MAR Neurology, Neurosurgery & Psychology (2026) 10:3

Research Article

The Psychometric Characteristics of the Four-Dimensional Symptom Questionnaire among a clinical sample and a healthy sample

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Received: 07 May 2026

Published: 01 June 2026

DOI: https://doi.org/10.5281/zenodo.20526825

Abstract

This study investigates the psychometric characteristics of the Four-Dimensional Symptom Questionnaire in clinical and healthy samples. Sample consisted of (401): healthy people (140), physically ill patients (141) and psychiatric patients (120). Three instruments were used: the Four-Dimensional Symptom Questionnaire (4DSQ) (Terluin et al., 2004), the Beck Depression Inventory (BDI-II) (Beck et al., 1996), and the Kessler Psychological Distress Scale (K10) (Kessler et al., 2003).

The results showed that the Four-Dimensional Symptom Questionnaire (4DSQ) has acceptable psychometric properties, namely acceptable validity (construct and discriminant) and acceptable reliability (consistency "0.954").

The results also showed a positive correlation between the Four-Dimensional Symptom Questionnaire (4DSQ) and the Beck Depression Inventory (BDI-II) and the Kessler Psychological Distress Scale (K10).

Keywords: *Psychometric Characteristics, Four-Dimensional Symptom Questionnaire (4DSQ), Beck Depression Inventory (BDI-II), Kessler Psychological Distress Scale (K10).*

Introduction

Human beings are the fundamental building blocks of society and the essence of its development. A psychologically healthy individual is a source of progress, intellectual growth, and advancement for any nation. For individuals to fulfil their personal and social responsibilities effectively, they must have good mental health, which enables them to adapt to their environment and cope with life's challenges. In contrast, individuals suffering from psychological disorders who do not receive an accurate diagnosis and appropriate psychological treatment may lose the opportunity for recovery and rehabilitation, preventing them from becoming productive members of society. Furthermore, such disorders may negatively affect not only the individual but also their family and community.

Specialists have differed in how they define mental health. Some have adopted a negative definition, viewing mental health as merely the absence of illness and symptoms. Others have regarded mental health as the achievement of psychological balance, satisfaction, and emotional well-being. A third perspective has combined both definitions, conceptualising mental health as the absence of pathological symptoms alongside satisfaction, balance, and psychological comfort, as well as the ability to engage effectively in daily life and

practical activities while maintaining equilibrium and realising one's capabilities (Awad, 2015). There is no doubt that psychological well-being and safety are inseparable components of overall health.

The World Health Organisation (WHO) defines mental health as a state of well-being in which an individual recognises their abilities, copes with the normal stresses of life, works productively and effectively, and contributes positively to their community. Mental health is closely linked to physical health and includes factors such as life satisfaction, resilience, adaptation, social support, and psychological and cognitive flexibility (WHO, 2020).

The clinical concept of mental disorder, as defined in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), denotes a syndrome characterised by clinically significant disturbances in cognition, emotional regulation, or behaviour that reflect dysfunction in the psychological, biological, or developmental processes underlying mental functioning. These disorders are associated with significant distress or impairment in social, occupational, or other important areas of functioning. However, culturally accepted responses to stressors or losses, as well as behaviours arising from political, religious, or sexual conflicts between individuals and their societies, are not considered mental disorders unless such responses result from dysfunction in thinking or emotional regulation (APA, 2013).

Okasha (2008) indicated that psychological disorders affect approximately 5–6% of individuals regardless of the level of urbanization or geographical location.

Abada (2017) reported that psychological disorders vary in type, severity, and impact on affected individuals. These disorders have been classified into categories to facilitate their study and the identification of their symptoms. Among the most widely used classification systems are the International Classification of Diseases, Eleventh Revision (ICD-11), adopted by the World Health Organization (WHO), and the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), adopted by the American Psychiatric Association (APA).

Mental health problems are also highly prevalent among patients attending general medical and family practice clinics. Uestuen and Sartorius (1995) reported that approximately 24% of primary healthcare patients suffer from psychological disorders. The most common of these disorders appear to be depressive disorders, anxiety disorders, somatic symptom disorders, and alcohol use disorder (Ansseau et al., 2004; Roca et al., 2009).

The World Health Organization (WHO, 2019) further noted that healthcare systems have not responded adequately to the burden of mental disorders. Consequently, a substantial gap exists worldwide between the need for treatment and its availability. Between 76% and 85% of individuals with mental disorders in low- and middle-income countries receive no treatment, while between 35% and 50% of affected individuals in high-income countries experience the same problem.

Statement of the Problem

Psychological disorders are often inadequately identified at the primary healthcare level by general practitioners and family physicians. Consequently, only a limited proportion of patients at this level are referred to specialised mental health services for further assessment and appropriate intervention.

The absence of assessment tools that assist primary healthcare providers in identifying psychological disorders among patients may be one factor contributing to the weak detection of mental disorders and the limited referral of patients to specialised psychological services.

A review of the theoretical literature and published research on mental health identified the Four-Dimensional Symptom Questionnaire (4DSQ) as an assessment instrument designed to help general practitioners and family physicians identify psychological disorders among patients attending primary healthcare clinics (Kleinstauber et al., 2021).

However, further examination of this questionnaire indicated that its psychometric properties have not yet been validated in the Jordanian context. Therefore, the instrument is not currently available for standardised use in primary healthcare settings in Jordan. Accordingly, the present study was conducted to investigate the psychometric characteristics of the Four-Dimensional Symptom Questionnaire and to adapt it for use in the Jordanian context.

Within the Arab context, only two related studies were identified. The first aimed to assess the psychological impact of the COVID-19 pandemic on Saudi society and to evaluate the performance of the Arabic version of the Four-Dimensional Symptom Questionnaire (Aljemaiah et al., 2021). This Arabic version was based on the translation developed by Elmessiri et al. (2016). The second study focused on translating the English version of the questionnaire into Arabic using the Egyptian dialect, without extensively examining the psychometric properties of the translated version.

The questionnaire was originally developed in Dutch and later translated into several languages, including English, Polish, French, German, and Turkish. Findings from these translations indicated that the psychometric properties were nearly identical to those of the original Dutch version (Chambe et al., 2015; Czachowski et al., 2012; Exner et al., 2018; Terluin, Smits et al., 2016).

The Four-Dimensional Symptom Questionnaire (4DSQ) consists of 50 self-report items distributed across four subscales that assist general practitioners and family physicians in differentiating between psychological distress and mental disorders:

Distress: Measures psychological distress symptoms.

Depression: Measures depressive thinking patterns, suicidal ideation, and symptoms of reduced pleasure.

Anxiety: Measures symptoms of various anxiety disorders, including generalised anxiety, panic attacks, specific anxiety, and avoidance behaviours.

