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# Psychological Appraisal of UiTM Dental Undergraduates in Clinical Years

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## Abstract

This cross sectional study investigated the occurrence of depression, anxiety and stress, and identified the possible stress factors among 127 clinical dental undergraduates from Universiti Teknologi MARA (UiTM) Sungai Buloh, Malaysia. Overall, the scores of DASS-21 shows majority of dental undergraduates have no depression, anxiety and stress. This study highlights the main factor affecting the dental undergraduates' depression levels is the students' educational environment. Future research on any correlation between depression levels and clinical performances is highly recommended for better understanding on this topic, and to provide better educational environment at dental institutes in Malaysia.

**Keywords:** Dental Undergraduates; Clinical Years; Stressors; Stress

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DOI: <https://doi.org/10.21834/ajqol.v3i13.169>

## 1.0 Introduction

Dentistry is a branch of the healthcare profession that portrays one of the most gratifying careers which provides plenty of rewards and challenges. As the role of a dental professional encompasses an opportunity to help people and make communities healthier. In spite of that, the educational route as a dental undergraduate to succeed in this profession requires steadfast, hard work and determination (Elani et al., 2014). The reality of life for a dental undergraduate is often uncertain, most especially the transition into clinical years in the dental curricula. Some dental undergraduates might adopt through the transition very well, whereas some might struggle (Mirsaiifi, Daneshkazemi, Sadeghian, & Reza, 2015).

The multifaceted nature of clinical years in dental education is like a perfect fusion of healthcare, art and science skills that requires serious reflection. In clinical years, a dental undergraduate will face challenges in transferring theoretical knowledge and pre-clinical skills to treat patients, which is an extremely steep learning curve for them. The details oriented in physical and psychological demands within this educational journey, is like a roller coaster ride. It could shape them either emotionally, or inevitably leads to psychologically distress and affects quality of life of a dental undergraduate.

Occupational therapists believe that Quality of Life (QoL) is vital in order to understand the individual's ideas of what constitutes QoL. In 1997, WHO defined QoL as individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. QoL is defined as a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of their environment.

Dental education could be associated with psychological distress (Babar et al., 2015), and might directly or indirectly affect undergraduates' QoL. The emotional strain is a part of the occupational therapists' concerns, as it could be the underlying factors that support or hinder the dental undergraduate's QoL. A study by Kaur (2015) showed that educational environment is one of the most important factors that impact on students' satisfaction in higher education. Additionally, Keles (2012) emphasised that educational environment as one of the most significant components of the QoL. Hussain, Jabbar, Hussain, Rehman, & Saghir (2014) emphasized that a good educational environment could enhance quality education to dental undergraduates. Thus, this study was undertaken to examine the occurrence of depression, anxiety and stress besides identifying the possible stress factors among the dental undergraduates during clinical years that could potentially affect their QoL.

## 2. 0 Literature Review

Quality of life; a "catch-all" term - as it is very multidimensional. The clarity of the term could be denoted based on the researcher's aims (Keles, 2012). As for this study, it evolved around the psychological aspect of the dental undergraduates, which is also an essential constituent of QoL. Many healthcare professionals encourage healthy lifestyle to their patients, yet failed to commit to living healthier lifestyles themselves as what they preach, and decline in their QoL (Portero de la Cruz & Vaquero Abellan, 2015). Generally, the dental undergraduate

curriculum is broken down into two years of theoretical classes and pre-clinical preparation, and three years of clinical skills training. Transition time from the pre-clinical to clinical years demands the undergraduates not only acquisition in theory, but also competence in skills (Radcliffe & Lester, 2003). The clinical year's curriculum high requirements could affect the undergraduates' mental well-being (Al-Sowygh, Alfadley, Al-Saif, & Al-Wadei, 2013). Previous studies show that the undergraduates' QoL begin to decrease early in dental school (Jain & Bansal, 2012).

For decades, high levels of stress have been documented among dental undergraduates (Heath, Macfarlane & Umar, 1999) which was linked with psychological distress and emotional exhaustion (Telang et al., 2013). Numerous studies evaluated dental undergraduates' psychological status from various countries (Aboalshamat, Hou, & Strodl, 2015; Abu-Ghazaleh, Rajab, & Sonbol, 2011; Ahmad, Yusoff, & Razak, 2011; Anushri, Puranik, & Yashoda, 2014; Dyrbye, Thomas, & Shanafelt, 2006). Selye (1982) proposed a good evaluation of dental environment stress comprises of dental environment stressors, physiological reaction and cognitive response. A systematic review on stress among dental undergraduates conducted to analyse the stressors, impact of stress and indicator of stress found that many factors were related to examinations, clinical requirements and dental supervisors (Alzahem, Molen, Alaujan, Schmidt, & Zamakhshary, 2011). Another systematic review showed dental undergraduates suffer considerable amount of stress due to clinical training and impacted well-being of the undergraduates (Elani et al., 2014). It is highly suggested to identify stress levels among the undergraduates in improving their QoL (Alzahem et al., 2011; Jain & Bansal, 2012).

