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Deanship of Scientific Research

Do Beliefs and Behaviors relate to Dental / oral Health, Body Appreciation, and Quality of life Differ Among Adults in Arab Societies?

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Abstract

Objectives: This study aims to assess and compare beliefs and behaviors related to oral health, body image perception, and quality of life among adults in Arab communities, specifically focusing on Emirati, Saudi, and Egyptian populations.

Methods: The sample included 934 participants (mean age: 21.85 years) divided into three groups: Emiratis (12.2%), Saudis (26.2%), and Egyptians (61.6%). Participants completed three validated scales: the Body Appreciation Scale-2 (BAS-2), the Dental Oral Health Beliefs Scale (DOHBS), and the abbreviated version of the World Health Organization Quality of Life Scale (WHOQOL-BREF).

Results: The findings revealed significant differences among the groups in oral health beliefs, body image perception, and quality of life. Emirati participants scored significantly higher than Saudis and Egyptians in health-related variables, with moderate differences of 1.545 ($p = 0.016$) and 1.797 ($p = 0.001$), respectively. Additionally, positive correlations were observed between body image appreciation and quality of life scores, while an inverse relationship was noted between positive general health perceptions and quality of life evaluations. Gender and cultural factors were also found to have a significant impact on health perceptions.

Conclusion The study highlights substantial variations in health-related beliefs and behaviors across Arab communities. Emirati participants demonstrated better health outcomes compared to their Saudi and Egyptian counterparts, emphasizing the role of cultural and demographic factors. The findings underscore the need for culturally tailored health interventions to enhance oral health, body image perception, and quality of life across different communities.

Keywords: Beliefs, Behaviors, Dental / oral Health, Body Appreciation, Quality of life, Arab Societies.

هل ترتبط المعتقدات والسلوكيات المتعلقة بصحة الفم والأسنان، وتقدير صورة الجسم، وجودة الحياة لدى البالغين في المجتمعات العربية؟

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ملخّص

الأهداف: تهدف هذه الدراسة إلى تقييم ومقارنة المعتقدات والسلوكيات المتعلقة بصحة الفم والأسنان، وتقدير صورة الجسم، وجودة الحياة بين الراشدين في المجتمعات العربية، وتحديدًا السكان الإماراتيين، السعوديين، والمصريين.

المنهجية: شملت العينة 934 مشاركًا (بمتوسط عمر 21.85 عامًا) موزعين على ثلاث مجموعات: الإماراتيون (12.2%)، السعوديون (26.2%)، والمصريون (61.6%). أكمل المشاركون ثلاثة مقاييس معتمدة: مقياس تقدير صورة الجسم-2(BAS-2) ، ومقياس معتقدات صحة الفم والأسنان(DOHBS) ، والنسخة المختصرة لمقياس جودة الحياة لمنظمة الصحة العالمية.(WHOQOL-BREF)

النتائج: كشفت النتائج عن وجود فروق كبيرة بين المجموعات في معتقدات صحة الفم والأسنان، وتقدير صورة الجسم، وجودة الحياة. سجل المشاركون الإماراتيون درجات أعلى بشكل ملحوظ مقارنة بالسعوديين والمصريين في المتغيرات المتعلقة بالصحة، بفروقات متوسطة بلغت 1.545 ($p = 0.016$) و1.797 ($p = 0.001$) على التوالي. كما أظهرت النتائج ارتباطات إيجابية بين تقدير صورة الجسم ودرجات جودة الحياة، بينما لوحظ ارتباط عكسي بين التصورات الإيجابية للصحة العامة والتقييمات الخاصة بجودة الحياة. كما تبين أن الجنس والعوامل الثقافية لهما تأثير كبير على التصورات المتعلقة بالصحة.

الخلاصة: تسلط الدراسة الضوء على وجود تباينات كبيرة في المعتقدات والسلوكيات المتعلقة بالصحة بين المجتمعات العربية. أظهر المشاركون الإماراتيون نتائج صحية أفضل مقارنة بالمجموعتين: السعودية والمصرية، مما يبرز أهمية العوامل الثقافية والديموغرافية. تؤكد النتائج على الحاجة إلى تنفيذ تدخلات صحية تراعي السياقات الثقافية لتعزيز صحة الفم والأسنان، وتقدير صورة الجسم، وجودة الحياة في المجتمعات المختلفة.

الكلمات الدالة المعتقدات، السلوكيات، صحة الفم والأسنان، تقدير صورة الجسم، جودة الحياة، المجتمعات العربية.

1. Introduction

Oral and dental health can have a significant impact on quality of life, particularly when it comes to aspects including feelings of worth (self-esteem), perception of one's body (body image), personal characteristics, and personality attributes. Oral health problems can have a detrimental physical, psychological, and social consequences on an individual's well-being (Choi et al., 2018; Maragha et al., 2024; Seyed Tabaii et al., 2022; Taibah & Al-Hummayani, 2017).

On the other hand, poor oral health can result in a lack of self-worth, social exclusion, and more frequent discomfort, which can lower quality of life and is associated with impaired mental and general health (Scrine et al., 2018). According to several studies, there is a substantial correlation between prevalent mental health conditions and oral health; individuals who suffer from psychological disorders had higher than average rates of dental problems (Kisely, Baghaie, Lalloo, Siskind, et al., 2015; Priyadharshini et al., 2024; Solis et al., 2016). *Other research has linked severe mental illness and eating disorders to poor oral health (e.g., chronic periodontitis, tooth erosion*) (Kang et al., 2024; Kisely, Baghaie, Lalloo, & Johnson, 2015; Tiwari et al., 2021).