Somatisation: Measures somatic symptom manifestations (Terluin et al., 2006).

Participants respond to the questionnaire items based on how they felt during the previous week, including the day of questionnaire administration.

Research Questions

The problem of the study can be summarised in the following main research question:

- What are the psychometric characteristics of the Four-Dimensional Symptom Questionnaire (4DSQ) in clinical and healthy samples in the Jordanian context?
- The following sub-questions emerge from the main question:
- What evidence supports the validity of the Four-Dimensional Symptom Questionnaire (4DSQ) in Jordan, both in clinical and healthy samples?
- What evidence supports the reliability of the Four-Dimensional Symptom Questionnaire (4DSQ) in Jordan across clinical and healthy samples?
- Is there a correlation between the Four-Dimensional Symptom Questionnaire, the Beck Depression Inventory-II, and the Kessler Psychological Distress Scale?

Objectives of the Study

The present study aims to investigate the psychometric properties of the Four-Dimensional Symptom Questionnaire (4DSQ) in clinical and healthy samples in Jordan. The following secondary objectives are derived from this main objective:

To identify evidence of validity for the Four-Dimensional Symptom Questionnaire (4DSQ) among a clinical sample and a healthy sample within the Jordanian environment.

To determine evidence of reliability for the Four-Dimensional Symptom Questionnaire (4DSQ) in clinical and healthy samples within the Jordanian context.

To examine the nature of the relationship between the Four-Dimensional Symptom Questionnaire, the Beck Depression Inventory-II (BDI-II), and the Kessler Psychological Distress Scale (K10).

Significance of the Study

The significance of the current study stems from the need to provide an assessment instrument with acceptable psychometric properties in both the Arab and Jordanian contexts. Such an instrument could assist general practitioners and family physicians in distinguishing between psychological distress and mental disorders experienced by patients. Consequently, this may facilitate the identification of mental disorders and the appropriate referral of patients to specialised healthcare services, ensuring that patients receive suitable interventions at the earliest possible stage and before symptoms worsen. The significance of this study can be discussed from two perspectives:

Theoretical Significance

1. Investigating the psychometric properties of the Four-Dimensional Symptom Questionnaire (4DSQ) represents a topic that has not previously been examined within the Jordanian context, in addition to the scarcity of studies addressing this issue in the Arab world. This gives the study particular originality and importance, especially in Jordan.
2. The study is expected to provide an Arabic version of the Four-Dimensional Symptom Questionnaire (4DSQ) as an instrument with acceptable psychometric properties.
3. The study is also expected to enrich the Arabic academic literature and serve as a reference for researchers and scholars in the field of mental health because of the theoretical framework and information it provides, representing a valuable addition to the field of mental health research.

Practical Significance

1. The study highlights the urgent need for an assessment instrument with acceptable psychometric properties in local and Arab settings to assist primary healthcare physicians in detecting psychological disorders and distinguishing them from psychological distress.
2. The study may open opportunities for researchers to further investigate the psychometric properties of the Four-Dimensional Symptom Questionnaire (4DSQ) while incorporating variables not examined in the current study.
3. The findings are expected to benefit professionals working in mental health services across different levels of care by facilitating the detection of psychological disorders through the use of the Four-Dimensional Symptom Questionnaire.
4. The Jordanian Ministry of Health may benefit from having an Arabic-language instrument with acceptable psychometric properties and may generalise its use across healthcare centres and clinics

affiliated with the ministry.

5. The study may contribute to raising awareness of mental health among primary healthcare physicians and patients attending primary healthcare services.

Study Terms and Operational Definitions

1. Psychometric Properties

Psychometric properties refer to the availability of validity and reliability coefficients for a test within a specific environment (Barakat, 2012). They are statistical indicators that reflect the strength and quality of research instruments (e.g., scales, questionnaires, tests) and their items in achieving the intended objectives, including acceptable measures of validity and reliability (Bouqsara & Ziyad, 2015).

Operationally, psychometric properties are defined as indicators of validity and reliability derived from the Four-Dimensional Symptom Questionnaire in clinical and healthy samples in Jordan.

2. Validity

Validity refers to the extent to which an instrument accurately measures what it claims to measure and the degree to which it effectively assesses the characteristics for which it was designed. It represents the accuracy and precision with which an instrument measures the construct it was intended to assess (Carlson et al., 2007). Validity may also be defined as the degree to which an instrument measures the trait, attitude, or skill for which it was developed, as well as the appropriateness of using the instrument's scores for making specific interpretations (Knile, 2000).

Operationally, the validity of the questionnaire is defined as concurrent validity, demonstrated by the correlation between the questionnaire scores and the scores on measures of psychological disorders indicating the presence of mental disorders.

3. Reliability

Reliability is the extent to which results are unaffected by the procedures used to administer the questionnaire or by unrelated variables. It indicates the consistency of questionnaire results when administered repeatedly to the same individual under similar conditions and at different times. It is considered one of the essential characteristics of a sound assessment instrument and reflects the stability of the test over time (Carlson et al., 2007).

Operationally, the reliability of the questionnaire refers to its ability to yield consistent results when administered repeatedly under the same conditions. Reliability indicates the consistency of findings, meaning

that the researcher obtains the same results when the measurement is repeated under identical circumstances. Reliability will be assessed using internal consistency via Cronbach's alpha coefficient, as well as through the test–retest method with a ten-day interval between administrations.

4. Four-Dimensional Symptom Questionnaire (4DSQ)

The Four-Dimensional Symptom Questionnaire (4DSQ) is a tool designed to help general practitioners and family physicians distinguish between psychological distress and psychological disorders. It comprises 50 self-report items across four subdimensions: Distress, Depression, Anxiety, and Somatisation (Terluin et al., 2006).

Study Limitations

A. Human and Geographical Limitations

The study was limited to patients diagnosed with psychological disorders, excluding those with neurocognitive disorders such as Parkinson's disease, Alzheimer's disease, and dementia. Participants in this group were aged 20 years or older.

The study also included patients with chronic physical illnesses who were not diagnosed with psychological disorders, excluding those with cardiovascular disease. Participants in this group were aged 20 years or older. Additionally, the study included healthy individuals who did not suffer from psychological disorders or physical illnesses and who were not taking any medications regularly.

Geographically, the sample was distributed across the Hashemite Kingdom of Jordan and included both males and females.

B. Temporal Limitations

The implementation of the study extended from the second semester of the 2021/2022 academic year until the first semester of the 2022/2023 academic year.

C. Subject Limitations

The current study was limited to examining the psychometric properties of the Four-Dimensional Symptom Questionnaire (4DSQ) in clinical and healthy samples in the Jordanian context.

