Personality and the moderating effect of mood on verbal aggressiveness risk factor from work activity

María del Mar Molero Jurado 1, María del Carmen Pérez-Fuentes 2*, Ana Belén Barragán Martín 3, María del Mar Simón Márquez 4, África Martos Martínez 5, and José Jesús Gázquez Linares 6

1 Department of Psychology, Faculty of Psychology, University of Almería, 04120 Almería, Spain; mmj130@ual.es
2 Department of Psychology, Faculty of Psychology, University of Almería, 04120 Almería, Spain.
3 Department of Psychology, Faculty of Psychology, University of Almería, 04120 Almería, Spain;
abm410@ual.es
4 Department of Psychology, Faculty of Psychology, University of Almería, 04120 Almería, Spain;
msm112@ual.es
5 Department of Psychology, Faculty of Psychology, University of Almería, 04120 Almería, Spain;
amm521@ual.es
6 Department of Psychology, Faculty of Psychology, University of Almería, 04120 Almería, Spain; and
Universidad Autónoma de Chile, 4780000, Chile; jlinares@ual.es
* Correspondence: mpf421@ual.es; Tel.: +34‐950015598

Abstract: One of the trends in current research in psychology explores how personal variables can determine a person’s communication style. Our objective was to find out the moderating effect of Mood in the relationship between the five big personality traits and an aggressive verbal communication style risk factor from work activity in a sample of nursing professionals. This study is a quantitative descriptive design. The final sample was 596 nurses with a range of 22 to 56 years. An ad hoc questionnaire was used to collect sociodemographic data, the 10‐item Big Five Inventory, the Communication Styles Inventory, and the Brief Emotional Intelligence Inventory for Senior Citizens. This study showed that for nursing professionals, the “Agreeableness”, “Conscientiousness” and “Neuroticism” traits have a close relationship with aggressive verbal communication. Even though Mood moderates this relationship, it is only significant for those individuals with high scores in “Neuroticism”. Because personality dimensions are considered relatively stable over time and consistent from one situation to another, organizations should hold workshops and other types of practical activities to train workers in communication skills and Emotional Intelligence in order to promote employee health and that of their patients and avoid risk factor from work activity in nursing.

Keywords: personality; emotional aspects; communication; work activity.

1. Introduction

Communication is a basic function of human beings, of vital importance for developing interpersonal relationships and for groups, organizations and society to function well [1, 2]. Since the 70s, considerable academic and professional attention has been given the study of communication styles due to their practical relevance in any setting in which “Transfer of personal information, knowledge, ideas, opinions and feelings play a fundamental role” (p. 507) [3]. As a result of this scientific interest, the study of communication styles has undergone an increase in recent decades, with a diversity of lines of research emerging which have examined the phenomenon in different job contexts (e.g., education, organization, healthcare) [4-7]. Moreover, its importance in clinical and health contexts has been underlined in the literature. For example, effective communication styles
The trends in current research in psychology explores how personal variables, such as intelligence (EI), referring to personality traits and an aggressive verbal communication style in a sample of nursing professionals. The communication style concept was originally introduced by Norton to refer to “The verbal and nonverbal interaction with signs which have literal meaning and must be understood, filtered and interpreted” (p. 99). Verbal aggressiveness, widely studied by Infante et al. [12, 13], refers to a destructive communication style (taunts, threats, hostility, etc.) characterized by the use of a hostile language, lacking in affect and authoritarian, which does not facilitate dialogue and can cause psychological damage to those who receive the message, in addition to negatively influencing the quality of interpersonal relationships [14].

One of the trends in current research in psychology explores how personal variables, such as personality, can determine a person’s communication style [2, 15, 16]. This influential line has developed based on the theoretical basis of the Big Five Personality Traits Model (Five-Factor Theory of Personality) [17, 18]. From this perspective, it is understood that individuals develop a certain communication style according to their personality traits and the influence of social and cultural factors [7, 19].