For Instance, dental attrition is an inherent aspect of the aging process. Nevertheless, in less economically developed nations, there is an apparent inverse correlation between tooth loss in adults and their self-perception and overall well-being, when compared to individuals from more affluent Western societies (Muhammad & Srivastava, 2022).

There is strong evidence linking dental health to overall body satisfaction (Sicari et al., 2023). Body image is a multidimensional concept that defines how an individual perceives his or her own body. A negative view of one's shape is a component of a poor body image. Numerous studies have shown a correlation between mental health problems such as anxiety, eating disorders, depression obsessive-compulsive behaviors and negative body image (Mafakheri et al., 2021; Piacentino et al., 2017; Sebastiani et al., 2019; Seyed Tabaii et al., 2022).

Furthermore, body image is a significant motivator for performing numerous cosmetic interventions. In recent years, researchers have begun to investigate the association between oral and dental problems, including malocclusion, and body image. According to several studies, orthodontic therapy can improve body image while also enhancing mental wellness (Seyed Tabaii et al., 2022)

Malocclusion may be detrimental to an individual's psychological health, social engagement & well-being, interpersonal connections, and overall quality of life. In a study, by Sebastiani et al., patients with skeletal malocclusion had higher rates of myofascial persistent pain and severe depression than patients without malocclusion (Sebastiani et al., 2019), The World Health Organization (WHO) classifies malocclusion as a "Handicapping Dento-Facial Anomaly" and defines it as "an alteration of craniofacial anatomy capable of influencing functionality, facial structure, and psychological well-being"(Cons et al., 1986).

Moreover, dental problems resulting from malocclusion frequently have a negative impact on psychological functioning, particularly body image. Similarly, the mouth plays a significant role in body image and affects social and biopsychosocial functioning. Teeth cultivate aesthetic value with sexual and relationship implications; therefore flaws (a societally determined concept) can have an impact on self-esteem and acceptance within society (Myles & Merlo, 2022; Myles, 2022; Priyanka et al., 2024)

These disorders do not only have aesthetic implications, but also functional consequences, such as difficulties in swallowing and pronouncing, which can induce psychophysical distress. Some types of malocclusions, when combined with significant dental crowding, can exacerbate bad oral hygiene, increasing the risk of dental caries, gingivitis, or periodontal disease, and potentially undermining the individual's self-image and social interactions (Nagarajan & Pushpanjali, 2010; Taghavi Bayat et al., 2013).

Additionally, Oral Health-related Quality of Life (OHRQOL) refers to a multifaceted concept that reflects patient's ease when it comes to eating, speaking, communicating, and engaging in social activities without restriction. In recent years this topic has received significant attention, and the World Health Organization (WHO) recognizes it as a key component of the Global Oral Health Program. As a result, evaluating the effect of dental and oral health conditions on the quality of life is becoming increasingly important. Numerous researches have examined the impact of different dental procedure results on

the oral health-related quality of life (Bennadi & Reddy, 2013; Chen et al., 2015; Seyed Tabaii et al., 2022). Moreover, poor oral health can have an impact on quality of life (QoL) and evaluating Oral Health-Related Quality of Life (OHRQoL) which enables practitioners to better understand how oral health status affects overall QoL (Al-Katheri & Azzani, 2024; Mandava et al., 2021). Accordingly, the term Dental and Oral Health Beliefs refers to individuals' perceptions and concerns about teeth, gums, and oral hygiene, including their psychological and social impacts (Basha et al., 2025). However, the term The Body Appreciation is defined as the Acceptance of and positive attitudes toward one's physical appearance and body (El-Wakeel & Basha, 2021). On the other hand, the term Quality of Life (QoL) refers to A multifaceted concept reflecting an individual's overall well-being across physical, psychological, social, and environmental domains which all are evaluated in this study (Abdel-Khalek, 2008).

Conclusively, Oral and dental health significantly impact individuals' physical, psychological, and social well-being. Poor oral health can contribute to diminished self-esteem, social exclusion, and lower quality of life, often linked to broader mental health conditions. Similarly, body appreciation and its interplay with oral health beliefs are underexplored in Arab societies, where cultural and demographic diversity might influence these dimensions. This study addresses the gap in understanding how beliefs and behaviors related to dental/oral health, body appreciation, and quality of life vary among adults in the Emirati, Saudi, and Egyptian populations.

Study Problem:

Quality of life, body appreciation, and oral and dental health are important aspects of well-being that are impacted by behavioural, cultural, and demographic factors. Research on how these factors appear in various Arab societies is scarce, despite growing awareness of their interaction on a global scale. Current research mostly concentrates on discrete elements without considering their combined influence on health outcomes. The distinct sociocultural contexts of the populations of Saudi Arabia, Egypt, and the United Arab Emirates present the opportunity to thoroughly examine these relationships. By examining the relationships between dental/oral health beliefs, body appreciation, and quality of life, as well as the impact of cultural and demographic factors on these variables, this study aims to close the gap.

This study aims to explore the following key questions related to beliefs and behaviors in dental/oral health among Emirati, Saudi, and Egyptian adults:

- How do beliefs and behaviors related to dental/oral health vary among Emirati, Saudi, and Egyptian adults?
- What is the relationship between body appreciation and dental/oral health beliefs?
- How do cultural and demographic factors influence quality of life among Arab adults?
- What correlations exist between self-reported health measures and standardized health evaluations?

2. Methods

2.1. Participants

The psychometric properties of the study tools were verified using a sample of 230 participants, selected to share the same demographic and other characteristics as the main sample. This verification process aimed to ensure the reliability and validity of the tools within the context of the study.