The study findings were also limited to the instruments used in the research, namely:

* Four-Dimensional Symptom Questionnaire (4DSQ)

* Beck Depression Inventory-II (BDI-II)

* Kessler Psychological Distress Scale (K10)

Theoretical Framework

Psychological Distress

Psychological distress is a defining characteristic of modern life, driven by the rapid pace of events, the increasing complexity of lifestyles, and the growing demands of everyday living. In the era of globalisation, people are exposed to the problems and crises of societies worldwide, as the world has effectively become a small village. Individuals continually encounter challenges and obstacles in their lives and often find themselves unable to cope with or adapt to these difficulties, resulting in feelings of helplessness and frustration, as well as internal conflict between their personal abilities and the stressful situations surrounding them (Al-Rashidi, 2019).

People experience varying levels of psychological stress when confronted with demands that require change and adaptation. Stress comprises two components: stressors, which require adjustment, and the stress response, which is the individual's reaction to those stressors. Stressful life events may range from minor situations, such as traffic congestion, to severe experiences, such as wars or disease outbreaks (Almeida et al., 2011). Individuals' responses to stress are influenced by their perceptions of stressful situations and by their perceived ability to cope effectively. Individuals who believe they possess sufficient abilities, resources, and competence to deal with stress tend to manage it more effectively and respond in healthier ways (Smith, 2011).

The term "stress" derives from the Latin word *Distringere*, meaning "to stretch tightly," which later evolved in English into the term *distress*, meaning something unpleasant or undesirable. The term *stress* itself has been used to denote suffering and discomfort (Abdel Moati, 2004).

Psychological distress is a set of responses that reflect an individual's discomfort in a particular situation. It is considered a biopsychosocial indicator that can be identified through behaviours exhibited by individuals in response to perceived threats in their environment (Abdel Rahim, 2016). Okasha (1992) described psychological distress as the challenge posed by unpleasant factors to an individual's coping and adaptive capacities, whereas Al-Sahli (2010) defined it as the interaction between a person and their environment when that environment is perceived as stressful, exhausting, or exceeding available resources.

It is important to note that individuals' reactions to stress and the fear it produces play a major role in the development of psychological disorders. Individuals exposed to moderately severe stressors over time are

more likely to develop anxiety disorders, whereas those exposed to highly intense but temporary stressors are more likely to develop depressive disorders (Comer, 2014). Differences in individuals' personalities and perceptions are always taken into account when evaluating sources of stress, since an event perceived as stressful by one individual may not necessarily be viewed in the same way by another (Al-Abdali, 2021).

Sources of psychological distress may generally be classified into several categories, including internal stressors originating within the individual, such as ambitions and goals; external stressors arising from the surrounding environment; and stress resulting from the interaction between the individual and their environment, such as pressures related to values, beliefs, and orientations that conflict with societal norms (Hussein, 2006).

Depression Disorders

Depression is the second most common psychological disorder associated with stressful life events, after anxiety, and it significantly affects both physical and psychological health. It is among the most common mental health problems prompting individuals to seek treatment and social and psychological support in healthcare settings. Together, depression and anxiety constitute the largest share of cases among visitors to psychiatric clinics and mental health institutions in contemporary societies (Layas, 2006).

The term "depression" encompasses sadness and grief (Sarhan, 2001). Depressive disorders encompass a broad range of symptoms, including mood disturbances, loneliness and apathy, and negative self-perception. Additional symptoms include profound sadness, feelings of worthlessness and insignificance, social withdrawal, and changes in sleep and appetite, alongside behavioural and emotional disturbances (Bushra, 2007).

Abdel Moati (2004) noted that Coles defined depression as a subjective experience characterised by sadness, pessimism, loss of interest, apathy, feelings of failure and dissatisfaction, tendencies towards self-harm, indecision, inability to make decisions, fatigue, appetite loss, guilt, self-contempt, slowed responses, and inability to exert effort.

According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), a major depressive episode is a period lasting at least two weeks during which the individual experiences depressed mood most of the day, nearly every day. The mood is described as sad, hopeless, and demoralised. The diagnostic criteria comprise nine symptoms, of which at least five must be present. These symptoms include persistent depressed mood, loss of interest in daily activities, slowed thinking and psychomotor retardation observed by others, significant changes in appetite and weight, severe fatigue, feelings of guilt and worthlessness, diminished ability to think and concentrate, suicidal thoughts or attempts, and recurrent

thoughts of death (APA, 2013).

Depression is among the most prevalent psychological disorders in industrialised countries. The World Health Organization (WHO, 2017) estimated that approximately 300 million people worldwide suffer from depression, representing 4.4% of the global population. Comer (2014) further reported that mood disorders affect approximately 9–13% of adults.

Within the framework of Sigmund Freud's psychoanalytic theory, depression was interpreted as a condition arising from unconscious conflicts among the id, ego, and superego, together with the ego's inability to control them. Consequently, feelings of anger and aggression become directed inward towards the self (Pettijohn, 1992).

Anxiety Disorders

Anxiety is considered a natural part of human life that influences behaviour. It is viewed as a sign of humanity, a reality of existence, a dynamic aspect of personality development, and a variable affecting human behaviour (Al-Momani & Naim, 2012). Anxiety is also regarded as an indicator of perceived threats to life or happiness and as a motivator for avoidance behaviours (Rateb, 2007).

Anxiety has occupied a prominent place in both historical and contemporary human thought. Research in this field has shown that since the beginning of the twentieth century, particularly during the early 1950s, more than 15,000 studies on anxiety had been conducted, using over 120 different methods to measure and assess its levels (Saad, 2004).

Freud defined anxiety as a severe, vague state of fear that dominates the individual, marked by a constant expectation of danger, leading to suspicion and pessimism about everything around them. By contrast, Aaron Beck described anxiety as an emotional state arising from the activation of fear, which can be viewed as a cognitive pattern reflecting the expectation of a highly probable threat (Faraj, 2009). Jung defined anxiety as a condition resulting from the dominance of fantasies or illusions perceived as threats to life, producing what he referred to as anxiety responses (Al-Zubaidi & Al-Harouti, 2017).

The section on anxiety disorders in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) differentiates between normal fear and anxiety and pathological anxiety disorders.

The DSM-5 indicates that anxiety disorders are characterised by anxiety that exceeds normal adaptive responses and persists for six months or longer. It also notes that individuals with anxiety disorders typically overestimate the danger in situations they fear or avoid.

Somatic Disorders

Somatic disorders are among the most confusing phenomena encountered by professionals working in healthcare services. In cases of somatisation, physical symptoms appear in the absence of any clear medical explanation (Allen & Woolfolk, 2013).

