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# Anger Management and Factors that Influence Anger in Physicians

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## ABSTRACT

**Objective:** There are limited data regarding anger and its management with respect to physicians and many other professionals. Our objective was to evaluate anger expression and control in physicians.

**Material and Methods:** The physicians of the Düzce School of Medicine were the participants in the study. Physicians were assigned to either an internal medicine or a surgery study group. Each group contained physicians from several specialties. The Spielberger State-Trait Anger Expression Inventory, and the Beck Anxiety and Depression Inventories were administered to all participants. The physicians (n=158) were evaluated and compared with controls (n=105) in terms of anger control and sociodemographic variables.

**Results:** Anger-control scores were higher in physicians ($p<0.01$) and in those who willingly chose the medical profession ($p<0.05$). Age, number of years as a physician, and the specialty were negatively correlated with anger management in physicians working in the surgical disciplines ($p<0.01$). Only Beck anxiety and depression scores were positively correlated with anger-trait scores and anger-in scores for physicians working in the internal medicine disciplines ($p<0.01$).

**Conclusion**: Physicians were relatively successful in coping with anger. A willingness to choose the medical profession was a factor influencing anger control. Age was the major factor affecting anger management in physicians.

**Key Words:** Age, anger, anxiety, depression, doctor, internal medicine, surgery

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Anger is an emotion that plays an important role in our daily lives. Although it is universal, the interpretation and expression of anger differs, due to a variety of factors (1-3). Anger has been defined as a strong emotion, which occurs in the event of real or presumed frustration, threat or injustice and can prompt a person to eliminate the disturbing stimulus (4). Spielberger et al. defined anger as a graded emotional state ranging from simple irritability to intense rage, whereas Kassinove and Sukhodolsky have described anger as a phenomenological inherent affect that is associated with certain cognitive and perceptive distortions (5, 6). Others have defined anger as a condition of being highly stimulated in a certain cognitive and behavioral context (7).

While anger underlies hostility and affects self-respect, anger management examines the positive and the negative aspects of anger (8, 10). Several studies have reported significant correlations of anger with depression, anxiety, and somatization disorders (11-13), while others have focused on the relationship between depression and anger suppression (14). It has been well established that anger is an important variable for predicting suicide (15, 16), and many patients with anger attacks have high levels of anxiety or panic (17). Furthermore, suppressing anger has been associated with many physical disorders such as hypertension, coronary artery disease, and cancer (18-20, 25).

Although anger has many negative consequences, it is one of the least investigated emotions (21, 22). Studies of the interactions and consequences of anger in social settings are limited to only a few disciplines and occupational groups (23, 24) and, to our knowledge, there have been no investigations of anger in physicians. Previous studies have indicated that many psychiatric problems, which may be related to anger, are more frequently seen in physicians than in the general population. For example, suicide rates are higher in physicians, as compared to other professionals with the same educational level, and their tendency for suicide has been reported to be twice as high as the general population (26, 27). Moreover, suicide rates vary among medical specialties; they are higher among ophthalmologists, anesthesiologists, and psychiatrists than physicians in other specialties (28, 29). The most frequent psychiatric diagnosis in physicians is that of affective disorders, including depression (30, 31). Even though the incidence of depression decreases with age, the number of years as a physician, and academic rank, it never reaches the population mean.

Physicians also face problems in their marriages and family life. The divorce risk (29%) and the divorce rate (50%) for physicians are higher than in other professional groups. It has been suggested that the long working hours and stress of being a physician as well as the psychological dynamics present may have influenced these rates (32, 33).

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Because anger has predictable effects on the psychiatric, physical, and social well-being of physicians, the factors that influence anger must be studied in depth. Anger displayed by physicians can affect patients and may lead to wrong or faulty treatment, or a lack of treatment compliance. Based on our clinical observations, surgeons experience more anger than internists, but are more capable of managing it. We hypothesize that anger may be expressed differently in physicians practicing in different medical specialties. We believe that this is the first significant study that has investigated anger and the precipitating factors that influence anger in physicians.