The selection criteria for the verification sample included: Adults aged 18–40 years. Willingness to provide informed consent and participate voluntarily.

The Body Appreciation Scale underwent confirmatory factor analysis (CFA) and reliability testing. The CFA confirmed the scale's structural validity, while internal consistency was established with Cronbach's alpha and other reliability metrics. Similarly, the Dental and Oral Health Beliefs Scale (DOHBS) and the WHO Quality of Life Brief Version (WHOQOL-BREF) were validated for use in the current study, with results confirming their suitability for application in the selected cultural context.

The sample for this study comprised a total of 934 participants with an average age of 21.85 (SD = 6.613). The participants were categorized into three groups (1-Emirati, 2- Saudi, and 3- Egyptian samples): the first group included 115

individuals, the second group consisted of 248 participants, and the third group comprised 582 individuals. The distribution of participants across gender revealed 420 males and 525 females. Additionally, the sample included 125 smokers and 817 non-smokers. Among the participants, 111 reported being diagnosed with a medical condition, while 834 were not diagnosed with any medical conditions.

The data collection was conducted using an online survey distributed via **Google Forms**, leveraging Snowball sampling to recruit participants. This approach began with an initial group of participants who met the inclusion criteria. These participants were then encouraged to share the survey link with others within their networks, leading to a broader and more diverse sample.

The inclusion criteria required participants to be Adults aged 18–40 years. Willing to provide informed consent and participate voluntarily. Using the snowball sampling method allowed for efficient recruitment of participants across various demographics, particularly in reaching individuals from the Emirati, Saudi, and Egyptian populations.

Type of Sample:

To ensure representativeness across age, gender, and cultural groups within the study community, the chosen sample is non-probabilistic and purposive, concentrating on people who are willing to give informed consent.

Ethical approval for the study was obtained from the Research Ethics Committee (REC) of the University of Science and Technology of Fujairah, UAE. REC Number USTF/REC/2024-09/02.

Table 1. Demographic Data of the sample

Category	Variables	N	%
Age	**Ranges from 21.85 ± 6.613 years**		
Nationality	Emirati	115	**12.2**
	Saudi	248	**26.2**
	Egyptian	582	**61.6**
Marital status	Single	854	**90.4**
	married	80	**8.5**
	Divorced	2	**.2**
	Separated	7	**.7**
	widow	2	**.2**
Gender	males	420	**44.4**
	females	525	**55.6**
Are you currently ill?	yes	111	**11.7**
	no	834	**88.3**
Do you have missing (pulled out) teeth?	yes	414	**43.8**
	no	531	**56.2**
Do you smoke?	yes	125	**13.2**
	no	817	**86.5**
	missing	3	**.3**
Do you like eating desserts, carbohydrates, salty snacks (e.g., chips), fatty foods (e.g., burger), high sugar drinks (e.g., soft, sports, and energy drinks)	yes	188	**19.9**
	no	757	**80.1**

2.2. Measures

2.2.1. Body Appreciation Scale-2:

This Body Appreciation Scale-2 (BAS-2) has been originally developed by Tylka and Wood-Barcalow 2015 and translated into Arabic by (El-Wakeel & Basha, 2021),The 10-item BAS-2 aims at evaluating individuals' acceptance of and their positive opinions about their bodies. The confirmatory factor analysis of both the English and Arabic versions supported the equivalence of the scale across gender and sample type. Its internal consistency, test-retest reliability, and construct validity (convergent, discriminant and additive) were verified. Thus, BAS-2 is psychometrically valid and applicable to research and in clinical institutions. In the Arabic sample, Cronbach alpha = 0.91, McDonald's Omega coefficient = 0.89, and split-half reliability = 0.85, indicating BAS-2 internal consistency. The Arabic version of BAS-2 is scored based on the participant's response on a 5-point scale, as follows: Always = 5; Often = 4; Sometimes = 3; Rarely = 2; and Never = 1. The total BAS-2 score ranges between 10 and 50 points. The higher score indicates a positive body image.

2.2.2. Psychometric Adequacy of the BAS-2 in this Study: Confirmatory factor analysis:

With confirmatory factor analysis, one can determine the efficiency of the construct. It is a crucial phase and analysis in structural equation modelling (SEM). Standardized Confirmatory Factor Analysis for the general factor with a 10-item structure model. AMOS 24.0 was used to conduct the CFA. All fit indices fell within reasonable ranges, showing that the model was able to fit the data. The following table shows the fit indices of the research instrument.

The factor loadings correspond to the various items within a measurement model, indicating a strong correlation between these items and the latent construct they aim to measure. In this case, the items seem to pertain to a specific construct related to a scale or questionnaire, possibly addressing aspects related to body image, perception, or related psychological constructs.

Each item's factor loading, ranging from .578 to .852, signifies the degree of contribution of that particular item to the underlying construct. Higher factor loadings, such as those observed for items body7 (0.799) and body9 (0.852), indicate a stronger association between these items and the latent construct they represent. These values suggest that these items are relatively robust indicators of the measured construct, demonstrating a more substantial influence on capturing the essence of that particular dimension.

Conversely, while items like body8 (0.578) and body10 (0.610) exhibit relatively lower factor loadings compared to others, they still contribute moderately to measuring the underlying construct, albeit to a lesser extent.

Overall, these factor loadings offer valuable insights into the relative importance of each item in assessing the targeted construct. Understanding the strength of association helps in refining and optimizing measuring instruments by highlighting items that strongly represent the construct and those that might require further examination or refinement for enhanced measurement precision.