Divaris et al. (2013) conducted a study across 17 dental schools in Colombia to investigate student-level correlation of psychological distress among dental undergraduates. The study found that levels of distress were associated with students' socioeconomic status and year of study. Mane Abhay et al. (2011) reported a significant association between depression and students' performance. The main stressors for dental undergraduates are examination, fear of failing and completing course requirements. In addition, it is believed that educational environment influenced the quality of education to the undergraduates (Hussain et al., 2014).

Literature review shows evidence of the stressors of dental education. In view of this, collaboration and aid is essential from occupational therapists, in order to play an important role in enabling people to engage in their occupations (Roley et al., 2008; Wilcock & Townsend, 2014). The ability to control emotion influences a person's proficiency in performing a task (American Occupational Therapy Association, 2014). A study showed dental anxiety as an important emotional challenge, which could have an impact on dental task performance (Storjord, Teodorsen, Bergdahl, Wynn, & Johnsen, 2014). Thus, the novelty of this study incorporates a collaboration amongst oral and maxillofacial surgeons and occupational therapists to study the level of anxiety specifically amongst UiTM dental undergraduates in clinical years, in line with recommendations from Ahmad, Md Yusoff, and Abdul Razak (2011). Their study proposed collaboration of dentistry with other expertise to intensify the QoL among dental undergraduates. This study contributes to the occupational therapists' point of view in precisely elaborating analysis of psychological aspects among the

undergraduates, and to suggest an early intervention programme. Thus, this interesting collaboration between the fields of occupational therapy and dentistry aiming to explore on the stressors, level of depression, anxiety and stress, and the correlation between the educational environment.

### 3.0 Methodology

This cross-sectional study involved a total of 127 clinical dental undergraduates from year three to year five at Faculty of Dentistry, Universiti Teknologi MARA (UiTM) Sungai Buloh, Malaysia. Undergraduates ongoing counselling or under medications were not included in this study to avoid bias. This study was approved by the Research Ethics Committee of Universiti Teknologi Mara (Ethics No : REC/102/17). Dental Environment Stress (DES) (Garbee, Zucker, & Selby, 1980), a self-reported questionnaire was used to identify sources of environmental stress while perceived depression, anxiety and stress level was measured using the Malay version of Depression Anxiety Stress Scale (DASS-21).

DES consists of 38 items and all items describing stressors related to dental training. The response are based on a 4 point Likert scale: 1 is "not stressful at all"; score 2 is "somewhat stressful"; score 3 is "moderately stressful"; and score 4 is "very stressful". Many dental studies utilized DES as an instrument tool (Murphy, Gray, Sterling, Reeves, & DuCette, 2009), as DASS requires the researcher to indicate the presence of a symptom a week prior to data collection. The anxiety domain of BM DASS-21 had good correlation with anxiety domain in HADS (0.61) while for DASS-21 depressive domain had modest correlation with its respective domain in HADS (0.49). Thus, it proved that the Bahasa Malaysia version of DASS-21 is valid and reliable to be used as a research tool (Musa, Ramli, Abdullah, & Sarkarsi, 2011).

Data collection was done over two consecutive days, where primarily, dental undergraduates registered and consented to participate in this study. Data collection was conducted according to year of study as specified by a schedule provided earlier to the respondents. The questionnaire forms were distributed according to a specific order. Primarily, dental undergraduates answered DES questionnaire, followed by DASS-21 questionnaire. Occupational therapists were present throughout the process to attend to any questions during the questionnaire administration.

Data were analysed using the IBM SPSS statistical software version 18.0 for Windows. Descriptive statistics were calculated to analyse the sources of stress and the occurrence of depression, anxiety and stress. The Kruskal-Wallis and the One Way ANOVA tests were used to compare the core items between different years of study (year three, year four and year five). The strength of correlation between DASS and DES score was analysed using Pearson correlation analysis.

### 4.0 Results and Discussion

Majority (40.9%) of the respondents were from year three, with a majority of female respondents (84.3%). Table 1 below shows the socio-demographic characteristics of the

respondents.

