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PSYCHOLOGICAL CHARACTERISTICS AND EFFECTS ON ATTITUDE AND PAIN PERCEPTION IN DERMATOLOGY AND TRAUMA SUBJECTS

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ABSTRACT

Background: In order to ensure patient compliance with Derma and trauma treatment, personality assessment is a crucial first step. Nevertheless, there is little research on the subject, and this element is frequently disregarded before to, during, and following therapy.

Aim: The purpose of the study was to evaluate the associations between individuals' attitudes, pain perception, and personality factors in Derma and trauma patients.

Methods: The 400 participants in the study were split into two groups of 200, each consisting of an equal number of male and female participants (100 in each group). With a mean age of 16.05±1.34 years, the treated participants in Group I was older than the untreated subjects in Group II (16.05±1.43 years). A questionnaire measuring the personality profile, attitude, and pain experience of treated patients as well as pain expectation in Group II subjects was used to collect the data.

Results: The gender and treatment status of research participants had no impact on their attitude or experience of pain. With $p<0.00$ and a Pearson correlation of 0.345, a significant association between research participants' attitudes and their sense of pain was found. For every unit rise in the research subjects' attitude, there was a 0.41-unit increase in discomfort. Additionally, those with high trait neuroticism levels ($p=0.01$) and low trait conscientiousness levels ($p=0.02$) perceived higher discomfort. Individuals exhibiting a high level of trait conscientiousness also displayed improved attitudes.

Conclusions: Conscientiousness, neuroticism, and personality qualities all have a big impact on how the participants feel about Derma and trauma treatment and how much pain they perceive. Subjects with better attitudes report less pain during Derma and trauma treatment, while subjects with better attitudes report less pain during trauma therapy.

Keywords: Pain perception, personality attributes Derma and trauma treatment, and attitude.

INTRODUCTION

The abilities and expertise of the orthodontists, as well as the participation and compliance of the Derma and trauma patient and their parents or guardians, are primarily responsible for the effectiveness of Derma and trauma treatment, particularly in cases involving teenagers and young patients. Maintaining good dental hygiene, promptly taking out bonded brackets, using detachable appliances, donning headgear, wearing the provided elastics, and consistently attending scheduled visits are important components of patient participation in Derma and traumas.[1] Any discrepancy in following the given instructions and rules can lead to various undesired outcomes including frustration in patients, parents, and treating personnel, loss of chair time, slow treatment progress, and compromised treatment outcomes.[2]

Derma and trauma patients' attitudes, perceptions of pain, and personality traits are important factors that influence their cooperation. Understanding the connection between personality traits, patient cooperation, and Derma and trauma treatment can help to maximise subject cooperation and achieve appropriate treatment outcomes.3.

A patient's attitude towards Derma and trauma treatment, their perception of pain, and their personality traits towards the treatment can all be important factors that affect their cooperation and compliance. Knowledge about the relationship between personality traits and Derma and trauma treatment can also help to improve treatment outcomes and patient compliance.4

The two most frequent side effects seen during Derma and trauma treatment are pain and discomfort. Approximately 90% to 95% of patients receiving Derma and trauma treatment report experiencing discomfort at least once throughout the procedure. The force used to cause the teeth to shift is the primary cause of discomfort in patients receiving Derma and trauma treatment. Subject motivation, gender, and personality traits all have a significant impact on how painful dermatology treatments are for patients. Pain and discomfort are among the main things that deter patients from receiving therapy.5.

In order to properly tailor the treatment plan and achieve the right level of patient satisfaction and compliance during the course of treatment, it is imperative to critically evaluate the individuals receiving Derma and trauma treatment in terms of their attitude, perception of pain, and personality. One of the most important things to accomplish before beginning Derma and trauma treatment is to evaluate the personality qualities of the patients.Six Nevertheless, the issue has not received the necessary attention and focus in the literature when it comes to evaluating the personality features of Derma and trauma patients prior to, during, and following treatment. There are several reasons for this, including as the difficulty of the evaluation, the orthodontists' ignorance of the subject, the scarcity of instruments, and the absence of personality differentiation.7 The goal of the current study was to evaluate the associations between participants' attitudes, pain perception, and personality factors in Derma and trauma subjects.