Table 2. BAS Fit indices

Fit index	Index value	thresholds	the decision
X^2 (df)	15.035(11)	p>0.01	acceptable
X^2 /df	1.367	<2 to <5	acceptable
RMSEA	.020	<0.05(good),0.05-0.08(acceptable)	good
GFI	.996	>0.90(acceptable),>0.95(good)	good
NFI	.997	>0.90(acceptable),>0.95(good)	good
TLI	.997	>0.90(acceptable),>0.95(good)	good
CFI	.999	>0.90(acceptable),>0.95(good)	good

The CFA was calculated to determine if the scale had a G-factor in our study by modifying four items. The fit indices were determined to be $\chi 2$/df: 1.367, the root mean square error of approximation (RMSEA): 0.02, the goodness of fit index (GFI): 0.996, the comparative fit index (CFI): 0.999, and the Tucker-Lewis index (TLI): 0.997, as shown in Table (Figure 1).

Internal consistency: In the present study, the Cronbach alpha value of the 10-item scale was 0.881, McDonald's Omega coefficient was .89, and split-half reliability was .83 Accordingly, it was determined that the scale was a reliable measurement tool.

2.2.3. Dental and Oral Health Beliefs Scale:

The Dental and Oral Health Beliefs Scale (DOHBS) aims at measuring the concern about teeth color and shape, dental and gums health and diseases including decay, gum inflammation, gum bleeding, mouth smell, and the individual's psychological state, self-confidence, and financial ability, developed by (Basha et al., 2025).The 8-item scale is scored by adding points for each item according to the response chosen by the participant from the following answers: Always = 5; often = 4; sometimes = 3; rarely = 2; and never = 1. The DOHBS total score ranges between 8 and 40 points. The higher scores indicate positive dental and oral health beliefs.

The psychometric properties of the scale were confirmed using a sample similar to the one in the current study(Basha et al., 2025). The results demonstrated that the measurement units were equivalent and the factorial structure of the DOHBS remained stable across the Egyptian, Saudi, and Emirati samples. This means that the overall structure of the scale was consistent across the three cultures. Additionally, there was equivalence in the factor loadings of the scale, indicating that the scale performed similarly in all three cultures. There was a partial similarity in terms of the unchanging aspects. Hence, the findings of the DOHBS can be extrapolated to the three cultures (Egyptian, Saudi, and Emirati) and can be employed in cultural and cross-cultural evaluations of these societies. The DOHBS (Dental and Oral Health Behavior Scale) is an effective tool for evaluating the extent of dental and oral health practices. It enables rapid and dependable categorization of individuals according to their dental and oral health activities and behaviors.

2.2.4. Quality of life scale: The WHO Quality of Life Brief Version (WHOQOL-BREF):

This short version consists of 26 items and is a short version of WHOQOL-100. Abdel-Khalek (2008) translated it into Arabic with permission from the WHO. It includes four domains: physical health, psychological health, social relationships, and environment, in addition to a general question to the person about the quality of his/her life in general, a question about his/her perception of health in general. The items were worded as questions with a 5-point response scale ranging between 1 (very dissatisfied/ very poor) to 5 (very satisfied/ very good). A higher score indicates a better quality of life, taking into consideration that the time range of response covers the past two weeks only. Two methods are used for scoring the WHOQOL-BREF: first raw score of domains, second, calculating the percentage of the highest score in each domain separately on the basis of standard transformation of data of Likert 5-point scale lineary from 0 to 100. The WHO provides tables from transforming raw scores of each domain to the percentage.

It should be noted that this brief version was translated into Arabic and used in several studies in Arab countries. Its psychometric adequacy was tested in a sample of University and Secondary school male and female students (n= 635). Test-retest reliability ranged between 0.77 and 0.88; Alpha coefficients ranged between 0.83 and 0.85. The researcher also calculated the validity of the scale through criterion validity by finding the correlation between the scale and the Happiness self-report index and the Life satisfaction self-report scale. Correlations ranged between 0.55 and 0.63, which are high correlations that reveal high internal consistency of the scale and stability over time. Moreover, the criterion validity was statistically significant and showed a high level of covariance between the quality of life and self-esteem(Abdel-Khalek, 2008, 2010a, 2010b, 2011a, 2011b)