Table 1: Socio-demographic characteristics of the respondents

Socio-demographic Characteristics	Frequency (%)
Year of Study	
Third	52 (40.9)
Fourth	43 (33.9)
Fifth	32 (25.2)
Gender	
Male	20 (15.7)
Female	107 (84.3)

#### 4.1 Stress factors among dental undergraduates

DES score was used to perceive the sources of stress. Data shows an overlap of the causes of stress amongst all three cohorts. Overall, the academic performance category was the most provoking factor in every year of study which include completing graduation requirement, fear of failing the course or year, fear of unable to catch up and completing the amount of assigned tasks. Based on previous findings, these are the undergraduates' effort to fulfil academic performance requirement. The clinical logbook achievement could cause emotional challenge (Rajab, 2001; Yap, Bhole, & Teo 1996).

Table 2: Top five causes of stress among respondents based on the highest mean score by cohort.

Year	Causes of Stress	Mean Score (SD)
All clinical years	Completing graduation requirement	3.86 (0.50)
	Fear of failing course or year	3.70 (0.61)
	Clients being late or not showing for their appointments	3.66 (0.58)
	Fear of being unable to catch up if behind	3.46 (0.76)
	Amount of assigned classwork	3.44 (0.79)
3	Completing graduation requirements	3.85 (0.50)
	Fear of failing course or year	3.73 (0.56)
	Amount of assigned classwork	3.60 (0.66)
	Fear of being unable to catch up if behind	3.52 (0.67)
	Clients being late or not showing for their appointments	3.46 (0.67)
4	Completing graduation requirements	3.84 (0.57)
	Clients being late or not showing for their appointments	3.77 (0.53)
	Fear of failing course or year	3.58 (0.73)
	Examination and grades	3.40 (0.66)
	Responsibilities of comprehensive client care	3.37 (0.66)
5	Completing graduation requirements	3.90 (0.40)
	Clients being late or not showing for their appointments	3.84 (0.37)
	Fear of failing course or year	3.81 (0.48)
	Fear of being unable to catch up if behind	3.52 (0.77)
	Expectations of dental school and what in reality it is like	3.47 (0.84)

The overall score for DES questionnaire was 90.82 with the highest stress recorded from year five, followed by year three and year four. One Way ANOVA found there was significant difference in DES score across years of study ( $p=0.048$ ), might be due to different clinical tasks but the post hoc test showed there was no significance different. However, further post hoc test using Tukey test (table 3) showed that there was no significant difference in DES score between different pairs of the years of study, as it might be some interaction between all three cohorts.

The undergraduates' judgment of workload is one of the stressful factors (Acharya, 2003; Sanders & Lushington, 2002). Similarly, a recent study found that all these factors could lead to fear among the undergraduates in failing (Divaris et al., 2013). Clients being late or not turning up for their appointment and responsibilities of comprehensive client care are another main concern among the undergraduates due to completion in the clinical requirement requires full cooperation from the clients (Gorter et al., 2008). The precipitating factors of stress by different years of study is shown in Table 2.

Table 3: Difference between DES score between difference years of study

Pairs	Mean Difference	p-value
Year 3 - Year 4	7.11	0.069
Year 3 - Year 5	-0.28	0.096
Year 4 - Year 5	-7.39	0.104

#### 4.2 Occurrence of depression, anxiety and stress among dental undergraduates

In contraire, the findings of this study contradicted the general impression that dental undergraduates experience high level of psychological distress (Alzahem et al., 2011). DASS-21 was deemed as not a tool for clinical diagnoses in a study by Musa, Fadzil, & Zain (2007), but was deemed as a good screening instrument that can be used in any setting (Henry & Crawford, 2005). A study by Stewart-brown et al. (2000) found that there are still a number of undergraduates in the range of mild to extremely severe category, which needed urgent interventions to prevent further deterioration in academic performance.

Generally, the scores of DASS-21 in this study shows majority of dental undergraduates have no depression, anxiety and stress. This totally contradicts to the current findings from Dudău et al. (2015) and Basudan et al. (2017) which showed the occurrence of depression, anxiety and stress were high and implied half of the dental undergraduates. The findings are confirming that many factors could influence the psychological state of undergraduates such as conducive learning environment (Hussain et al., 2014).

As for comparison of DASS-21 between different cohorts, there are no significant differences in the depression, anxiety and stress score. However, year five undergraduates are having slightly higher percentage of anxiety than year three and year four. Consistently with a study by Shamsudin et al. (2013) which showed that senior groups tend to have more anxiety. This might be explained as year five is the final year of undergraduates, it will be

challenging to strive complete their course and to graduate on time. Subsequently, to secure a career in the future. Furthermore, year five undergraduates have to complete their clinical requirements as a pre-requisite to sit for their professional exams. Otherwise, there will be an extension of studies based on their requirement status of Minimal Clinical Experience (MCE) as per sanctioned by the Deans Council (Malaysia). Table 4 below shows the detailed result of the DASS-21 questionnaire among the respondents.