MATERIALS AND METHODS

The goal of the current cross-sectional questionnaire study was to evaluate the associations between respondents' attitudes, pain perception, and personality factors in Derma and trauma subjects.

After receiving approval from the relevant institutional ethical committee, the study was conducted at Department of psychiatry. All participants gave their verbal and written informed permission after being fully informed about the nature, purpose, and scope of the study. There were 400 participants in the research, ranging in age from 13 to 19 and representing both genders. Patients who visited the Institute's outpatient department of dermatology and trauma served as the subjects. The 400 research participants were split into two groups of 200 participants each. Group I consisted of 200 treated participants who had either finished their Derma and trauma treatment or had at least six months left to go.

There were 200 untreated participants in Group II. There were one hundred male and one hundred female volunteers in each group. Proper mechanotherapy and preadjusted edgewise appliances were used on all subjects in the institute. Subjects who underwent orthognathic surgeries, used functional appliances, were managed with removable appliances, were syndromic, had started their treatment elsewhere, and were treated with appliance systems other than preadjusted edgewise appliances were excluded from the study. In the current study, a premade structure questionnaire was used as the study instrument for data collection. Both Hindi and English were used in the creation of the questionnaire. The questionnaire was divided primarily into four sections. The questions in the first section were designed to evaluate the research participants' demographic information.

If the individuals had received Derma and trauma treatment in the past, this section also evaluated their prior knowledge of such therapy. The respondents gave a Yes or No response to this question.

Using the NEO-FFI8 (Neuroticism Extraversion Extraversion-Five Factor Inventory) from 1992, which stands for N (neuroticism), E (extraversion), and O (openness), personality characteristics and profiles of research participants were evaluated. The visual analogue scale, or VAS, was used to measure pain perception in treated participants and pain expectations in untreated subjects. A score of 0 represented no pain, while a score of 10 indicated excruciatingly painful pain. Using word adjectives such as highly improbable and extremely likely, the current study employed them.

There were nine questions regarding pain in the questionnaire. Each participant was asked to identify the VAS point that most closely matched their experience. The mean of the nine question scores was then used to generate the average pain perception score for each participant, resulting in a single score. The lowest and highest VAS ratings on the scale indicated less pain expected or experienced from Derma and trauma treatment, respectively, and greater pain expected or experienced from Derma and trauma therapy.

Participants in the research had their attitudes towards Derma and trauma treatment assessed using a VAS score that was divided into intervals of 10 mm. Twelve items about attitude were included in the questionnaire that was distributed to each study participant. Subjects were asked to check the line that most closely or accurately reflected their attitude and experience for attitude. More positive and more negative attitude toward Derma and trauma treatment was described by the highest and lowest scores on the VAS line respectively.

The collected data were assessed statistically using the SPSS software version 21.0 (IBM Corp., Armonk, NY, USA) along with the Microsoft Excel software 2019, and the one-way ANOVA test. The statistical significance level was considered for a p-value of <0.05.

RESULTS

The study evaluated 200 people altogether among two groups of equal volunteers (n = 100). In every group, there were fifty men and fifty girls. Table 1 illustrates how well-matched the two research groups were in terms of age and gender. The untreated groups' mean age was 16.05±1.43 years, with the mean age of men and females being 15.92±1.42 and 16.22±1.43 years, respectively. The mean age of the treated group was 16.05±1.34 years, with 16.24±1.33 years for men and 15.86±1.33 years for females.

In the treated group, the mean pain perception was 4.4±1.54, whereas in the untreated group it was 3.98±3.32. The difference between the two groups was found to be p=0.22, which indicates statistical non-significance.