2.2.5. Psychometric adequacy of the WHOQOL-BREF in this study:

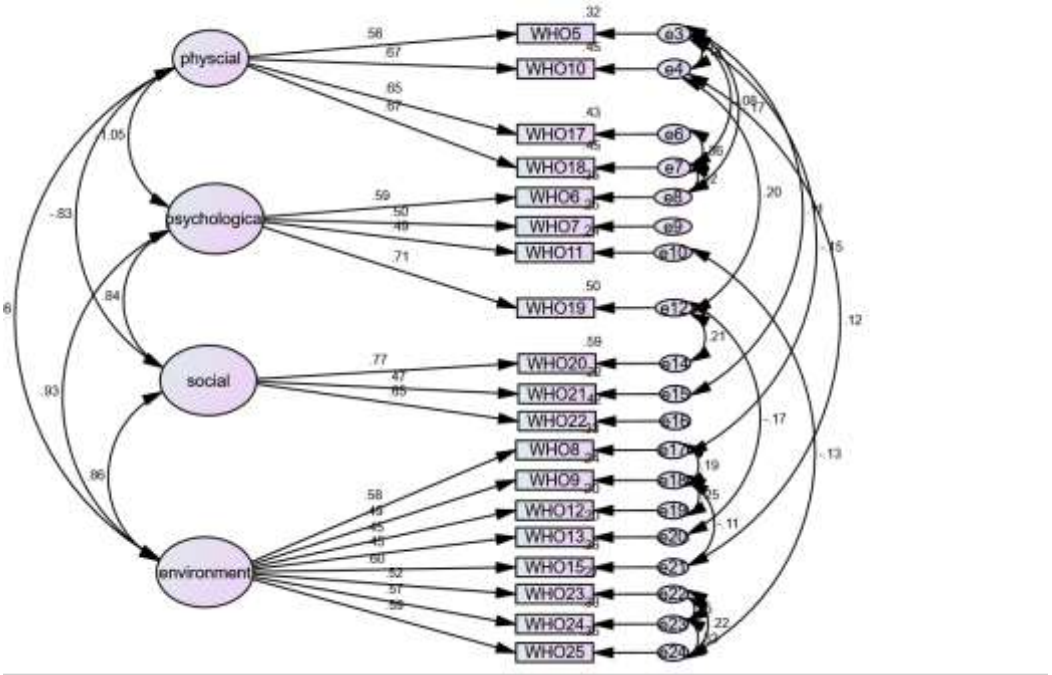

Figure 1. Covariances of the error terms of the WHOQOL-BREF

The provided factor loadings represent the strength and direction of the relationship between observed variables (items) and their respective latent constructs (subscales) within the measurement model. These factor loadings indicate how well each item contributes to measuring its corresponding construct. In this case, the items are categorized into four subscales: physical, psychological, social, and environmental.

Within the physical subscale, items WHO5, WHO10, WHO17, and WHO18 exhibit moderate to strong factor loadings, ranging from .562 to .673. These values suggest a reasonably robust relationship between these items and the physical construct being measured.

For the psychological subscale, items WHO6, WHO7, WHO11, and WHO19 demonstrate factor loadings ranging from .490 to .706. These loadings, while varying in strength, generally indicate a significant association between these items and the psychological construct.

Regarding the social subscale, items WHO20, WHO21, and WHO22 present factor loadings ranging from .471 to .770. These loadings, particularly for WHO20 and WHO22, suggest a relatively strong association between these items and the social construct.

Finally, within the environmental subscale, items WHO8, WHO9, WHO12, WHO13, WHO15, WHO23, WHO24, and WHO25 exhibit factor loadings ranging from .446 to .602. These values signify varying degrees of association between these items and the environmental construct.

Overall, these factor loadings provide insight into the extent to which each item contributes to measuring its respective construct. Higher factor loadings generally indicate stronger relationships between items and constructs, suggesting better measurement of those underlying dimensions within the WHO questionnaire.

In our study, by making four modifications between the items, The CFA was measured if the scale had Four factors, the fit indices were found as $\chi 2/df$: 2.696, The Root Mean Square Error of Approximation (RMSEA): 0.042, The goodness of fit index (GFI): 0.963, comparative fit index (CFI):0.963, Tucker-Lewis index (TLI): 0.950, (Table 3) (Figure 1).

Table 3. WHOQOL-BREF Goodness of Fit Indices

Fitting index	Index value	thresholds	the decision
X^2 (df)	345.030 (128)	p>0.01	Non-acceptable
X^2 /df	2.696	<2 to <5	acceptable
RMSEA	.042	<0.05(good),0.05-0.08(acceptable)	good
GFI	.963	>0.90(acceptable),>0.95(good)	good
NFI	.943	>0.90(acceptable),>0.95(good)	good
TLI	.950	>0.90(acceptable),>0.95(good)	good
CFI	.963	>0.90(acceptable),>0.95(good)	good

2.2.6. Internal consistency:

In the study, the Cronbach alpha value of the Physical subscale was 0.76; McDonald's Omega was .76; and the split-half reliability coefficient was 0.66. For the psychological subscale, the Cronbach alpha value was 0.66; McDonald's Omega was 0.66; and the split-half reliability coefficient was 0.64. Regarding the social subscale, the Cronbach alpha value was 0.65; McDonald's Omega was 0.66; and the split-half reliability coefficient was .67. Finally, for the environmental subscale the Cronbach alpha value was 0.78; McDonald's Omega was 0.79, and the split-half reliability coefficient was 0.69. Accordingly, it was determined that the scale was a reliable measurement tool.

3. Results

The study consisted of a diverse sample of 934 participants, who were categorised into Emirati (12.2%, n = 115), Saudi (26.2%, n = 248), and Egyptian (61.6%, n = 582) populations (Figure 2). The gender distribution comprised 525 females, representing 55.6% of the total, and 420 males, constituting 44.4% of the total. The mean age of the participants is 21.85, with a standard deviation of 6.613.

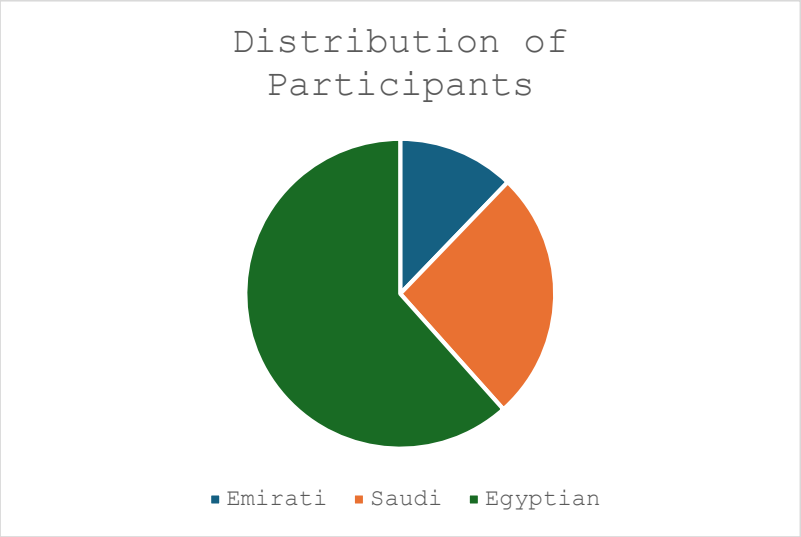

Figure 2: Distribution of participants

3.1. Correlation Analysis

The correlation analysis was conducted, and Table 4 presents the Pearson correlations among total health, total body appreciation, and total WHO quality of life.

