be responsible for updating current clinical guidelines related to diabetic care. Updating guidelines will ensure that the proposed change is included and is communicated to the relevant medical staff. Medical staff, including physicians and nurses, are vital for the application of this change in their clinical care to the service users, i.e. diabetic patients.

The active screening for depression will reduce the number of undetected cases of depression. Diabetic patients who are old and those from low socioeconomic backgrounds are at a higher risk of poorer prognosis due to other comorbidities, including undiagnosed depression. Being able to detect and manage depression properly will benefit the management of diabetes as it will improve patients' compliance and adherence to treatment (Lamers et al., 2011). This will subsequently reduce the health inequality between diabetic patients across the country. Additionally, the proposed action, whether delivered by the nurse or the treating physician, is cost-efficient, as it will not require additional funds to implement it. However, physicians may need additional training on how to manage depression, especially among diabetic patients, without the need for referral to mental health specialists.

#### Step 4: Planning for a change

In this step, the HNA task team should have a shared aim and agreed SMART objectives. An action plan for the planned change is to be produced in which specific tasks are assigned to individuals based on their role. Careful planning of objectives of the action plan and its proper allocation will enable the HNA task team to monitor and evaluate its progress.

This HNA aims to improve the provision of mental healthcare to diabetic patients. Several actions are required to achieve this aim that include raising awareness of mental health issues faced by diabetic patients among healthcare workers and implementing active steps for depression screening in patients. The awareness of healthcare workers will be addressed by providing mandatory local training sessions and webinars, and updating current professional training programs and practice guidelines. Healthcare professionals and public health experts will update training programs and practice guidelines. SCFHS and MoH representatives will be responsible for the delivery of these actions. Implementing active steps for screening and detecting depression among diabetic patients will include the use of a validated screening tool such as the nine-item Patient Health Questionnaire (PHQ-9) (Kroenke et al., 2001), as well as clinical evaluation by treating physicians. Trained nurses who obtain patients' vital signs and other standard measures, e.g. random blood glucose concentration, will be assigned to apply the PHQ-9 screening tool. Once done, physicians will carry out further clinical mental health examination to assess the patient's need for an intervention and a possible specialist consultation/involvement.

#### Step 5: Moving on/project review

The last step in carrying out an HNA is reviewing the previous steps and learning most from them, both at an individual level and from a team perspective. In this step, the task team reflects upon their experience conducting this HNA. Such reflections include acknowledging what went well and what did not, assessing what could have been done differently, and identifying the factors that led to the success of the HNA. The challenges and barriers to the success of the HNA could also be highlighted in this step. The team could also identify any further action needed for the successful delivery of the HNA. Lastly, the task team can assess the success of the HNA and its impact, from the implementation of the issued recommendation to the positive changes in the provided healthcare.

## DISCUSSION

The Saudi MoH has issued a national guideline for cardio-metabolic risk management, which guides primary healthcare physicians on how to properly manage the risks associated with diabetes (Almustafa et al., 2013a). This document highlights the negative impact of depression on the management of diabetes and recommends the use of an established depression screening tool (PHQ-9) to detect depression among patients with diabetes (Almustafa et al., 2013b). However, this recommendation does not address the current health need as it is not implemented effectively and seems to be applied sporadically, rather than consistently. The ineffective implementation of current guidelines is evident in the lack of official documentation of mental health assessment of diabetic patients, i.e. whether they are mentally healthy or in need of a professional mental health intervention (Albarrak et al., 2018). This is further complicated by the physicians' lack of awareness of depression among their patients Sayed et al., 2022.

The recommendations of the discussed HNA would include newly updated guidance on managing diabetic patients, including mental health assessment as a mandatory part of the patient's assessment. To further consolidate this concept, clinical examination forms should be updated to include a section on mental health evaluation, which is to be filled out. Periodic internal audits should be carried out to ensure adherence and consistent application of these recommendations by healthcare professionals. These audits should also address any obstacles that may prevent medical staff from applying them.

The success of the recommended measures by the HNA will be evident in the adherence of healthcare workers to the new guidelines, as well as improvements in patients' satisfaction, quality of life, and diabetic status.

The new guidelines will aim to increase healthcare workers' awareness of mental health issues among diabetic patients, prompting them to include mental health assessment in their daily practice. The adherence to such guidelines can be measured by reviewing the number of mental health assessments done for diabetic patients, the percentage

of diabetic patients who had their mental health assessed, and their outcome, i.e. local intervention or referral.

Patients' satisfaction and quality of life are expected to improve upon the administration of the recommendations. Studies have demonstrated that depression among diabetic patients negatively affects their quality of life (Schram et al., 2009), and applying measures to tackle depression could improve patients' quality of life (Lamers et al., 2011). Furthermore, the detection of depression among patients who suffer from other conditions is a challenge for physicians in SA (Sayed et al., 2022). So, the success of the taken measures could be evident as improvements in patients' quality of life, which could be obtained through patients' questionnaires or interviews.

Additional benefits from the application of these recommendations would be improvements in patients' diabetic status. Studies have demonstrated that depression negatively affects patients with diabetes leading to poor glycemic control and increased risk of complications (Lustman et al., 2000; Pouwer et al., 2013). It is, therefore, expected that when patients' mental health problems are recognized and addressed, it will reflect positively on their diabetic care. This can be evaluated by comparing patients' glucose levels and hemoglobin A<sub>1c</sub> before and after the application of these recommendations.

## CONCLUSIONS

HNA is a key public health tool used to determine the health needs of a population, which would subsequently allow for

better healthcare provision. This report has developed and presented a framework that healthcare decision-makers and public health policymakers can use easily. This framework will enable healthcare providers to address a pressing local health need, significantly improving Madinah's population's quality of life.

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## CONFLICTS OF INTEREST

The author declares no conflict of interest.

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