Somatic disorders reflect the close relationship between the mind and body, as they involve physical symptoms that originate from psychological causes. Although psychological, social, and cultural factors contribute significantly to the development of somatisation, this does not diminish the importance of biological factors in its onset and progression (Al-Najjar, 2009).

Chronic and recurrent stressors are considered more dangerous in producing this type of disorder than temporary or short-term stressors. In addition, individuals' physiological responses to stress depend on their perception of stressful situations and their personality characteristics, as different forms of stress produce different responses (Al-Zarrad, 2000). Psychological stress experienced by individuals may affect their cognitive, emotional, and personality functioning and may also lead to numerous somatic symptoms (Metwally, 2000).

Somatization is a condition in which physical symptoms manifest as expressions of psychological distress, prompting individuals to seek medical assistance for these physical complaints. Anxiety and depression are often considered the primary factors underlying the onset and exacerbation of such symptoms (Rief & Rojas, 2007; Simon & Gureje, 1999).

Somatization has also been described as physical complaints involving dysfunction in a part of the body or impairment of an organ's function, and as an expression of psychological distress. Physical treatment alone is often insufficient for complete recovery because the underlying psychological stressors remain unresolved without concurrent psychological intervention (Abu Al-Nile, 1994).

Somatic disorders are addressed in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), which describes them as persistent physical symptoms associated with excessive thoughts, feelings, and behaviours in the absence of clear and identifiable medical explanations. This diagnosis is assigned to individuals who exhibit an excessive focus on physical symptoms, such as pain, weakness, discomfort, and functional impairment, despite the absence of a sufficient medical explanation.

Most individuals with these disorders attend medical clinics, whereas relatively few seek psychiatric services. The DSM-5 classification includes seven categories of somatic disorders:

1. Somatic Symptom Disorder
2. Illness Anxiety Disorder

3. Conversion Disorder
4. Factitious Disorder
5. Psychological Factors Affecting Other Medical Conditions
6. Other Specified Somatic Symptom and Related Disorders
7. Unspecified Somatic Symptom and Related Disorders (APA, 2013)

Previous Studies

This section reviews previous studies related to the topic of the current research, specifically those concerning the Four-Dimensional Symptom Questionnaire (4DSQ).

Kleinstäuber et al. (2021) examined the validity and reliability of the Four-Dimensional Symptom Questionnaire in a clinical mental health setting. The study sample comprised 159 patients attending outpatient psychological treatment clinics in both the United States and the Netherlands. Confirmatory factor analysis indicated that all subdimensions of the questionnaire were unidimensional. Reliability coefficients, calculated using Cronbach's alpha, were high (≤0.90). The findings also showed a significant correlation between the Four-Dimensional Symptom Questionnaire (4DSQ) and the Outcome Questionnaire-45 (OQ-45), confirming that the 4DSQ demonstrates excellent validity and reliability indicators within mental health settings.

Aljemaiah et al. (2021) evaluated the psychological effects of the COVID-19 pandemic on Saudi society and assessed the performance of the Arabic version of the Four-Dimensional Symptom Questionnaire (4DSQ). The study sample comprised 347 participants who showed elevated levels of psychological distress, depression, anxiety, and somatisation compared with a healthy sample from Taif, Saudi Arabia. Cronbach's alpha values were 0.93 for psychological distress, 0.88 for depression, 0.88 for anxiety, and 0.86 for somatisation. The results indicated elevated psychological distress among the Saudi population during the COVID-19 pandemic and confirmed that the Four-Dimensional Symptom Questionnaire demonstrated good validity and reliability.

Elmessiri et al. (2021) aimed to assess the suitability of the Arabic version of the Four-Dimensional Symptom Questionnaire for use among primary healthcare attendees in Egypt. The English version of the 4DSQ was translated into Arabic using the Egyptian colloquial dialect. The translation was reviewed by five translators, including a specialist psychiatrist, internists, and an English language specialist. Forward and backward translation procedures were then conducted by two bilingual physicians fluent in both Arabic and English. The study sample comprised 278 primary healthcare attendees in Egypt. Both the Arabic and English versions of the questionnaire, which included the dimensions of distress, depression, anxiety, and somatisation, were administered to participants. The results showed no statistically significant differences between the Arabic

and English versions, indicating acceptable concurrent validity of the Four-Dimensional Symptom Questionnaire within the Egyptian context.

Terluin et al. (2020) examined the psychometric characteristics of the Four-Dimensional Symptom Questionnaire in its Danish and Dutch versions. The study sample comprised 1,363 participants, of whom 63% were female and 37% were male. The findings showed that the Danish version of the 4DSQ measured the same dimensions as the original Dutch questionnaire.

Exner et al. (2018) investigated the psychometric properties of the German version of the Four-Dimensional Symptom Questionnaire and its correspondence with the original Dutch version. The study also examined the prevalence of mental health problems among older adults with multiple chronic illnesses. The sample comprised 185 German and 185 Dutch participants. The findings indicated that the German version of the 4DSQ demonstrated acceptable concurrent validity relative to the original Dutch version and that the instrument was suitable for screening mental health problems in primary healthcare settings.

Terluin et al. (2016) investigated the validity and reliability of the Four-Dimensional Symptom Questionnaire in the general population in the Netherlands. The study sample comprised 5,273 males and females from the general population. Factor analysis indicated that the depression dimension was unidimensional, whereas the remaining dimensions were bidimensional. Reliability, assessed using Cronbach's alpha, was 0.95. The findings further indicated that there were no differences in levels of psychological distress, depression, and anxiety attributable to gender, age, or educational level, supporting the discriminant validity of the questionnaire. However, somatization scores varied with age, while somatization levels remained stable across gender and educational levels.

Another study by Terluin et al. (2016) examined the extent to which the anxiety dimension of the Four-Dimensional Symptom Questionnaire could identify specific anxiety disorders among 969 primary healthcare attendees. Factor analysis indicated that anxiety was a unidimensional construct within the questionnaire. The anxiety dimension was effective in detecting panic disorder, agoraphobia, social anxiety disorder, obsessive-compulsive disorder, and post-traumatic stress disorder among patients with generalised anxiety disorder. Generalised anxiety and specific anxiety were identified to a lesser extent. The results also demonstrated that the anxiety dimension of the 4DSQ shared characteristics with anxiety disorders.

Chambea et al. (2015) sought to determine whether the French version of the Four-Dimensional Symptom Questionnaire measured the same constructs as efficiently as the original Dutch version. The study sample comprised 231 patients and 15 French general practitioners. The findings indicated that the French version of the 4DSQ demonstrated high validity and reliability and measured the same dimensions as the original Dutch questionnaire.