## Materials and Methods

Faculty and resident physicians of the Düzce School of Medicine were participants in the study. An age- and sex-matched group of university-degree professionals constituted the control group. Physicians who gave informed consent and completed the study questionnaire were assigned to either the internal medicine or the surgery study group. Physicians working in the specialties of general surgery, urology, obstetrics and gynecology, otorhinolaryngology, ophthalmology, orthopedics, neurosurgery, cardiovascular surgery, and anesthesiology were assigned to the surgery group, while those specializing in pneumology, physical medicine and rehabilitation, psychiatry, neurology, dermatology, and cardiology were assigned to the internal medicine group. The Spielberger State-Trait Anger Expression Inventory and the Beck Anxiety and Depression Inventories were given to all participants. Through data obtained by semi-structured questionnaire forms, physicians were compared to the control group with regard to anger control and the associated sociodemographic variables of gender, age, marital status, the number of years as a physician, and satisfaction with their profession.

In the second stage of the study, the two study groups were compared in terms of anger control, and additional profession-specific questions such as the number of years as a physician, the number of years in their specialty, the number of night and on-call duties, the willingness to choose the medical profession, and the present state of satisfaction from the profession.

Written, informed consent was obtained, and the data were collected from the participants, all of whom remained anonymous to prevent bias. Initially, 200 physicians were to be included in the study; however, 19 did not complete the questionnaire and 23 were excluded because they only completed part of the questionnaire, leaving 158 physicians who were evaluated for the study. Their data were compared with 105 age- and sex- matched controls. Statistical analyses of the data were performed with the Chi-square test, the Student's t test, and correlation and regression analyses.

**Table 1. Comparison of sociodemograhic variables and anger**

| Variables | Physicians (n:158) | Controls (n:106) | p value |
|---|---|---|---|
| **Age in years (Means±SD)** | 33.03±6.27 | 32.73±8.46 | NS |
| Gender | | | |
| Male | 101 | 60 | NS |
| Female | 57 | 46 | |
| **Marital status** | | | |
| Single | 57 | 54 | 0.03 |
| Married | 99 | 52 | |
| Vidow | 2 | 0 | |
| **Gladness about his/her Occupation** | | | |
| Yes | 131 | 88 | NS |
| No | 27 | 18 | |
| **Selection of occupation by himself/herself** | | | |
| Yes | 145 | 89 | 0.05 |
| No | 13 | 17 | |
| Years in the occupation (Means±SD) | 8.66±6.53 | 8.69±7.88 | NS |
| Beck Anxiety Score (Means±SD) | 7.26±7.71 | 9.15±7.64 | 0.05 |
| Beck Depression Score (Means±SD) | 7.76±6.73 | 7.74±6.08 | NS |
| Anger Trait (Means±SD) | 19.73±5.25 | 19.57±4.62 | NS |
| Anger In (Means±SD) | 16.91±4.01 | 16.33±3.69 | NS |
| Anger Out (Means±SD) | 14.97±3.62 | 14.85±3.96 | NS |
| Anger Control (Means±SD) | 22.11±4.60 | 20.10±4.68 | 0.001 |

* NS: Not specific, n: Number of patients. SD: Standard deviation

## Results

Anger control scores were significantly higher in physicians in comparison to the control group (p=0.001) (Table 1). Marriage rate and the willingness to choose the medical profession were significantly higher in physicians compared to the control group, while Beck anxiety scores were significantly higher in controls, as compared to physicians (p<0.05). Correlation analyses conducted on the physicians as a group revealed significant negative correlations between the anger-trait and age (p<0.001), the number of years as a physician (p<0.01), and the specialty (p<0.01). There was a significant positive correlation between age and anger control scores (p<0.05).

In the second stage of the study, the surgery and internal medicine groups were compared in terms of anger control. The two groups were similar except for the number of night and on-call duties (Table 2). When a similar correlation analysis was performed for each study group; age, the number of years as a physician, and the specialty were negatively correlated with anger-trait in physicians in the surgical disciplines (p<0.00). A significant positive correlation was detected between the number of night or on-call duties and anger-trait (p=0.01). There was a significant negative correlation between the number of years working in their specialty and anger directed inward (anger-in) for physicians working in the surgical disciplines (p=0.02). Only the Beck anxiety and depression scores were positively correlated with anger-trait (p<0.00) and anger-in scores (p<0.01) for physicians working in the internal medicine disciplines (Table 4).

The mean anger-out (anger focused outward towards people or objects) score was significantly lower and the mean anger-control score was significantly higher in those physicians who willingly chose the surgical profession, as compared to those who chose it unwillingly (p<0.05, Table 3).