Regarding gender, the untreated group's female and male pain perception scores were 3.76±1.27 and 4.12±1.37, respectively, indicating a non-significant difference with p=0.16; in contrast, the treated group's scores for female and male participants were 4.34±1.51 and 4.01±1.47, respectively, indicating a non-significant difference with p=0.26 (Table 1). The untreated group's mean attitude was 3.62±1.07, whereas the treated group's mean attitude was 3.32±1.34. Statistically speaking, the difference between the treated and untreated groups was not significant (p=0.06). Regarding how gender affected the study subjects' attitudes, it was observed that the mean attitudes of the male and female participants in the untreated group were 3.73±0.94 and 3.55±1.22, respectively, showing a statistically non-significant difference (p=0.51).

Within the treatment group, the mean attitude score for males and females was 3.25±1.56 and 3.43±1.46, respectively, indicating that gender had no bearing on the attitude score. The results were non-significant, with a p-value of 0.62 (Table 1).

Using a Pearson correlation analysis, attitude and pain perception were shown to be strongly correlated (p=0.0001 and r=0.345). This is explained by the use of the VAS scale, which showed less pain on the left side and a better attitude on the right. The pain-to-attitude r-value was 0.41, meaning that for every unit rise in the attitude score, there was a 0.41 unit increase in pain. Conscientiousness had a significant impact on pain perception with values of 4.3, 3.94, 3.93, 3.73, and 2.4 for very low, low, and average, high, and very high levels, and a p-value of 0.02 when the effects of the study subjects' personality traits were evaluated. At extremely low, low, middle, and high levels, agreeableness had values of 4.32, 4.04, 3.72, and 3.74, respectively. This indicates a non-significant influence of agreeableness on pain perception (p=0.07). With a p-value of 0.32 and values of 4.13, 4.22, 3.92, 4.12, and 2.63 at very low, low, medium, high, and very high levels, it had a non-significant impact on pain perception. With p=0.08, an analogous non-significant impact of extraversion on pain perception was observed. With values of 3.21, 4.02, 4.13, and 4.62 for a low, average, high, and very high degree of pain, respectively, and a p-value of 0.008, neuroticism was found to have a significant impact on pain perception (Table 2).

Conscientiousness was found to have values of 3.56, 3.44, 3.51, 3.46, and 1.44 for very low, low, average, high, and very high attitude, with a p-value of 0.01 indicating a significant effect of conscientiousness on study subjects' attitudes. These results relate to the effects of study subjects' personality traits on their attitudes. Table 3 summarises the non-significant impacts of agreeableness, openness, extraversion, and neuroticism on research respondents' attitudes. The corresponding p-values were 0.27, 0.53, 0.15, and 0.33.

DISCUSSION

According to Nanda RS et al. (1992), the participation and motivation of patients receiving Derma and trauma treatment are essential for the proper management of the subjects undergoing treatment. These factors are impacted by the patients' perceptions of pain and attitudes towards Derma and trauma therapy. The prevalent ways of feeling, acting, and thinking that are influenced by one's interests, choices, behaviour, and reaction to circumstances are known as personality characteristics. Therefore, it is essential to understand the personality of the patient receiving Derma and trauma treatment as this can aid in better understanding the patient with regard to compliance, which can have a significant impact on the success and result of the treatment. Subjects already play a significant part in treatment planning and decision-making; thus, if subjects are aware of the connection between research subjects' attitudes, perceptions of pain, and personality features, patient satisfaction will increase.

The results of the current study showed that there was no statistically significant difference in the pain perception between the treated and untreated groups, and that treatment had no impact on pain perception. The questionnaire surveys conducted in 1999 by Firestone et al. and Abu Alhaija et al. (10 in 2010) revealed similar results. Zhang M et al.'s 2007 study, however, produced contradictory findings, demonstrating the beneficial effects of therapy on pain perception. Those who received treatment reported reduced discomfort and agony, which gradually decreased over time. The participants' cooperation and attitude towards the Derma and trauma therapy are crucial variables that determine its outcome. The current study's findings demonstrated that there was a $p=0.06$ statistically insignificant difference between the attitudes of treated and untreated respondents.