Table 4. Pearson correlation analysis.

Variables	Dental/Oral Health	Body Appreciation	Quality of life
Dental and Oral Health Beliefs	-	-.547**	-.593**
Body Appreciation	-.547**	-	.571**
Quality of life	-.593**	.571**	-
**** Correlation is significant at the 0.01 level (2-tailed).**			

3.1.1. Total Health and Total Body:

A significant negative correlation exists between total health and total body ($r = -0.547$, $p < 0.001$). This suggests that people who report higher total health scores tend to have lower total body scores, and vice versa. The correlation is moderate, indicating a significant inverse relationship between overall health perceptions and body-specific health assessments. This could imply that people who have a positive outlook on their overall health are more critical of their physical bodies, or the opposite.

3.1.2. Total Health and Total WHO:

There is a significant negative correlation between total health and total WHO ($r = -0.593$, $p < 0.001$). This implies that participants with higher total health scores typically have lower total WHO scores, and vice versa. This correlation is moderate to strong, indicating a robust inverse relationship between self-reported general health and the WHO's health assessment parameters. This could indicate differences in how people perceive their health compared to the standardised measures used by WHO.

3.1.3. Total Body and Total WHO:

A significant positive correlation exists between total body and total WHO ($r = 0.571$, $p < 0.001$). This suggests that individuals who report higher total body scores also report higher total WHO scores, and vice versa. The strength of this correlation is moderate, implying a consistent relationship between body-specific health perceptions and WHO health indicators. It reflects a consistency in how physical health is assessed personally and through standardized measures.

The correlation analysis reveals significant relationships between the variables. A more positive perception of overall health may prompt more critical evaluations of particular health areas. Higher total health scores are linked to lower total body and total WHO scores. Furthermore, there is a correlation between higher overall body scores and higher overall WHO scores, suggesting congruence between individual body health assessments and standardized health evaluations. These correlations imply complex perceptions of health that vary across different dimensions and shed light on how various self-reported health measures interact in the population under study.

3.2. Structural Equation Modelling (SEM)

To evaluate the direct and indirect effects of different predictors on variables related to health (Dental and Oral Health Beliefs, Body Appreciation, and Quality of life) a structural equation model (SEM) analysis was conducted (Figure 3). The results of a structural equation model (SEM) are shown in Table 5 and Table 6.

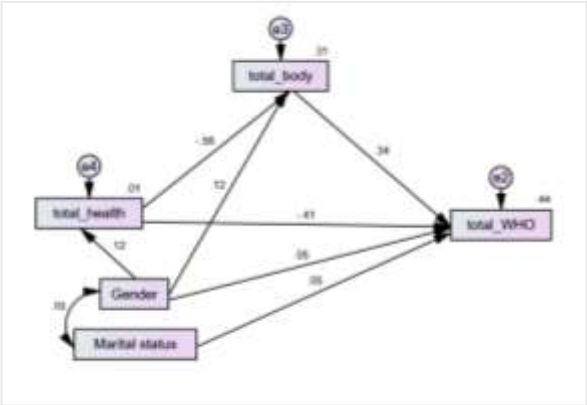

Figure 3: Structural Equation Modelling (SEM)

3.2.1. Direct effects:

Table 5: Structural Equation Modelling (SEM) results for direct effects

	Direct Effects Regression Weights	S.E	C.R	P	Direct Effects Standardized Regression Weights
Total Health ← Gender	1.219	0.324	3.765	***	0.122
Total Body ← Total Health	-0.891	0.043	-20.656	***	-0.561
Total Body ← Gender	1.837	0.432	4.25	***	0.116
Total WHO ← Total Body	0.375	0.032	11.704	***	0.343
Total WHO ← Total Health	-0.717	0.051	-14.007	***	-0.413
Total WHO ← Gender	0.843	0.432	1.953	0.051	0.048
Total WHO ← Marital Status	1.013	0.498	2.033	0.042	0.05

Gender influences total health scores positively, as evidenced by the significant positive relationship ($\beta = 1.219$, $p < 0.001$) between gender and total health. This suggests that compared to being female (coded as 1), being male (coded as 0) is linked to lower total health scores. A significant negative relationship is observed when the link between total health and total body is examined ($\beta = -0.891$, $p < 0.001$). This implies that total body scores tend to decrease as total health scores increase, and vice versa.

Furthermore, gender exhibits a substantial positive correlation with total body scores ($\beta = 1.837$, $p < 0.001$), indicating that gender has a positive influence on those scores. This implies that males have higher total body scores than females. A significant positive correlation ($\beta = 0.375$, $p < 0.001$) is observed in the relationship between total body and total WHO, suggesting that higher total body scores are correlated with higher total WHO scores.

There is a substantial negative correlation between total health and total WHO ($\beta = -0.717$, $p < 0.001$), indicating that higher total health scores are associated with lower total WHO scores. The relationship between gender and total WHO scores is non-significant ($p = 0.051$), suggesting that gender does not have a significant impact on total WHO scores. The analysis indicates that there is no statistically significant association between marital status and total WHO scores ($p = 0.042$), suggesting that marital status does not have a significant impact on total WHO scores.