In the literature reviewed, low levels of “agreeableness” and “conscientiousness” and high levels of “neuroticism” have been found to predict counterproductive behaviors in the workplace, specifically, the use of aggressive verbal language with coworkers and clients [20-22]. In the study by Grumm & von Collani [23] verbal aggressiveness was shown to be positively related to a personality profile characterized by high levels of “neuroticism” and low “extraversion”, “agreeableness”, “conscientiousness” and “openness to experience”: Similarly, Barlett & Anderson [24] found the dimensions “Agreeableness” “Openness to experience” and Neuroticism” to be the best predictors of a wide range of violent behaviors, while authors such as Xie, Chen, Lei, Xing, & Zhang [25] demonstrated that all the personality traits except “Neuroticism”, could predict prosocial behavior. In addition to the above, some studies have explored the role of emotions with regard to aggressive behavior. One of the constructs studied most is Emotional Intelligence (EI), referring to those skills which people have for understanding, perceiving and adaptively regulating their own emotions and those of others [26]. Some empirical studies have shown a significant relationship between low EI and aggressive verbal behavior [27, 28].

Guo, Sun and Li [29] found that EI functions as a mediator between neuroticism and prosocial behavior. However, a relationship has also been found between the five personality traits and EI, especially with “Responsibility” and “Neuroticism” [30, 31]. It has been suggested that EI is determinant for achieving personal and social success as well. Thus people who manage their emotions adequately can cope with conflictive situations in an adaptive manner [32].

It has likewise been shown that positiveness and optimism ("Mood") [33] favor positive interpretation of potentially stressful situations, contributing to improving their perception of their ability to control their surroundings, and thereby, their wellbeing [34-36]. However, the relationship between positiveness and wellbeing is stronger in persons with high scores on “Extraversion”, “Agreeableness” and “Conscientiousness” [37].

Our objective was to find out the moderating effect of Mood in the relationship between the five big personality traits and an aggressive verbal communication style in a sample of nursing professionals.

2. Materials and Methods

2.1. Participants

The original sample was 619 nursing professionals, but 23 were discarded (19 because random answers were detected by the control questions, and four because they had not completed the entire battery of questionnaires), leaving a final sample of 596 nurses.

The mean age of the participants was 31.53 (SD=6.55) in a range of 22 to 56 years. The sex distribution in the sample was 83.7% (n=499) women and 16.3% (n=97) men, with a mean age of 31.56 (SD=6.62) and 31.38 (SD=6.21), respectively. The marital status of the participants was 53.7% (n=320)
3. Results

2.2. Instruments

An ad hoc questionnaire was used to collect sociodemographic data from the participants (age, sex, marital status), and also their current employment situation.

The 10-item Big Five Inventory (BFI-10) [38] as applied for the personality dimensions. This is a brief version of the BFI-44 scale [39, 40], developed to provide a personality inventory for research with time limitations. It enables the Five Big Personality Factors (Extraversion, Conscientiousness, Agreeableness, Neuroticism, and Openness to Experience). Previous studies have demonstrated that the BFI-10 has psychometric properties comparable in size and structure to the complete BFI-10 scale. There are findings that back BFI-10 factor validity, construct validity and criterion validity [38, 41, 42].

In addition, the Communication Styles Inventory [43] consists of 96 elements for evaluating communication behaviors. The items are divided in equal parts on six domain scales (16 items per scale): Expressiveness, Peciseness, Verbal Aggressiveness, Questioningness, Emotionality and Impression Manipulativeness. Each of the domain scales has four facets, and each of these has four elements. The items are answered on a Likert-type scale with answer choices from 1 (completely disagree) to 5 (completely agree). The authors reported Cronbach’s alpha on the scales varying from .82 to .88 in a sample from the general population and .83 to .87 in a sample of students. In this case, we used the Verbal Aggressiveness scale with a Cronbach’s alpha of .78.

Finally, to measure mood, we used the scale with the same name included in the Brief Emotional Intelligence Inventory for Senior Citizens (EQ-i-20M) [44] validated and scaled by the authors for an adult Spanish population, adapted for adults from the Emotional Intelligence Inventory: Young Version (EQ-i-YV) by Bar-On & Parker [45]. It consists of 20 items with four answer choices arranged on a Likert-type scale. It is structured in five factors: Intrapersonal, Interpersonal, Stress management, Adaptability and Mood. The Cronbach’s alpha for the Mood scale used in this study was $\alpha=.88$.

2.3. Procedure

Before collecting data, the participants were guaranteed compliance with information, confidentiality and ethical standards in data processing. The study was approved by the Bioethics Committee of the University of Almería. The questionnaires were implemented on a Web platform which enabled the participants to fill them out online. A series of control questions were included to detect random or incongruent answers, which were then discarded from the study sample.