Commentary on Previous Studies

The previous studies reviewed aimed to investigate the psychometric properties of the Four-Dimensional Symptom Questionnaire (4DSQ) across different populations, variables, and languages. These studies also compared the results of the original Dutch version with those of the translated versions. Furthermore, prior research highlighted the importance of the Four-Dimensional Symptom Questionnaire in detecting psychological disorders and distinguishing them from psychological distress among primary healthcare attendees. The review of the literature also demonstrated the use of several additional psychological measures to examine the extent of the relationship between the Four-Dimensional Symptom Questionnaire and other assessment instruments, as well as the degree of similarity and agreement in findings.

The review additionally revealed the scarcity of Arabic studies related to the current topic and the complete absence of studies conducted within the Jordanian context concerning the Four-Dimensional Symptom Questionnaire.

What distinguishes the present study from previous research is its focus on the psychometric properties of the Four-Dimensional Symptom Questionnaire in the Jordanian context. The study also compares the questionnaire with assessment tools that have not previously been examined in relation to the 4DSQ, namely the Beck Depression Inventory-II (BDI-II) and the Kessler Psychological Distress Scale (K10).

Another distinguishing feature of the current study is that it included two samples: a healthy sample and a clinical sample, which was divided into two groups, namely individuals diagnosed with psychological disorders and individuals suffering from physical illnesses. In addition, the study employed a relatively large sample size.

Methodology

The study employed a descriptive correlational design to investigate the psychometric properties of the Four-Dimensional Symptom Questionnaire among a clinical sample and a healthy sample in Jordan.

Study Population

The study population comprised all adult members of Jordanian society, including healthy individuals, physically ill patients attending family medicine clinics for treatment, and individuals diagnosed with

psychological disorders who attended psychiatric clinics and mental health centres. The population was considered very large because these groups were widely distributed across Jordan's regions, governorates, districts, and territories.

Study Sample

The study samples were selected using a convenience sampling method from healthy individuals, physically ill patients, and individuals diagnosed with psychological disorders. The initial sample comprised 450 participants, with 150 in each category. After distributing and collecting the questionnaires, the final sample included 141 physically ill patients, 140 healthy individuals, and 120 participants diagnosed with psychological disorders, as detailed below.

Variable	Categories	Frequency	Percentage
Type of Sample	Physically Ill Patients	141	35.2%
	Healthy Individuals	140	34.9%
	Psychological Disorders	120	29.9%

Table 1. Demographic Distribution of the Study Sample

The sample was further divided into two groups. The first group represented the clinical sample, comprising individuals diagnosed with psychological disorders as well as those with chronic physical illnesses who did not have psychological disorders. The second group comprised healthy individuals who were free from both psychological and physical illnesses and did not regularly use medication.

Clinical Sample

A. Participants Diagnosed with Psychological Disorders

This group excluded individuals diagnosed with neurocognitive disorders, including Parkinson’s disease, multiple sclerosis, and dementia. The sample comprised 120 participants, of whom 65 were male and 55 female, with a mean age of 39 years. The following section presents the sample’s characteristics, including gender, age, educational level, and diagnosis.

Variable	Category	Frequency	Percentage (%)
Gender	Male	65	54.2
	Female	55	45.8
Age	20–30 years	34	28.3
	31–40 years	38	31.7
	41–65 years	48	40.0
Educational Level	Secondary School or Less	38	31.7
	Diploma	24	20.0
	Bachelor's Degree	58	48.3
Diagnosis	Anxiety	53	44.3
	Depression	37	30.8
	Bipolar Disorder	4	3.3
	Schizophrenia	10	8.3
	Borderline Personality Disorder	6	5.0
	Addiction	10	8.3
Total		120	100.0

Table 2. Distribution of Participants Diagnosed with Psychological Disorders According to Gender, Age, Educational Level, and Diagnosis

B. Participants with Chronic Physical Illnesses

This group comprised individuals with chronic physical illnesses who had not been diagnosed with psychological disorders. Participants with cardiovascular disease were excluded. The sample included 141 individuals, comprising 76 males and 65 females, with a mean age of 41 years. The following table presents the sample's characteristics by gender, age, educational level, and diagnosis.

Variable	Category	Frequency	Percentage (%)
Gender	Male	76	53.9
	Female	65	46.1
Age	20–30 years	37	26.2
	31–40 years	30	21.3
	41–65 years	74	52.5
Educational Level	Secondary School or Less	58	41.1
	Diploma	35	24.8
	Bachelor's Degree	48	34.0
Diagnosis	Hypertension	34	24.1

Variable	Category	Frequency	Percentage (%)
	Diabetes Mellitus	22	15.6
	Kidney Diseases	9	6.5
	Anemia	8	5.7
	Liver Diseases	4	2.8
	Rheumatism	3	2.2
	Gynecological Diseases	13	9.2
	Dermatological Diseases	11	7.8
	Respiratory Diseases	10	7.1
	Osteoporosis/Bone Fractures	5	3.5
	Thyroid Disorders	7	4.9
	Cholecystitis	10	7.1
	Burns	5	3.5
Total		141	100.0

Table 3. Distribution of Participants with Physical Illnesses According to Gender, Age, Educational Level, and Diagnosis

Healthy Sample

The healthy sample comprised individuals who were free from psychological disorders and physical illnesses and who did not regularly take medication for any health condition. The sample included 140 participants, comprising 69 males and 71 females, with a mean age of 39 years. The following table presents the sample's characteristics by gender, age, and educational level.

Variable	Category	Frequency	Percentage (%)
Gender	Male	69	49.3
	Female	71	50.7
Age	20–30 years	41	29.3
	31–40 years	26	18.6
	41–65 years	73	52.1
Educational Level	Secondary School or Less	40	28.6
	Diploma	35	25.0
	Bachelor’s Degree	65	46.4
Total		140	100.0

Table 4. Distribution of Healthy Participants According to Gender, Age, and Educational Level

It should be noted that this sample was largely similar to the clinical sample in terms of demographic characteristics.

Study Instruments

First: Four-Dimensional Symptom Questionnaire (4DSQ)

(Terluin et al., 2004)

The Four-Dimensional Symptom Questionnaire (4DSQ) is an instrument originally developed in Dutch by the Dutch physician Berend Terluin to help general practitioners and family physicians in primary healthcare settings distinguish between psychological distress and psychological disorders. The questionnaire has been translated into several languages, including Polish, English, French, German, and Turkish (Chambea et al., 2015).

The questionnaire consists of 50 self-report items distributed across four subdimensions:

1. Distress

This dimension measures psychological distress and consists of 16 items:

(17, 19, 20, 22, 25, 26, 29, 31, 32, 36, 37, 38, 39, 41, 47, 48).

Scores for this dimension range from 0 to 32.