3.2.2. Indirect effects

Table 6. Structural Equation Modelling (SEM) results for indirect effects (Group number 1 - Default model)

	Indirect effects		Standardized Indirect Effects	
	Gender	Total Health	Gender	Total Health
Total Body	-1.086		-0.068	
Total WHO	-0.592	-0.334	-0.034	-0.192

The indirect effect of gender on total health via the total body is -1.086. This suggests that being male (coded as 0) is associated with a lower total health score due to its impact on the total body. The standardized indirect effect of gender on total health via the total body is -0.068. This standardized measure reflects the relative strength of the indirect effect, allowing for easier comparisons across variables.

The indirect effect of gender on total WHO via total body is -0.592. This demonstrates that being male is associated with a decrease in total WHO scores due to its effect on the total body. The standardized indirect effect of gender on total WHO via total body is -0.034. This standardized value emphasizes the magnitude of the indirect effect, making comparisons easier.

The indirect effect of the total body on the total WHO is -0.334. Higher total body scores are associated with lower total WHO scores, implying that perceived physical health influences overall well-being indirectly. The standardized indirect effect of the total body on the total WHO is -0.192. This value indicates the strength of the indirect effect of perceived physical health on overall well-being.

3.3. Model Fit Evaluation and Interpretation

The model fit indices were used to determine the adequacy of the structural equation model. Table 7 lists various fitting indices for determining the adequacy of the structural equation model.

Table 7: Lists of various fitting indices.

Fitting Index	Index Value	Thresholds	Decision
X^2 (df)	0.258 (2)	P>0.01	Acceptable
X^2 /df	0.129	<2 to <5	Acceptable
RMSEA	0.000	<0.05 (good), 0.05-0.08 (acceptable)	Good
GFI	1.000	>0.90 (acceptable), >0.95 (good)	Good
NFI	1.000	>0.90 (acceptable), >0.95 (good)	Good
TLI	1.000	>0.90 (acceptable), >0.95 (good)	Good
CFI	1.000	>0.90 (acceptable), >0.95 (good)	Good

3.4. Chi-square and Relative chi-square:

The chi-square value is 0.258 with a degree of freedom of 2. The p-value corresponding to this chi-square value exceeds 0.01, suggesting a satisfactory fit. It is crucial to acknowledge that the chi-square test is influenced by the size of the sample, and a larger sample may yield a non-significant outcome. The chi-square to degrees of freedom ratio is 0.129, which is within the acceptable range. This indicates a favorable equilibrium between the adequacy of the model and the complexity of the model.

3.5. Root means square error of approximation (RMSEA):

The RMSEA value of 0.000 is significantly below the threshold of 0.05, indicating a good fit. This indicates that the model accurately represents the data with minimal approximation error.

3.6. GFI (Goodness-of-Fit Index), NFI (Normed Fit Index), TLI (Tucker-Lewis Index), CFI (Comparative Fit Index):

Each of these indices, which assess the parsimony and goodness of fit of the model, has a maximum value of 1.000. This shows that the model fits the data very well, satisfying both acceptable and good criteria.

Overall, the model fit indices suggest a very good fit, as evidenced by the non-significant chi-square, low chi-square/df ratio, and exceptional RMSEA, GFI, NFI, TLI, and CFI values. This substantiates the model's capacity to accurately represent the relationships between variables. Nevertheless, no model is flawless, and its explanatory power could be enhanced through additional data refinement.

4. Discussion

This study examined the correlation between dental/oral health beliefs, body appreciation, and quality of life in adult populations within Arab societies. The results demonstrate substantial disparities among Emirati, Saudi, and Egyptian participants, underscoring the significance of cultural context in comprehending health-related beliefs and behaviors.

The Body Appreciation Scale-2 (BAS-2), the Dental and Oral Health Beliefs Scale (DOHBS), and the WHO Quality of Life Brief Version (WHOQOL-BREF) were the three main tools used in the study.

This study used the Body Appreciation Scale-2 (BAS-2), which was created by Tylka and Wood-Barcalow in 2015 and then translated into Arabic by El-Wakeel and Basha in 2021. (El-Wakeel & Basha, 2021; Tylka & Wood-Barcalow, 2015a). The BAS-2 has been validated in a variety of languages and cultures, such as Icelandic, German, and Italian, through numerous studies(Behrend & Warschburger, 2022; Casale et al., 2021; Elísa et al., 2016)

The Dental and Oral Health Beliefs Scale (DOHBS) used in this study was made to find out what patients thought about dental health and professionals. Several studies used scales that were similar(Broadbent et al., 2016; Tadin & Badrov, 2023; Xiang et al., 2020). The WHOQOL-BREF, translated into Arabic by Abdel-Khalek (2008), is used in this study to evaluate the quality of life in four areas: physical health, psychological health, social relationships, and environment (Abdel-Khalek, 2008).

The study showed that the three groups had very different ideas about dental and oral health. The Emiratis had the highest scores, followed by the Saudis and then the Egyptians. Previous research has shown that people's beliefs about health can be very different depending on their culture and country (Abu-Gharbieh et al., 2019; Al Habashneh et al., 2012; Riad et al., 2022). Riad et al. discovered the patients in Lebanon, Syria, and Tunisia demonstrated satisfactory levels of knowledge, attitudes, and behaviors related to oral health, with Lebanon achieving the highest score (Riad et al., 2022). The higher average scores observed among Emirati participants may be attributed to their enhanced availability of dental care and heightened consciousness of oral health concerns, aligning with the outcomes of studies conducted in the Gulf region (Al Anouti et al., 2021).