2.4. Data analysis

This study is a quantitative descriptive design. The article includes as well valuable recommendations for the revision of STROBE. First, frequency analyses were done to find out the distribution of the sample according to the sociodemographic variables, descriptive analyses and Pearson’s correlation coefficient to identify the interaction between the variables in the study. A stepwise multiple linear regression analysis was performed based on these data. SPSS v.23 statistical software was used for these analyses. Then a simple moderation analysis was done to identify how Mood moderates each of the dimensions of personality included in the regression analysis as predictors of Verbal aggressiveness. The SPSS macro was used to compute simple moderation effect models [46]. Bootstrapping with 5000 bootstraps was used to estimate coefficients.
Table 1 shows the descriptive statistics and correlations between the study variables. A significant association was observed between Verbal aggressiveness and most of the personality factors. Specifically, there was a positive correlation with Neuroticism ($r=.30$, $p<.001$) and negative with Agreeableness ($r=-.35$, $p<.001$), Conscientiousness ($r=-.34$, $p<.001$), and Openness to Experience ($r=-.13$, $p<.01$). Mood correlated negatively with Verbal aggressiveness ($r=-.40$, $p<.001$).

### Table 1. Descriptive Statistics and Correlations

<table>
<thead>
<tr>
<th></th>
<th>Mean (M)</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Verbal aggressiveness</td>
<td>2.19</td>
<td>.45</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>2. Extraversion</td>
<td>3.29</td>
<td>.81</td>
<td>-.03</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>3. Agreeableness</td>
<td>3.98</td>
<td>.60</td>
<td>-.35***</td>
<td>.02</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>4. Conscientiousness</td>
<td>3.71</td>
<td>.66</td>
<td>-.34***</td>
<td>.15***</td>
<td>.16***</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>5. Neuroticism</td>
<td>2.73</td>
<td>.82</td>
<td>.30***</td>
<td>-.10**</td>
<td>-.14***</td>
<td>-.24***</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>6. Openness to experience</td>
<td>3.48</td>
<td>.75</td>
<td>-.13**</td>
<td>.62***</td>
<td>.16***</td>
<td>.27***</td>
<td>-.09*</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>7. Mood</td>
<td>2.96</td>
<td>.62</td>
<td>-.40***</td>
<td>.08*</td>
<td>.23***</td>
<td>.36***</td>
<td>-.40***</td>
<td>.23***</td>
<td>–</td>
</tr>
</tbody>
</table>

The analysis of interaction between variables found correlations of Mood with all the personality factors: positive with Extroversion ($r=.08$, $p<.05$), Agreeableness ($r=.23$, $p<.001$), Conscientiousness ($r=.36$, $p<.001$) and Openness to experience ($r=.23$, $p<.001$), and negative with Neuroticism ($r=-.40$, $p<.001$).

#### 3.1. Predictors of Verbal Aggressiveness in nursing personnel

As shown in Table 2, the regression analysis found four models, the last of which had the most explanatory capacity with 28.2% ($R^2=.28$) of the variance explained by the factors included in the model (Agreeableness, Mood, Conscientiousness and Neuroticism).

### Table 2. Stepwise Multiple Linear Regression Model for Verbal Aggressiveness

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>$R^2$ corrected</th>
<th>$R^2$</th>
<th>Standard error of estimation</th>
<th>Change in $R^2$</th>
<th>Change in $F$</th>
<th>Sig. of change in $F$</th>
<th>Durbin Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.40</td>
<td>.16</td>
<td>.15</td>
<td>.42</td>
<td>.16</td>
<td>113.01</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>.48</td>
<td>.23</td>
<td>.22</td>
<td>.40</td>
<td>.07</td>
<td>54.88</td>
<td>.000</td>
<td>1.94</td>
</tr>
<tr>
<td>3</td>
<td>.51</td>
<td>.26</td>
<td>.26</td>
<td>.39</td>
<td>.03</td>
<td>29.35</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>.53</td>
<td>.28</td>
<td>.27</td>
<td>.39</td>
<td>.01</td>
<td>12.00</td>
<td>.001</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model 4</th>
<th>Non-standardized coefficients</th>
<th>Standardized coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>Collinearity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Standard Error</td>
<td>Beta</td>
<td></td>
<td>Tol.</td>
</tr>
<tr>
<td>(Constant)</td>
<td>3.70</td>
<td>.16</td>
<td>-</td>
<td>22.06</td>
<td>.000</td>
</tr>
<tr>
<td>Mood</td>
<td>-.15</td>
<td>.03</td>
<td>-.21</td>
<td>-5.35</td>
<td>.000</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>-.19</td>
<td>.02</td>
<td>-.25</td>
<td>-6.96</td>
<td>.000</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>-.13</td>
<td>.02</td>
<td>-.19</td>
<td>-5.07</td>
<td>.000</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>.07</td>
<td>.02</td>
<td>.13</td>
<td>3.46</td>
<td>.001</td>
</tr>
</tbody>
</table>