As a result of the analysis that was conducted in anger sub-scales according to sex, the mean anger-control score was found to be 22.0±4.7 in female physicians who willingly chose their specialty, and this was significantly higher than in those who chose it unwillingly (18.6±3.3, p<0.05). Age (p=0.02) and the number of years as a physician (p=0.04) were positively correlated with anger-control in female physicians. There were significant negative correlations between age and anger-trait in both sexes (p<0.05). Although there were significant correlations between Beck anxiety, anger-trait, and anger-in scores in women, Beck depression scores were significantly correlated, in both sexes, with anger-trait and anger-in scores (p<0.01).

Beck anxiety and depression scores were similar in the two study groups; however, anxiety scores of female physicians in internal medicine were significantly higher than their male counterparts (p<0.05). Considering both genders, significant positive correlations were found between the Beck anxiety and depression scores and both anger trait and anger-in scores in women (p<0.00). However, in men, only Beck de-

**Table 2. Anger management and factors that influence anger in physicians**

| | Anger-trait Score (mean±SD) | Anger-in Score (mean±SD) | Anger-out Score (mean±SD) | Anger-control Score (mean±SD) |
|---|---|---|---|---|
| **Branch** | | | | |
| Internal Medicine | 19.5±5.2 | 17.2±3.8 | 14.8±3.7 | 21.8±4.3 |
| Surgery | 20.0±5.3 | 16.6±4.3 | 15.2±3.5 | 23.0±4.6 |
| p value | NS | NS | NS | NS |
| **Gender** | | | | |
| Male | 19.4±5.3 | 16.9±3.9 | 15.2±3.6 | 22.7±4.3 |
| Female | 20.4±5.6 | 17.0±4.2 | 14.6±3.7 | 21.5±4.7 |
| p value | NS | NS | NS | NS |
| **Marital Status** | | | | |
| Married | 19.7± 4.9 | 16.7±4.0 | 15.4±3.5 | 22.3±4.3 |
| Single | 19.6 ±5.9 | 17.2±3.9 | 14.3±3.8 | 22.2±4.9 |
| p value | NS | NS | NS | NS |
| **Willingness at time of choosing the profession** | | | | |
| Yes | 19.7±5.4 | 17.0±3.9 | 14.9±3.6 | 22.5±4.5 |
| No | 20.2±3.5 | 15.5±3.9 | 15.5±4.4 | 21.0±4.0 |
| p value | NS | NS | NS | <0.05 |
| **Satisfaction from the profession** | | | | |
| Yes | 19.7±5.3 | 16.8±3.9 | 14.9±3.8 | 22.5±4.5 |
| No | 20.0±5.1 | 17.4±4.5 | 15.4±2.5 | 19.9±3.7 |
| p value | NS | NS | NS | NS |

*NS: Not specific, SD: Standard deviation

**Table 3. Anger Management and Factors That Influence Anger in Physicians Working in Different Branches**

| | Anger-trait Score (mean±SD) | | Anger-in Score (mean±SD) | | Anger-out Score (mean±SD) | | Anger-control Score (mean±SD) | |
|---|---|---|---|---|---|---|---|---|
| **Branch** | **Internal Medicine** | **Surgery** | **Internal Medicine** | **Surgery** | **Internal Medicine** | **Surgery** | **Internal Medicine** | **Surgery** |
| **Gender** | | | | | | | | |
| Male | 20.0±5.1 | 21.2±5.4 | 17.3±3.8 | 16.3±5.0 | 14.6±3.9 | 14.6±3.6 | 21.4±4.7 | 21.6±4.8 |
| Female | 19.2±5.3 | 19.6±5.3 | 17.0±3.9 | 16.7±4.0 | 15.0±3.6 | 15.5±3.5 | 22.0±4.1 | 23.6±4.4 |
| p value | NS | NS | NS | NS | NS | NS | NS | NS |
| **Marital status** | | | | | | | | |
| Married | 19.9±4.9 | 19.4±5.0 | 17.3±4.1 | 15.8±3.8 | 15.2±3.6 | 15.5±3.3 | 21.6±4.2 | 23.4±4.3 |
| Single | 18.9±5.8 | 20.9±5.9 | 17.0±3.4 | 17.7±4.7 | 14.2±3.9 | 14.4±3.7 | 22.1±4.6 | 22.4±5.4 |
| p value | NS | NS | NS | NS | NS | NS | NS | NS |
| **Willingness at time of choosing the profession** | | | | | | | | |
| Yes | 19.6±5.4 | 19.8±5.5 | 17.3±3.7 | 16.7±4.4 | 14.9±3.7 | 14.9±3.4 | 21.9±4.3 | 23.4±4.5 |
| No | 18.9±3.0 | 22.4±3.2 | 15.6±4.6 | 15.4±3.3 | 13.3±3.7 | 19.0±3.1 | 20.4±4.1 | 19.2±3.5 |
| p value | NS | NS | NS | NS | NS | <0.05 | NS | <0.05 |
| **Satisfaction from the profession** | | | | | | | | |
| Yes | 19.6±5.1 | 19.8±5.6 | 17.2±3.9 | 16.4±3.9 | 14.7±3.9 | 15.2±3.6 | 21.9±4.5 | 23.3±4.4 |
| No | 19.2±5.7 | 21.4±3.9 | 17.1±3.6 | 17.8±5.9 | 15.4±2.4 | 15.4±2.9 | 20.8±3.1 | 21.3±5.4 |
| p value | NS | NS | NS | NS | NS | NS | NS | NS |