2. Depression

This dimension measures depressive thinking patterns, suicidal ideation, and reduced pleasure. It consists of 6 items: (28, 30, 33, 34, 35, 46).

Scores range from 0 to 12.

3. Anxiety

This dimension measures symptoms of various anxiety disorders such as generalized anxiety, panic attacks, specific fears, and avoidance behaviors. It consists of 12 items:

(18, 21, 23, 24, 27, 40, 42, 43, 44, 45, 49, 50).

Scores range from 0 to 24.

4. Somatization

This dimension measures somatic symptoms and consists of 16 items:

(1–16).

Scores range from 0 to 32.

Participants respond to the questionnaire items based on how they felt during the previous week, including the

day of completion. Responses are recorded on a five-point Likert scale ranging from "No," "Sometimes," "Regularly," "Often," to "Very Often or Constantly" (Terluin et al., 2004).

Scoring of the Four-Dimensional Symptom Questionnaire (4DSQ)

Each item in the Four-Dimensional Symptom Questionnaire offers five response options on a five-point Likert scale. However, scoring uses a three-point system in which the responses "Regularly," "Often," and "Very Often or Constantly" are each assigned a score of 2 (Terluin et al., 2016). The scoring system is as follows:

- No = 0
- Sometimes = 1
- Regularly = 2
- Often = 2
- Very Often/Constantly = 2

According to the original questionnaire, scores are interpreted as follows:

- Distress: Less than 10 = Low, 10–19 = Moderate, 20 or higher = High
- Depression: Less than 2 = Low, 2–4 = Moderate, 5 or higher = High
- Anxiety: Less than 8 = Low, 8–11 = Moderate, 12 or higher = High
- Somatization: Less than 10 = Low, 10–19 = Moderate, 20 or higher = High

Validity and Reliability of the Original Version of the 4DSQ

Terluin et al. (2004) examined the validity of the original version of the Four-Dimensional Symptom Questionnaire through face validity, as the construction and items of the questionnaire were directly related to psychological distress, anxiety, and depression. Factor validity was examined using orthogonal rotation, and the analysis revealed four underlying factors corresponding to the questionnaire dimensions. Confirmatory factor analysis (CFA) was also used to evaluate model fit, and CFA values approached 1.00, indicating good construct validity of the scale.

Reliability of the original questionnaire was assessed using Cronbach's alpha coefficients. The alpha values were 0.90 for distress, 0.82 for depression, 0.79 for anxiety, and 0.80 for somatisation, indicating that the original version of the 4DSQ demonstrated high reliability.

Validity of the 4DSQ for the Current Study

1. Content Validity

Content validity of the Four-Dimensional Symptom Questionnaire was established by translating the questionnaire items and administration instructions from English into Arabic using the back-translation method. The translation was reviewed several times at different intervals. Subsequently, the translated version was presented to specialists in related fields for evaluation and suggestions for modifications, with the aim of achieving the highest possible degree of translation validity.

Reliability of the 4DSQ for the Current Study

Reliability of the Four-Dimensional Symptom Questionnaire was assessed by estimating internal consistency using Cronbach's alpha and by applying the test–retest method to all subdimensions and the total questionnaire score. Reliability procedures were conducted on a pilot sample of 30 public school teachers, as detailed below.

No.	4DSQ Dimension	Cronbach's Alpha	Test–Retest
1	Psychological Distress	0.743	0.863**
2	Depression	0.831	0.901**
3	Anxiety	0.820	0.882**
4	Somatization	0.864	0.950**
5	Total 4DSQ Score	0.896	0.916**

Table 5. Cronbach's Alpha and Test–Retest Reliability Coefficients for the 4DSQ Subdimensions and Total Scale (N = 30)

Significant at the 0.01 level.

The findings showed that Cronbach's alpha coefficients for the subdimensions ranged from 0.743 to 0.864, while the total scale reliability coefficient reached 0.896, a high value approaching 1.00. Test–retest reliability coefficients, calculated using Pearson correlation, ranged from 0.863 to 0.950 for the subdimensions, with an overall stability coefficient of 0.916. These coefficients were statistically significant at the 0.01 level and indicate that the reliability values were high and acceptable for the purposes of the study.

Second: Beck Depression Inventory-II (BDI-II)

(Beck et al., 1996)

The Beck Depression Inventory-II (BDI-II) is used to assess the severity of depression in individuals aged 13 years and older. The second edition, now known as the BDI-II, was developed for clinical and research use (Hassan et al., 2022). Administration of the instrument requires participants to be in a psychologically stable

state to ensure comprehension of all questionnaire items. The inventory typically takes five to ten minutes to complete, although administration time may be longer in cases of severe depression (Beck et al., 1996).

Scoring of the BDI-II

The scale comprises 21 items assessing depressive symptoms and attitudes. Each item offers four multiple-choice responses ordered by symptom severity. Responses are scored on a four-point Likert scale from 0 to 3, with 0 indicating absence of symptoms and 3 indicating severe symptoms. Total scores range from 0 to 63 and are classified into four levels:

- 0–13: Minimal or No Depression
- 14–19: Mild Depression
- 20–28: Moderate Depression
- 29–63: Severe Depression

Validity of the Original BDI-II

Garcia-Batista et al. (2018) examined the validity of the original BDI-II using internal consistency coefficients across items and dimensions, as well as correlations between dimensions and the total score. Correlation coefficients were 0.78 for the cognitive dimension, 0.77 for the physical dimension, 0.70 for the emotional dimension, and 0.80 for the total score. In the Jordanian context, Al-Da'aseen (2004) examined convergent and discriminant validity using three depression-related measures, with correlation values ranging from 0.45–0.71 with the Depressive Experiences Scale, 0.68–0.76 with the State–Trait Anxiety Inventory, and 0.86–0.89 with the revised Beck Depression Inventory-I.

Reliability of the Original BDI-II

The reliability of the original 21-item BDI-II was assessed using Cronbach's alpha, yielding a coefficient of 0.92, indicating strong internal consistency (Garcia-Batista et al., 2018). In the Jordanian context, Al-Da'aseen (2004) reported reliability coefficients of 0.84, 0.85, and 0.85 using Cronbach's alpha and 0.87, 0.86, and 0.86 using the test–retest method.

Third: Kessler Psychological Distress Scale (K10)

(Kessler et al., 2003)

The Kessler Psychological Distress Scale (K10) is a simple self-report instrument designed to measure psychological distress among individuals in community settings (Kessler et al., 2003). The scale has been used

to evaluate the effectiveness of treatments for psychological disorders and in public health research. It is considered a self-report measure for identifying individuals' need for psychological treatment (Al-Aqoun & Kahoul, 2020).