To confirm the validity of the model, residual independence was analyzed. The Durbin-Watson $D$ was $=1.94$, which confirms absence of positive and negative self-correlation. Furthermore, it may
be observed how the $t$ was associated with a probability of error below .05 in all cases. The standardized coefficients reveal that the variable with the most explanatory weight was Agreeableness, followed by Mood. Finally, from the tolerance and VIF, absence of collinearity among the variables included in the model may be assumed.

3.2. The moderating effect of Mood on the predictive value of the dimensions of personality for Verbal aggressiveness

According to Hair, Anderson, Tatham, & Black [47], moderating relationships entered could modify interpretation of the regression coefficients. The coefficients of the effects of each of the independent variables (Agreeableness, Conscientiousness and Neuroticism), the moderating variable (Mood) and the interaction term on the dependent variable (Verbal aggressiveness) were estimated based on simple moderation models. The figures below present the simple moderation models proposed for their analysis.

![Simple moderation models proposed](image)

Figure 1. Simple moderation models proposed.

The results of Model 1 report a statistically significant effect of Mood ($B_{e,mood}=-.40$, $p<.01$) and Agreeableness ($B_{a,a}=-.32$, $p<.01$) on Verbal Aggressiveness. However, in this case, the coefficient of the interaction term is not significant ($B_{agree\times e,mood} = .04$, $p=.30$). Model 2, which takes Conscientiousness as the independent factor, had similar results: a statistically significant effect on Verbal Aggressiveness, both on the independent variable ($B_{c}=-.26$, $p<.05$), and the variable considered a moderator ($B_{e,mood}=-.35$, $p<.05$), but with no statistical significance on the interaction term coefficient ($B_{c\times e,mood} = .03$, $p=.38$).

In Model 3, the effect of Mood on Verbal aggressiveness is statistically significant ($B_{e,mood}=-.47$, $p<.001$), while the same is not true of the effect of Neuroticism ($B_{n}=-.16$, $p=.10$). However, in this case, the interaction term coefficient is significant ($B_{n\times e,mood} = .08$, $p<.01$), which shows that there is a moderating effect, where Mood conditions the effect of Neuroticism on Verbal aggression.

Then, using Pick-a-Point approach, the prediction of Neuroticism on Verbal aggressiveness was calculated for low, medium and high Mood. This shows the conditional effect of the independent variable on the dependent variable at different moderator strengths. Thus the results shown in Figure 1 suggest that the influence of the moderator variable comes about at medium ($B=2.95$, $p<.001$) and high ($B=3.58$, $p<.001$) Mood. This implies that the moderating effect of Mood takes place when it becomes medium-to-high.
Finally, the data found after application of the Johnson-Neyman technique makes it possible to establish a wider range of moderator values and specify its involvement in the effect the independent variable exerts on the dependent variable. That is, when does the effect of the moderator begin to be significant? Specifically, when the Mood score is greater than or equal to 2.50 (76% of the participants), Neuroticism induces a stronger tendency toward Verbal aggression.

4. Discussion

This study showed that for nursing professionals, the “Agreeableness”, “Conscientiousness” and “Openness to experience” factors maintain a significant negative relationship with the verbal aggressiveness communication style. On the contrary, it was found that the “Neuroticism” trait has a close relationship with this disruptive style of communication, negatively affecting the nurse-patient relationship [8, 9].

These results confirm what has previously been found in other studies suggesting that there is a close relationship between personality and verbal aggressiveness [20, 22, 23, 25]. For instance, Bolton et al. [21] showed that workers with low levels of “Agreeableness” and “Conscientiousness” and high in “Neuroticism” were more prone to use verbally aggressive language with their coworkers and clients. Similarly, Barlett & Anderson [24] demonstrated that “Agreeableness”, “Openness to experience” and “Neuroticism” are associated with a wide range of violent behavior.

The data from our study also show a negative relationship between verbal aggressiveness and “Mood”. These results confirm previous studies [28, 32], which have underlined the importance of adaptively regulating emotional information in social and work situations and avoiding aggressive behaviors. Along this line, it has been shown that positiveness and optimism are essential for interpreting potentially stressful situations more positively, especially in such emotionally and psychologically challenging professions as nursing [34, 35].