*NS: Not specific, SD: Standard deviation

pression scores were significantly correlated with anger-trait and anger-in scores ($p<0.01$). There was a significant negative correlation between age and Beck depression scores in men working in the surgical disciplines ($p<0.01$).

## Discussion

This study aimed to investigate how physicians control and direct their anger based on a variety of sociodemographic variables and their departments. Physicians were more successful in coping with their anger than a group of university-educated, age- and sex- matched controls. The willingness to choose to be a physician was a main factor influencing anger control, regardless of specialty. Similar to the results of a previous study, age rather than specialty, was a major factor affecting anger management in physicians (34). Because the physicians participating in this study had the same education level, similar living and working environments, incomes, and sociodemographic characteristics, many stress factors could be excluded when interpreting the results.

There was a tendency for a reduction in the anger-trait score with increasing age in those physicians working in the surgical disciplines. There was also a decrease in the anger-trait scores with an increasing number of years as a physician, and there was a reduction in anger-trait and anger-in scores with an increasing number of years in the specialty. These results indicate that maturation as a physician results in a decrease in the expression of anger.

Our finding that physicians working in the surgical disciplines reported less depression and anxiety as they spent more time as physicians and as specialists may indirectly indicate that they did not introject their anger or became angry less often. However, the reduction of the anger-in scores may also reflect that surgeons may have employed other anger management strategies rather than introjection. The number of years in a specialty had similar effects on anger with increasing age. As physicians spend more time in a surgical specialty, they gain status and a corresponding reduction in stress from factors such as night-duty responsibilities and direct patient contact.

Previous studies have shown that the expression and control of anger may be influenced by professional status (35, 36). In a medical setting, a resident may choose to control or introject their anger in the presence of a faculty member, while the faculty member may become outwardly angry at a resident in a similar situation. The finding that the number of years in a specialty, but not the number of years as a physician, reduced anger-in scores indicates that positional maturation rather than professional maturation may induce a change in anger management. This explanation may not apply for the anger trait, although increasing age seems to influence the way physicians manage their anger, independently of specialty or gender.