These outcomes were in line with research conducted in 1970 by Burns MH et al., in which the author said that patients receiving Derma and trauma treatment might be both cooperative and non-cooperative; this behaviour is not treatment-related but rather a reflection of the participants' innate personalities. Another questionnaire-based study conducted in 2010 by Abu Alhaija et al.10 showed that the subject's attitude towards the Derma and trauma treatment is unaffected by their treatment state. Prior research has indicated that individuals receiving Derma and trauma treatment have more positive views in comparison to those who do not receive treatment. Additionally, compared to the non-treated patients, the treated subjects showed greater improvements in their internal control, dental awareness, and self-image (Lee SJ et al., 2008; Klages U et al., 2005).

In the current investigation, there was no discernible influence of gender on the respondents' perceptions of pain. These findings corroborated a 1989 research by Ngan P et al. (16), which found no relationship between gender and pain perception following a seven-day course of therapy with archwire placement. Similar findings were also found by investigations conducted in 1992 by Jones M. et al. and in 2004 by Erdinc AM et al.

Numerous research, such as those conducted by Bergius M et al. in 2008 and Ramirez-Maistre C et al. in 2004, revealed that women perceive pain at a greater level than men do. Furthermore, the Abu Alhaija et al. (2010) questionnaire survey revealed that the single major factor influencing pain perception is gender, with women reporting higher pain perception than men. This difference in results of various studies can be attributed to the differences in socioeconomic status, sample size, and race of the study subjects.

According to Bos A et al. (2005), the hypothesis for the current study was that women would view Derma and trauma treatment more favourably than men would. Gender had no impact on the subjects' attitudes regarding Derma and trauma treatment in either the treated or untreated groups of the current investigation. These findings are limited to research by Bos et al. (2005, 21) and Abu Alhaija et al. (2010), who found no relationship between gender and the attitudes of patients receiving Derma and trauma treatment.

Females are excellent candidates for Derma and trauma treatment with a positive attitude, which is the most important component in illustrating the attitude of Derma and trauma subjects together with gender, according to earlier literature research by Starnbach HK22 in 1975 and Cucalon A23 in 1990.

The study's findings showed a significant correlation between the individuals' attitudes and their attitudes. This was comparable to a 1998 research by Sergl et al., where the authors found that participants with a negative attitude felt more pain. As shown by Al-Omiri MK et al.25 in 2006 and Egolf RJ et al.26 in 1990, pain was also one of the most important

and deterrent reasons for subjects receiving Derma and trauma treatment. It was also a major factor limiting subjects' willingness to have Derma and trauma therapy.

Because there are no objective standards for evaluating an individual's personality, it is challenging to evaluate the personalities of Derma and trauma patients due to the interplay between different personality features.

In the general taxonomy of personality traits, clinical psychology determined five key dimensions of personality after conducting a thorough investigation. Numerous grading systems have been created in order to evaluate these five main aspects. The NEO-FFI, developed by John OP8 in 2011, is one of these instruments that is the most dependable and accessible, and it was used in the current investigation. The present study examines five primary personality dimensions, namely conscientiousness, agreeableness, openness, extraversion, and neuroticism. Conscientiousness was found to have a significant impact on pain perception when personality traits were evaluated in study participants. Values for very low, low, average, high, and very high levels were 4.3, 3.94, 3.93, 3.73, and 2.4, respectively, with a p-value of 0.02.

For extremely low, low, middle, and high levels, the agreeableness had values of 4.32, 4.04, 3.72, and 3.74, respectively, indicating a non-significant influence of agreeableness on pain perception with p=0.07. With values of 4.13, 4.22, 3.92, 4.12, and 2.63 for very low, low, medium, high, and very high levels and a p-value of 0.32, openness exhibited a non-significant impact on pain perception. With p=0.08, a comparable non-significant impact of extraversion was seen on pain perception. With scores of 3.21, 4.02, 4.13, and 4.62 for a low, moderate, high, and very high level of pain, respectively, and a p-value of 0.008, neuroticism was found to have a significant impact on pain perception.