Moreover, our data have also revealed a significant positive relationship between “Mood” and all of the personality traits, except for the “Neuroticism” dimension, which it has a negative relationship with. These results are consistent with previous studies, such as the meta-analysis by O’Boyle et al. [31] who found that EI had a significant positive relationship with “Extraversion”, “Openness to experience”, “Conscientiousness” and “Agreeableness”, while it was the opposite with “Neuroticism”. Joseph et al. [30] emphasized the relationship between “Conscientiousness”, “Extraversion” and Neuroticism” with EI, as did Lui et al. [37], who demonstrated that “Mood” predicted wellbeing in individuals with high scores in “Extraversion”, “Agreeableness” and “Conscientiousness”.

Figure 2. Interaction between Neuroticism and Mood in predicting Verbal aggressiveness.
According to our moderation analysis, “Neuroticism” alone would not have a significant direct effect on verbal aggressiveness. However, it begins to be significant in interaction with “Mood”. In fact, “Mood” modulates the effect of personality on verbal aggressiveness more strongly as positivity and happiness increase. These results agree with previous studies where it was proposed that personality traits partially determine communication styles [7]. Therefore, emotionally unstable persons faced with stressful situations tend to develop a negative communication style. However, only those with a positive attitude will be able to buffer the negative effects of their personality trait on the way they communicate [29].

This study has important practical implications for the job context. The relationship between personality traits and aggressive verbal communication must be emphasized as well as the important effects EI has on this relationship. Because personality dimensions are considered relatively stable over time and consistent from one situation to another [7], organizations should hold workshops and other types of practical activities to train workers in communication skills and EI in order to promote employee health and that of their patients.

In like manner, the following limitations should also be considered. In the first place, the sample is made up of a majority of women, so the results may not be extensive to both genders. In the second place, the results cannot be generalized to the whole area of healthcare because the sample used is very specific, so it would be recommendable to enlarge the sample with other professionals. Finally, as the study design did not allow it to be established whether the relationships between the variables are stable over time, it would be interesting to carry out longitudinal studies to delve more deeply into the study of the influence of personality traits on communication style.

Future studies should widen the set of variables used in this one, that is, include aspects related to the characteristics and working conditions (e.g., work areas, shifts, type of patient), in addition to considering all the facets of Emotional Intelligence and including other personal constructs, such as self-efficacy, for example.

5. Conclusions

In recent decades, there has been an exponential increase in scientific publications in which nursing professionals and avoid risk factor from work activity have been the subject of study. This interest derives from the characteristics and job context where they carry out their functions, as well as the important consequences and effects that their behavior has on the wellbeing of the patients and the organization.

Our study was interested in evaluating the moderating effect of Mood on the relationship between personality and verbal aggressiveness. The “Agreeableness”, “Conscientiousness” and “Neuroticism” traits have a close relationship with aggressive verbal communication. Even though Mood moderates this relationship, it is only significant for those individuals with high scores in “Neuroticism”.

Author Contributions: M.M.M.J., M.C.P.F., A.B.B.M., M.M.S.M., and A.M.M. contributed to the conception and design of the review. J.J.G.L. applied the search strategy. All authors applied the selection criteria. All authors completed the assessment of risk of bias. All authors analyzed the data and interpreted data. M.M.M.J., M.C.P.F., A.B.B.M., M.M.S.M., and A.M.M. wrote this manuscript. M.C.P.F. and J.J.G.L. edited this manuscript. M.C.P.F. is responsible for the overall project.

Funding: This research received no external funding.

Acknowledgments: The present study undertaken in collaboration with the Excma. Diputación Provincial de Almería.

Conflicts of Interest: The authors declare no conflict of interest.
References


34. Carvalho, V.S., Guerrero, E., Chambel, M.J. Emotional intelligence and health students’ well-being: A two-way study with students of medicine, physiotherapy and nursing. *Nurse Educ Today* 2018, 63, 35-42. DOI: 10.1016/j.nedt.2018.01.010


42. Rammstedt, B., Kemper, C.J., Klein, M.C., Beierlein, C., Kovaleva, A. Big Five Inventory (BFI-10). *Zusammenstellung sozialwissenschaftlicher Items und Skalen*. 2014. DOI:10.6102/zis76