**Table 4. Correlation analysis of factors affecting anger in physicians working in different branches**

| Branch | Factor | Statistical analysis | Anger-trait | Anger-in | Anger-out | Anger-control |
|---|---|---|---|---|---|---|
| Surgery | Age | Pearson Cor. | -.416 | -.276 | -.083 | .227 |
| | | Sig. (2-tailed) | .000** | .177 | .526 | .081 |
| | Year studied in the occupation | Pearson Cor. | -.432 | -.207 | -.048 | .193 |
| | | Sig. (2-tailed) | .000** | .113 | .714 | .139 |
| | Year studied as a specialist | Pearson Cor. | -.446 | -.289 | -.093 | .234 |
| | | Sig. (2-tailed) | .000** | .025* | .481 | .072 |
| | Number of turns per month | Pearson Cor. | .296 | .209 | -.050 | -.156 |
| | | Sig. (2-tailed) | .019** | .110 | .702 | .234 |
| | Beck Anxiety Score | Pearson Cor. | .315 | .331 | .015 | -.042 |
| | | Sig. (2-tailed) | .013** | .010** | .911 | .751 |
| | Beck Depression Score | Pearson Cor. | .328 | .451 | -.026 | -.120 |
| | | Sig. (2-tailed) | .009** | .000** | .845 | .359 |
| Internal | Age | Pearson Cor. | -.149 | -.032 | .005 | .143 |
| Medicine | | Sig. (2-tailed) | .148 | .754 | .961 | .166 |
| | Year studied in the occupation | Pearson Cor. | -.127 | -.002 | .009 | .150 |
| | | Sig. (2-tailed) | .216 | .986 | .934 | .144 |
| | Year studied as a specialist | Pearson Cor. | -.130 | -.022 | .071 | .096 |
| | | Sig. (2-tailed) | .206 | .834 | .493 | .351 |
| | Number of turns per month | Pearson Cor. | .106 | -.021 | -.149 | -.154 |
| | | Sig. (2-tailed) | .306 | .840 | .148 | .133 |
| | Beck Anxiety Score | Pearson Cor. | .395 | .242 | .110 | -.115 |
| | | Sig. (2-tailed) | .000** | .018** | .291 | .268 |
| | Beck Depression Score | Pearson Cor. | .363 | .262 | .111 | -.116 |
| | | Sig. (2-tailed) | .000** | .010** | .285 | .263 |

Correlation is significant at the 0.05 level* and at the 0.01 level** (2-tailed)

Our results indicate that anger is not directly affected by gender, as noted in previous studies (37-39). However, we have shown that there are differences in how males and females manage anger as they become older. There was a decrease in anger-trait scores in men and women with increasing age, but only women showed an increase in anger control scores with age. This finding for female physicians was independent of the number of years they had spent in their specialty. This result agrees with previous studies showing that women usually control anger while men often express it by extrojection; however, previous studies have indicated that this gender difference may also be associated with sexual roles (40, 41).

Results of studies examining the perception of anger with respect to men and women in professional settings are equivocal. At least one study has shown that women may perceive anger or anger-provoking situations more often than men under identical circumstances (42). In contrast, others have emphasized that results regarding anger control and anger introjection according to gender are inconsistent (37). This ambiguity may originate from differences in interpretations of the data according to gender or through the use of different diagnostic instruments. Alternatively, it may indicate the need to identify more profound associations between age, gender, and anger. It is noteworthy that there is a strong relationship between anger and sociocultural support systems.

As discussed above, situations that provoke anger differ between men and women. Men tend to express anger more frequently when they sense a threat against their power and status, while women tend to express anger when it involves interpersonal relationships (43, 44). It is well established that this more traditional approach provides women with an improved ability to cope with professional life in that it generates less humiliation and anger. This approach to anger expression and control is probably more conducive to relationships with colleagues and supervisors as women gain more status and power in the workplace (45-47). This explanation seems to fit women physicians, particularly those who must adapt to an academic setting; however we have no data regarding the number of anger-provoking situations encountered by either male or female physicians. Another issue that must be considered is the degree to which individual personality traits reflect anger management strategy by age, gender, and status. These features have not been evaluated in our study.

Our results show that anger control is better in physicians who willingly chose their profession than in those who did not. The tendency to express anger with increasing age in those who willingly chose their profession may suggest a readiness to confront anger- provoking situations. In previous studies, job satisfaction has been shown to increase with age as a result of an increase in compassion (48, 49) We found no significant correlation between the satisfaction of physicians with their profession and anger, specialty, gender, age, or the number of years working as a physician. The absence of these associations may indicate differences in the medical profession compared to other professions, or it may be because we did not utilize a scale that investigates satisfaction sub-units. In our study, personality traits and the situations that provoked anger were not evaluated. Because sub-characteristics (anger-in, anger-out, anger-control, anger-trait) were not sufficiently defined in the anger scales that we used in this study, it was difficult to identify the differences between anger management strategies and the experience and expression of anger.

In conclusion, anger management in physicians was influenced by age, job satisfaction and gender-related factors. The ability to control anger was greater in physicians than in university-educated members of the control population. Future studies should evaluate external and internal factors, including affect and motivation, for those in the medical profession.

**Conflict of Interest**

No conflict of interest was declared by the authors.

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