There was a significant difference in body appreciation among the groups, with Emirati participants scoring higher than their Saudi and Egyptian counterparts. The variation in cultural attitudes towards body image and beauty standards may explain this difference. Prior studies have demonstrated that cultural norms and media exposure exert an influence on body appreciation, with notable variations observed across different countries(Avalos et al., 2005; Razmus et al., 2020; Vally et al., 2018). Razmus et al. (2020) discovered that the Body Appreciation Scale-2 (BAS-2) showed partial measurement invariance in five countries. They also found that age and gender had an impact on body appreciation (Razmus et al., 2020). Vally et al. (2018) established that there was a positive correlation between scores on the BAS-2 and measures of aesthetic and functional body image, as well as authentic body pride, in the UAE(Vally et al., 2018). The high body appreciation scores observed among Emiratis may indicate a more forward-thinking perspective on body image in the UAE, which is exposed to a wide range of cultural influences.

The groups exhibited variations in quality-of-life scores, with Emirati participants reporting superior scores compared to Egyptians. The findings align with prior research that suggests socio-economic factors and healthcare infrastructure are pivotal in determining quality of life(Al-Kandari & Vidal, 2007). Studies on the quality of life (QoL) among Arab populations have identified significant disparities. The study conducted by Smail et al. (2022) found that Emirati women diagnosed with breast cancer had a favorable overall quality of life (Smail et al., 2022). A comparative study examining life satisfaction in four Arab countries revealed that Qatari and Kuwaiti samples exhibited higher scores, whereas Egyptian samples obtained the lowest scores (Abdel-Khalek & Nayal, 2015). A systematic analysis of quality of life (QoL) research conducted on Arab women revealed that individuals residing in the United Arab Emirates exhibited superior global health scores in comparison to their counterparts in other Arab nations (Haddou Rahou et al., 2016).

There was a negative correlation between beliefs about dental and oral health and both body appreciation and quality of life. This discovery implies that individuals who have greater anxieties regarding their dental well-being may experience diminished levels of body satisfaction and overall life satisfaction. Shacham et al established a significant correlation between body image dissatisfaction and both anticipatory dental anxiety and treatment dental anxiety (Shacham et al., 2022). Alharbi discovered a notable inverse relationship between children's dental anxiety and their oral health-related quality of life(Alharbi et al., 2021). Prior study has identified comparable trends, suggesting that apprehensions regarding one's physical appearance and health can have an adverse effect on one's overall state of well-being (Merino et al., 2024; Zucoloto et al., 2016).

The strong correlation between body appreciation and quality of life is consistent with prior studies indicating that a positive body image is linked to greater life satisfaction and psychological well-being (Avalos et al., 2005). Linardon et al. (2022) performed a meta-analysis that showed a negative relationship between body appreciation and eating disorders, body image

disturbances, and general psychopathology. Additionally, they found a positive correlation between body appreciation and adaptive well-being constructs (Linardon et al., 2022). This highlights the significance of advocating for a favorable perception of one's own body as a component of public health campaigns aimed at improving overall well-being.

The study found that gender had a significant influence on dental/oral health beliefs and body image (Kovačić et al., 2024). Women exhibited greater body appreciation than men, aligning with prior research showing that females may prioritize body image and physical appearance to a greater extent (Murray et al., 2024; Tylka & Wood-Barcalow, 2015b). The disparities in dental/oral health beliefs between genders may also indicate discrepancies in health behaviors and attitudes towards dental care, with women typically exhibiting a greater inclination towards taking proactive measures for their well-being (Green & Pope, 1999).

These findings emphasize the relationship between these factors and indicate that interventions targeting the enhancement of dental health beliefs and body appreciation could have a positive effect on overall quality of life. The study provides useful insights into the relationships between dental/oral health beliefs, body appreciation, and quality of life in Arab societies. The findings highlight the importance of implementing health interventions that are culturally appropriate, taking into account the unique needs and beliefs of different groups. Subsequent investigations should examine these associations over an extended period to gain a more comprehensive understanding of the cause-and-effect mechanisms at play.

5. Limitations and Future Directions

5.1. Limitations

1. The cross-sectional design of the study restricts its ability to establish causality or monitor long-term changes in health perceptions.
2. Cultural differences in health beliefs and responses can affect the comparability of results between populations.
3. The study did not take into account other relevant characteristics, such as socioeconomic status or lifestyle, which could influence health perceptions.

5.2. Future Directions

1. Utilize longitudinal designs to monitor changes over time and establish causal relationships.
2. Conduct a more comprehensive examination of cultural variables and concepts to gain a better understanding of their impact on health perspectives.
3. Analyze other factors, such as socioeconomic status and lifestyle, to provide a more comprehensive comprehension of health beliefs.

6. Conclusions

The current research is the first known study to experimentally manipulate dental/oral health beliefs, body appreciation and quality of life domains to be investigated in Arab Societies. The study examined differences in health views across Emirati, Saudi, and Egyptian people, focussing specifically on these domains. Findings revealed significant differences among these groups, particularly in terms of their ideas about dental and oral health and their quality of life. The Emirati group had substantially higher scores compared to the Saudi and Egyptian groups.

It also found notable discrepancies in overall health and WHO scores between the Emirati and Egyptian groups, with the Emirati group reporting better scores. There were no significant differences in body appreciation among the various groups. The correlation analysis unveiled significant links between general health, body appreciation, and WHO quality of life, indicating complex interconnections in self-reported health evaluations. Furthermore, it has been demonstrated that gender significantly influences overall health and body appreciation. This implies that individuals with higher total body scores have lower total WHO scores.

This study provides insight into the varying perceptions of health and well-being among different populations, revealing major discrepancies and links that emphasise the need for specific health treatments and more research to gain a deeper understanding of these differences.

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