These results aligned with research by Parbrook GD27 (1973) and Cameron AD28 (2011), whose authors found that neuroticism is the primary determinant of pain perception and that it changes with personality attributes. Additionally, the authors proposed that pain perception is a malleable concept. As noted by Al-Omiri MK et al.25 in 2006, it is essential to provide patients with neurotic personalities with psychological support and extreme caution when undergoing Derma and trauma treatment. The findings of research conducted in 1992 by Buxton BP et al. and in 2010 by Abu-Alhaija ES et al. showed that personality traits had no impact on how someone perceived pain. These discrepancies can be linked to variances in age groups, socioeconomic status, and culture.

Conscientiousness had values of 3.56, 3.44, 3.51, 3.46, and 1.44 for very low, low, average, high, and very high attitude, and a p-value of 0.01 indicated that conscientiousness had a significant effect on study subjects' attitudes. These results were obtained from an analysis of the effects of study subjects' personality traits on their attitudes. The research respondents' attitudes were not significantly impacted by agreeableness, openness, extraversion, or neuroticism, with corresponding p-values of 0.27, 0.53, 0.15, and 0.33. These results were in line with research by Umaki TM et al. (2012) and Mehra T et al. (1998), who found that Derma and trauma subjects with better personalities had better attitudes and cooperated more.

Also, studies by Torres BL et al[31] in 2011 and Abu Hantash RO et al[32] in 2006 used NEO-FFI used in the present study and reported neuroticism as the main factor predicting the attitude of a subject with various personality traits indicating the attitude of a subject. Nonetheless, an investigation conducted by Abu Alhaija ES et al. (2010) revealed that the Derma and trauma subject's attitude remains unaffected by personality traits.

CONCLUSION

The personality qualities of the Derma and trauma participants have a significant impact on their attitude and perception of pain. One helpful component of Derma and traumas is evaluating the patients' personalities prior to treatment. During their therapy, subjects with high levels of neuroticism and low conscientiousness need to get psychological support and care. Conscientiousness is the factor that determines attitude; more conscientiousness was associated with a better attitude. The Derma and trauma respondents' attitude and experience of pain were unaffected by their gender or position as patients. Subjects to Derma and traumas who had a more upbeat attitude reported less discomfort.

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Parameters	**Untreated Group**	**p-value**	**Treated Group**	**p-value**	**p-value**				
	Females (n=100)	Males (n=100)	Total (n=200)		Females (n=100)	Males (n=100)	Total (n=200)		
Attitude	3.55±1.22	3.73±0.94	3.62±1.07	0.51	3.43±1.46	3.25±1.56	3.32±1.34	0.62	0.06
Pain perception	3.76±1.27	4.12±1.37	3.98±3.32	0.16	4.34±1.51	4.01±1.47	4.4±1.54	0.26	0.22
Age	15.92±1.42	16.22±1.43	16.05±1.43	-	15.86±1.33	16.24±1.33	16.05±1.34	-	-

Table 1: Comparison of study subjects from two groups based on attitude, pain perception, and age

S. No	**Personality traits**	**Levels**					**p-value**
		Very low	**Low**	**Average**	**High**	**Very High**	
1.	**Conscientiousness**	4.3	3.94	3.93	3.73	2.4	**0.02**
2.	**Agreeableness**	4.32	4.04	3.72	3.74	-	0.07
3.	**Openness**	4.13	4.22	3.92	4.12	2.63	0.32
4.	**Extraversion**	5.13	4.44	4.02	3.77	3.62	0.08
5.	**Neuroticism**	-	3.21	4.02	4.13	4.62	**0.008**

Table 2: Effects of the personality traits in study subjects on pain perception

S. No	**Personality traits**	**Levels**					**p-value**
		Very low	**Low**	**Average**	**High**	**Very High**	
1.	**Conscientiousness**	3.56	3.44	3.51	3.46	1.44	**0.01**
2.	**Agreeableness**	4.32	3.37	3.26	3.55	-	0.27
3.	**Openness**	3.46	3.64	3.31	3.62	3.75	0.53
4.	**Extraversion**	3.46	3.52	3.52	3.77	4.43	0.15
5.	**Neuroticism**	-	3.01	3.44	3.63	3.3	0.33

Table 3: Effects of the personality traits in study subjects on attitude