The scale comprises 10 items assessing symptoms of psychological distress. Each item offers five response levels that reflect the level of distress experienced over the previous four weeks. The instrument demonstrates high validity and reliability (Kessler et al., 2002).

Scoring of the K10

The scale measures general levels of psychological distress using a five-point Likert scale as follows:

- Never = 1
- Rarely = 2
- Sometimes = 3
- Often = 4
- Always = 5

Total scores range from 10 to 50. The Department of Health and Human Services (2011) classified K10 scores as follows:

- 10–19: Likely to be well
- 20–24: Mild distress
- 25–29: Moderate distress
- 30–50: Severe distress

Validity of the Original K10

Hoffman et al. (2022) examined the validity of the original K10 using factor analysis. A factor loading of 0.30 was adopted as the criterion for item saturation. The Root Mean Square Error of Approximation (RMSEA) was 0.06, while the Comparative Fit Index (CFI) and the Tucker-Lewis Index were both 0.90, indicating acceptable validity indicators.

Reliability of the Original K10

Reliability of the original 10-item K10 scale was assessed using Cronbach's alpha, which exceeded 0.80, indicating acceptable internal consistency (Hoffman et al., 2022).

Statistical Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS Version 22) to answer the study questions. The following statistical procedures were applied:

- Frequencies and percentages to identify the demographic distribution of the study sample.
- Pearson correlation coefficients to examine internal construct validity of the 4DSQ and test–retest reliability.
- Cronbach's alpha coefficients to assess reliability of the study instruments.
- Means and standard deviations to obtain descriptive statistics.
- One-Way Analysis of Variance (ANOVA) and Scheffé post hoc comparisons to examine discriminant validity of the 4DSQ.
- Pearson correlation coefficients to examine the relationship between the 4DSQ, the Beck Depression Inventory-II, and the Kessler Psychological Distress Scale.

Results of the Study

Results Related to the First Research Question

What evidence supports the validity of the Four-Dimensional Symptom Questionnaire (4DSQ) in Jordanian clinical and healthy samples?

To address the first research question, Pearson correlation coefficients were computed to assess internal construct validity, and One-Way ANOVA was used to assess the discriminant validity of the Four-Dimensional Symptom Questionnaire (4DSQ), as follows:

First: Internal Construct Validity

Table 6. Pearson Correlation Coefficients Between Item Scores and Total Scores of Each Dimension of the Four-Dimensional Symptom Questionnaire (4DSQ) (N = 401)

Pearson correlation coefficients between individual item scores and the total scores of their corresponding dimensions in the Four-Dimensional Symptom Questionnaire (4DSQ) were calculated. The results showed that correlation coefficients for the Distress dimension ranged from 0.643 to 0.797, for Depression from 0.717 to 0.834, for Anxiety from 0.667 to 0.762, and for Somatization from 0.541 to 0.817. All coefficients were

statistically significant at the 0.01 level, indicating strong item discrimination and high correlations with their respective dimensions. These findings confirm the internal construct validity of the questionnaire.

Correlation coefficients among the four dimensions of the questionnaire were also calculated, as presented below.

Dimensions	Distress	Depression	Anxiety	Somatization
Distress	1	0.873**	0.892**	0.865**
Depression		1	0.832**	0.775**
Anxiety			1	0.810**
Somatization				1

Table 7. Correlation Coefficients Among the Four Dimensions of the Questionnaire

Statistically significant at the 0.01 level

The results demonstrated statistically significant positive correlations at the 0.01 level among all four dimensions of the questionnaire (Distress, Depression, Anxiety, and Somatization). All correlation coefficients were statistically significant, further supporting the internal construct validity of the instrument.

Second: Discriminant Validity

To assess the discriminant validity of the questionnaire, means and standard deviations were calculated for the performance of the study groups (healthy individuals, participants with psychological disorders, and physically ill patients) on the questionnaire. A one-way ANOVA was also conducted to test the statistical significance of differences among group means. Scheffé post hoc comparisons were then used to identify the sources of these differences.

Dimension	Group	N	Mean	Standard Deviation	Interpretation	F Value	Significance
Distress	Physical Illnesses	141	11.23	7.84	Moderate	307.316	.000*
	Healthy	140	1.73	2.72	Low		
	Psychological Disorders	120	18.39	4.28	Moderate		
	Total	401	10.05	8.67	Moderate		
Depression	Physical Illnesses	141	3.64	3.23	Moderate	150.535	.000*
	Healthy	140	0.67	1.26	Low		
	Psychological	120	6.04	2.61	High		

Dimension	Group	N	Mean	Standard Deviation	Interpretation	F Value	Significance
	Disorders						
	Total	401	3.32	3.31	Moderate		
Anxiety	Physical Illnesses	141	7.79	5.85	Low	186.595	.000*
	Healthy	140	0.76	1.68	Low		
	Psychological Disorders	120	10.83	4.45	Moderate		
	Total	401	6.24	6.04	Low		
Somatization	Physical Illnesses	141	12.81	8.62	Moderate	246.493	.000*
	Healthy	140	2.20	3.20	Low		
	Psychological Disorders	120	18.44	4.73	Moderate		
	Total	401	10.79	9.00	Moderate		

Table 8. Means and Standard Deviations of Study Groups on the Four-Dimensional Symptom Questionnaire

The findings revealed apparent differences in mean scores across the study groups on the Four-Dimensional Symptom Questionnaire. The F values for Distress, Depression, Anxiety, and Somatization were 307.316, 150.535, 186.595, and 246.493, respectively, all of which were statistically significant at the 0.05 level. These results indicate that the Four-Dimensional Symptom Questionnaire differentiated between healthy individuals, participants diagnosed with psychological disorders, and physically ill patients, thereby confirming the instrument's discriminant validity.

Scheffé post hoc comparisons further revealed that the differences across all dimensions favored the group diagnosed with psychological disorders, followed by the physically ill group.

Results Related to the Second Research Question

What evidence supports the reliability of the Four-Dimensional Symptom Questionnaire (4DSQ) among a clinical sample and a healthy sample in the Jordanian environment?

Internal consistency reliability coefficients for the Four-Dimensional Symptom Questionnaire were calculated using Cronbach's alpha, as shown below.

No.	4DSQ Dimension	Cronbach's Alpha
1	Distress	0.950
2	Depression	0.877
3	Anxiety	0.919
4	Somatization	0.951
	Total 4DSQ Score	0.980

Table 9. Reliability Coefficients of the Four-Dimensional Symptom Questionnaire Using Cronbach's Alpha (N = 401)

The findings showed that the Distress dimension achieved a reliability coefficient of 0.950, Depression 0.877, Anxiety 0.919, and Somatization 0.951. The overall reliability coefficient for the questionnaire reached 0.980. These findings indicate that the questionnaire possesses high and acceptable reliability coefficients for the purposes of the current study, exceeding the threshold value of 0.70 recommended by Hair et al. (2010).

