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## Assessing the Correlation Between Patient Anxiety and Satisfaction for Mohs Surgery

Maren C. Locke MD,<sup>a</sup> Eric C. Wilkerson MD,<sup>a</sup> Rachel L. Mistur MS,<sup>b</sup>  
Mahrukh Nisar MD,<sup>a</sup> W. Elliot Love DO<sup>a</sup>

<sup>a</sup>MetroHealth Medical Center; Case Western Reserve University School of Medicine, Cleveland, OH

<sup>b</sup>University of Cincinnati Department of Dermatology, Cincinnati, OH

### ABSTRACT

Skin cancer and the surgical treatment thereof have the potential to be sources of great anxiety for patients. Examination of patient satisfaction, anxiety, and contributing factors has the potential to provide information surgeons can use to implement practices that have an impact on patient anxiety and satisfaction regarding dermatologic surgery. This study used a prospective interview to catalog patients' anxiety and experiences before and during the surgical process. Our results indicate that several pre- and perioperative factors have the potential to decrease a patient's overall anxiety. Notably, 33% of surgical patients reported a decrease in anxiety from the time of diagnosis until the day of surgery. Factors that contributed to this included a call discussing the diagnosis and what to expect on the day of surgery as well as reading written material or searching the internet for more information regarding the procedure. Furthermore, a call from the physician compared to a call from a nurse or other team member showed a greater effect on decreasing anxiety. During the surgical procedure, our results highlight several factors that can decrease a patient's anxiety. Most notably, eating, watching TV, bringing a guest, and engaging in small talk with surgeon and staff during the procedure subjectively decreased patients' anxiety. In summary, our results suggest that patients respond to a variety of factors to reduce anxiety and that each patient derives relief from anxiety in different manners. Therefore, offering a spectrum of comforting or distracting activities during the Mohs procedure is ideal and may reduce the need for pharmacologic anxiolytics.

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### INTRODUCTION

Skin cancer and the surgical treatment thereof have the potential to be sources of great anxiety for patients. Many pre- and perioperative experiences can have a positive or negative effect on the anxiety patients experience during Mohs surgery. Patients' perceived experience can have a significant impact on overall satisfaction, which physicians strive to maximize. Furthermore, patient satisfaction is increasingly being correlated with quality of care. Examination of patient satisfaction, anxiety, and contributing factors has the potential to provide information surgeons can use to implement practices that have an impact on patient anxiety and satisfaction regarding dermatologic surgery.

### METHODS

This is a prospective survey-based study conducted at MetroHealth Medical Center in Cleveland, Ohio. Approval for the study was granted by the MetroHealth Medical Center Institutional Review Board (IRB). Patients scheduled for Mohs surgery for the treatment of skin cancer between November 2014 and January 2015 were approached to participate in this study. Thirty-six subjects consented for participation and completed an oral survey conducted by an interviewer regarding their experiences.

Within one week prior to the surgical procedure, the first part of the survey was conducted to catalogue the anxiety level of

**TABLE 1.**

Average Anxiety Levels						
	All Patients N=36		No History of Mohs N=21		History of Mohs N=15	
	Diagnosis	Arrival	Diagnosis	Arrival	Diagnosis	Arrival
Average Anxiety Level	3.03	2.61	3.34	3.05	2.47	2.00
Standard Deviation	3.36	2.87	3.42	2.87	3.20	2.76

the patient upon learning of the diagnosis of skin cancer and the need for Mohs surgery. Furthermore, contributing factors such as discussion of the biopsy result with the physician or staff, discussion about what to expect on the day of surgery, and determination if patients reviewed any informational materials about the procedure were surveyed.

Within one week following Mohs surgery, a follow-up survey was conducted to determine patients' level of anxiety upon arrival at the surgical appointment, their overall satisfaction regarding the experience, and information regarding detailed events and experiences that occurred during the surgical process such as number of layers taken and activities performed while the patient waited for each layer to be processed.

Survey data was compiled using the REDCap program and analyzed with Microsoft Excel.

**Limitations**

This study was conducted at a single institution using the patients of two Mohs surgeons. Expanding the patient base to include a multi-center study would generate a larger sample size as well as control for confounding variables. Also, surveys were conducted at various time points within one week before and after the surgery date. Standardizing the timing in which surveys are conducted will minimize the significance of recall bias. The surveys were also conducted orally by an interviewer who knew the patient's name, potentially reducing the patient's perception of anonymity. Therefore, it is a possibility that patients felt compelled to report an inflated satisfaction score or otherwise answer as they believed the interviewer would want them to answer.

**RESULTS**

36 patients completed the survey. Of those sampled, the mean age was 66 years, 18 were male, and 18 were female. All were

**TABLE 2.**

Average Anxiety Levels in Patients With a Decreased Anxiety Score		
	N=12	
	Diagnosis	Arrival
Average Anxiety Level	6.00	3.17
Standard Deviation	3.03	2.58

Caucasian, and two identified themselves as Hispanic or Latino. 15 (42%) reported having Mohs surgery before while 21 (58%) had not.