Table 4: Outcome of DASS-21 Among Clinical Years

Category	Total, n (%)	Year 3 n (%)	Year 4 n (%)	Year 5 n (%)
Depression				
Normal	70 (55.1)	27 (51.9)	22 (51.2)	21 (65.6)
Mild	23 (18.1)	8 (15.4)	12 (27.9)	3 (9.4)
Moderate	25 (19.7)	13 (25.0)	6 (14.0)	6 (18.8)
Severe	4 (3.1)	1 (1.9)	1 (2.3)	2 (6.3)
Extremely Severe	5 (3.9)	3 (5.8)	2 (4.7)	0 (0.0)
Anxiety				
Normal	43 (33.9)	16 (30.8)	17 (39.5)	10 (31.3)
Mild	7 (5.5)	3 (5.8)	1 (2.3)	3 (9.4)
Moderate	41 (32.3)	15 (28.8)	14 (32.6)	12 (37.5)
Severe	15 (11.8)	9 (17.3)	4 (9.3)	2 (6.3)
Extremely Severe	21 (16.5)	9 (17.3)	7 (16.3)	5 (15.6)
Stress				
Normal	71 (55.9)	32 (61.5)	19 (44.2)	20 (62.5)
Mild	22 (17.3)	6 (11.5)	12 (27.9)	4 (12.5)
Moderate	23 (18.1)	11 (21.2)	8 (18.6)	4 (12.5)
Severe	9 (7.1)	2 (3.8)	4 (9.3)	3 (9.4)
Extremely Severe	2 (1.6)	1 (1.9)	0 (0.0)	1 (3.1)

In depression score, Kruskal Wallis test showed that there was no significant difference in depression score between the different years of study ( $p=0.314$ ). As for anxiety status score, One Way ANOVA showed there was no significant difference in anxiety score between the cohorts ( $p=1.000$ ). The One Way ANOVA showed that there was no significant difference in stress score between the cohorts ( $p=0.765$ ). The Pearson correlation analysis was performed to determine the correlation between both questionnaires, DES and DASS-21 score.

Results from the test, showed that there was a significant fair positive correlation between DES and depression score ( $p=0.001$ ,  $r=0.30$ ). Contributing factors might include inadequate compensating response to the persistent provoking factors as listed in DES, that can result in higher depression levels. However, the prolonged educational stressor throughout their study might trigger the depressive symptoms (Bostanci et al., 2005). Majority of the undergraduates enrolled at UiTM were best students with high academic achievements during high school and pre-university. The current Bachelor of Dental Surgery programme standard for a dental undergraduate is a minimum CGPA of 3.92 (Academic Unit, Faculty of

Dentistry, UiTM). Nevertheless, there were no significant correlation present between DES and anxiety score ( $p=0.229$ ) seen in this study. Neither when compared between DES and stress score ( $p=0.107$ ).

## 5. Conclusion

This study identified the sources of stress and the occurrence level of depression, anxiety and stress among dental undergraduates in clinical years, which subsequently affects the QoL of the undergraduates. In the dental field, the triggering factors should be highlighted to clinical educators and administrators in order to make necessary amendments in reviewing the dental syllabus to reduce the stress-inducing factors. The findings of this study is essential to occupational therapists' perspective, to explore and to analyse psychological status among dental undergraduates. In order to be more aware and to promote better well-being in the dental field.

As Clark et al. (2012) recommended, lifestyle redesigning is one of the occupational therapy approaches that could promote good mental well-being and improve QoL. In truth, some of the stressful events cannot be avoided in pursuing a dental degree. It is essential that precautionary steps should be implemented to improve dental undergraduates coping mechanism in developing good mental well-being and gaining satisfaction in life. Hence, improving QoL of dental undergraduates.

We conclude that the shortcomings for this study would be the assessments were only to rule out the stress factors and occurrence level of depression, anxiety and stress amongst respondents. There is no assessment of the comparison to the academic performance of each respondent to clearly deduce the effects of the levels assessed. The results in this study may not be representative of dental undergraduates in Malaysia, as all respondents were solely trained at Faculty of Dentistry, UiTM. In future, this collaborative study between the two fields; occupational therapy and dentistry could be further enhanced to investigate other implications to dental undergraduates, especially with consideration of the effects of distress issues on academic performance.

## Acknowledgements

Our heartiest gratitude to all respondents for their time and commitment and to our colleagues from Centre of Occupational Therapy Studies, Faculty of Health Sciences, UiTM and Centre of Oral & Maxillofacial Surgery Studies, Faculty of Dentistry, UiTM. This study was funded by LESTARI grant (600-IRM/DANA 5/3/LESTARI 0070/2016), Universiti Teknologi MARA (UiTM), Malaysia.

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