Results Related to the Third Research Question

Is there a correlational relationship between the Four-Dimensional Symptom Questionnaire, the Beck Depression Inventory-II, and the Kessler Psychological Distress Scale?

To address the third research question, Pearson correlation coefficients were computed to assess the relationships among the Four-Dimensional Symptom Questionnaire, the Beck Depression Inventory-II (BDI-II), and the Kessler Psychological Distress Scale (K10).

4DSQ Dimensions	BDI-II (Depression)	K10 (Psychological Distress)
Distress	0.704**	0.768**
Depression	0.683**	0.722**
Anxiety	0.666**	0.712**
Somatization	0.635**	0.676**

Table 10. Pearson Correlation Coefficients Between the Four-Dimensional Symptom Questionnaire (4DSQ), the Beck Depression Inventory-II (BDI-II), and the Kessler Psychological Distress Scale (K10)

Statistically significant at the 0.01 level

The results revealed statistically significant positive correlations between participants' scores on the Four-Dimensional Symptom Questionnaire dimensions (Distress, Depression, Anxiety, and Somatization) and their scores on the Beck Depression Inventory-II. The correlation coefficients were 0.704, 0.683, 0.666, and 0.635,

respectively, all significant at the 0.01 level.

The findings also demonstrated statistically significant positive correlations between participants' scores on the Four-Dimensional Symptom Questionnaire dimensions and their performance on the Kessler Psychological Distress Scale. Correlation coefficients were 0.768, 0.722, 0.712, and 0.676, respectively, all significant at the 0.01 level.

Discussion of Results and Recommendations

First: Discussion of Results

Discussion of the Results Related to the First Research Question:

What evidence supports the validity of the Four-Dimensional Symptom Questionnaire (4DSQ) in Jordanian clinical and healthy samples?

The findings related to this question indicated that the Four-Dimensional Symptom Questionnaire demonstrated acceptable validity indicators in the Jordanian context. Evidence for the validity of the Jordanian version of the Four-Dimensional Symptom Questionnaire (4DSQ) was established through the following procedures:

First: Construct Validity

Construct validity and internal consistency were examined by calculating correlation coefficients between item scores and the total score for each corresponding dimension. Correlation coefficients ranged from 0.643 to 0.797 for the Distress dimension, from 0.717 to 0.834 for Depression, from 0.667 to 0.762 for Anxiety, and from 0.541 to 0.809 for Somatization. These findings indicate that all questionnaire items were significantly associated with their respective dimensions.

The results of the current study were consistent with those reported by Terluin et al. (2004), who investigated the validity of the original version of the questionnaire by calculating Pearson correlation coefficients to assess internal construct validity. The findings of the current study were also in agreement with those of Kleinstäuber et al. (2021), who reported statistically significant correlations between the Four-Dimensional Symptom Questionnaire and the Anxiety and Depression dimensions, thereby supporting the questionnaire's appropriateness and validity.

Second: Discriminant Validity

The results further demonstrated that the Four-Dimensional Symptom Questionnaire was able to distinguish between the mean performance scores of healthy individuals, participants diagnosed with psychological

disorders, and physically ill patients across the four symptom dimensions. These findings indicate that the questionnaire has acceptable discriminant validity.

The results of the present study were consistent with the findings of Terluin et al. (2006), who investigated the extent to which the results of the Four-Dimensional Symptom Questionnaire corresponded with clinical diagnoses. Their findings showed that the questionnaire was effective in distinguishing the presence of psychological disorders.

Discussion of the Results Related to the Second Research Question:

What evidence supports the reliability of the Four-Dimensional Symptom Questionnaire (4DSQ) in Jordanian clinical and healthy populations?

The results demonstrated acceptable reliability indicators for the Four-Dimensional Symptom Questionnaire among both the clinical and healthy samples within the Jordanian environment through the following procedures:

First: Reliability Using Cronbach's Alpha

The findings indicated acceptable reliability coefficients for the Four-Dimensional Symptom Questionnaire, as assessed using Cronbach's alpha on the study sample (N = 401). Cronbach's alpha coefficients ranged from 0.877 to 0.951, while the overall reliability coefficient for the questionnaire reached 0.980, indicating very high and acceptable reliability.

The findings of the current study were consistent with those of Kleinstäuber et al. (2021), in which the overall Cronbach's alpha for the questionnaire exceeded 0.90. The results were also in agreement with those reported by Aljemaiah et al. (2021), who reported Cronbach's alpha coefficients of 0.93 for Distress, 0.88 for Depression, 0.88 for Anxiety, and 0.86 for Somatization. In addition, the findings were consistent with those reported by Terluin et al. (2016), who reported a reliability coefficient of 0.95 using Cronbach's alpha.

Discussion of the Results Related to the Third Research Question:

Is there a correlation between the Four-Dimensional Symptom Questionnaire, the Beck Depression Inventory-II, and the Kessler Psychological Distress Scale?

The findings revealed a positive correlation between the Four-Dimensional Symptom Questionnaire and the Beck Depression Inventory-II (BDI-II). This indicates that higher scores on the BDI-II were associated with higher scores on the Four-Dimensional Symptom Questionnaire. This relationship may be explained by the fact that the BDI-II was designed specifically to assess depression levels among individuals, while the

Depression dimension of the Four-Dimensional Symptom Questionnaire was developed for the same purpose. Furthermore, individuals suffering from psychological disorders generally exhibit elevated levels of depressive symptoms.

The results also demonstrated a positive correlation between the Four-Dimensional Symptom Questionnaire and the Kessler Psychological Distress Scale (K10). This means that higher scores on the Four-Dimensional Symptom Questionnaire were associated with higher levels of psychological distress as measured by the K10. This relationship may be explained by the fact that the Kessler Psychological Distress Scale aims to assess levels of psychological distress, which corresponds directly to the purpose of the Distress dimension within the Four-Dimensional Symptom Questionnaire. In addition, individuals with psychological disorders and chronic physical illnesses tend to experience elevated levels of psychological distress.

No previous studies were identified that directly compared performance on the Four-Dimensional Symptom Questionnaire with performance on the Beck Depression Inventory-II and the Kessler Psychological Distress Scale.

Recommendations

Based on the findings of the current study, the following recommendations are proposed:

1. Conduct additional future studies to investigate the psychometric properties of the Four-Dimensional Symptom Questionnaire and its associations with other psychological tests and scales measuring anxiety and somatization.
2. Conduct further research on larger samples to examine the psychometric properties of the Four-Dimensional Symptom Questionnaire and to explore possible differences in performance attributable to demographic variables.

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