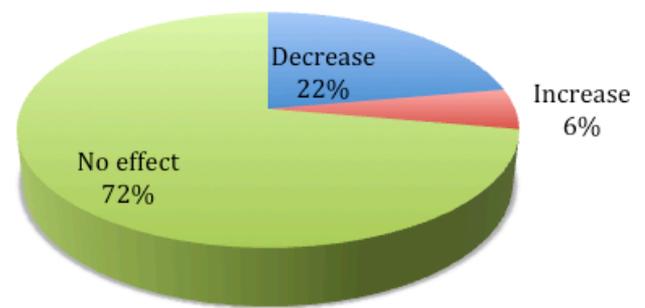
On a scale from 0 to 10, in which 0 represents "no anxiety" and 10 represents "severe anxiety," the respondents' average anxiety levels at the time of diagnosis and upon arrival for the surgery day are reported in Table 1.

20% of the surveyed patients had an increased level of anxiety upon arrival for surgery compared to the time of their diagnosis. 47% had no change in anxiety between diagnosis and the surgery day. 12 of 36 patients (33%) had a decreased level of anxiety upon arrival for surgery compared to the time of their diagnosis. These 12 patients reported average anxiety of 6.0 (SD 3.03) at the time of diagnosis and 3.17 (SD 2.58) upon arrival for surgery (Table 2). Of those 12, 9 (75%) reported at least one factor that may have contributed to the decrease in anxiety including a call discussing the biopsy result and skin cancer diagnosis, a call discussing the Mohs procedure and what to expect on the surgery day, reviewing written material explaining Mohs surgery, and reviewing information regarding Mohs surgery on the internet.

Of all the patients surveyed, approximately 20% reported a subjective decrease in anxiety prior to the day of surgery by receiving a call from a doctor or a nurse to discuss the skin cancer diagnosis.

Of all patients who were called by a doctor, 26% reported subjectively decreased anxiety while only 14% called by a nurse reported subjectively decreased anxiety.

**FIGURE 1.** Effect of number of layers on anxiety.



In total, 17 patients required one Mohs layer to clear the carcinoma, and 19 required two or more. 72% of patients claimed the number of Mohs layers taken during the surgery had no effect on their anxiety level. However, all 8 patients (22%) who reported a decrease in anxiety due to the number of layers taken only required one layer (Figure 1).

Patients were asked about particular methods of distraction used on the day of surgery including engaging in small talk with the surgeon and staff; music playing during the procedure; activities done between layers such as sleeping, eating, reading, watching TV, and having a friend or family member (guest) present.

Of these, the most notable method that subjectively decreased anxiety on the day of surgery was engaging in small talk with surgeon and staff. Of the 29 patients who remembered doing this, 16 (55%) reported it decreased their anxiety.

Of the other distractors, bringing a guest, eating, and watching TV were also notable. 9 (60%) of those who brought a guest, 6 (67%) of those who ate, and 5 (42%) of those who watched TV experienced decreased anxiety.

31 patients (86%) reported a 10 for satisfaction with an average satisfaction overall of 9.81 (SD 0.57).

## DISCUSSION

Skin cancer requiring the Mohs surgical technique is a potential source of anxiety for dermatology patients. Our results indicate that several important factors leading up to surgery and during the surgery experience have the potential to decrease a patient's overall anxiety. Notably, 33% of surgical patients reported a decrease in anxiety from the time of diagnosis until the day of surgery. Factors that contributed to this included a call discussing the diagnosis and what to expect on the day of surgery as well as reading written material or searching the internet for more information regarding the procedure. Furthermore, a call from the physician compared to a call from a nurse or other team member showed a greater effect on decreasing anxiety. This suggests it might be beneficial to provide patients with written material, direct them to a website for accurate information, and have a physician discuss the diagnosis and procedure with them and answer their questions. Since not all patients will perceive decreased anxiety from any one of these, providing all of them to the patient for support may have the greatest impact on overall anxiety.

During the surgical procedure, our results highlight several factors that can decrease a patient's anxiety. Most notably, eating, watching TV, bringing a guest, and engaging in small talk with surgeon and staff during the procedure subjectively decreased patients' anxiety. While no particular distractor

seemed to prevail over the others, providing a variety will likely reach the most patients. In addition, patients with only one layer taken to clear the carcinoma perceived a decreased anxiety level on average. Therefore, patients requiring 2 or more layers may be a group that will need more assistance managing their anxiety.

Patient satisfaction averaged 9.8 with most patients reporting a level of 10. Patients with higher anxiety did not report a lower satisfaction as hypothesized. We acknowledge that there are many factors that contribute to a patient's overall satisfaction such as the facility space and interactions with the staff and surgeon. Therefore, a multi-center and multi-surgeon study would be ideal to further categorize the spectrum of patient satisfaction. Additionally, obtaining survey results in an anonymous fashion would encourage patients to answer in a manner more consistent with their true feelings rather than answering in a way that would seem pleasing to the interviewer.

In summary, our results suggest that patients respond to a variety of factors in terms of reducing anxiety and that each patient derives relief from anxiety in different manners. Therefore, offering a spectrum of comforting or distracting activities during the Mohs procedure is ideal and may reduce the need for pharmacologic anxiolytics. Making additional recommendations to patients prior to arriving for surgery such as bringing a friend or family member can be suggested for patients seeming anxious. It is also important to pay particular attention to the needs of patients who have not had Mohs surgery previously or who will have a longer procedure requiring more layers.

## AUTHOR CORRESPONDENCE

**Eric C. Wilkerson MD**

E-mail:..... eric.wilkerson@outlook.com