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## Clinical Psychology

### Alexithymia in an unconventional sample of Forestry Officers: a clinical psychological study with surprising results

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#### Abstract

**Background:** Clinical psychological dynamics are known as effective in the onset of medical conditions. In this regard, alexithymia represents a well-recognized and analyzed phenomenon, whose study is attracting academic attention. Its relations with several conditions have found consistent resonance in the clinical fields, so that the application of clinical models to disregarded populations represents a relevant clinical opportunity. The current study was aimed at extending alexithymia study to a population consisting of State Forestry officers, including significant variables as age and years of tenure.

**Methods:** The observation group consisted of 59 State Forestry officers, aged between 48 and 67 years old (SD=3.436). All subjects fully completed the protocol, consisting of the Toronto Alexithymia Scale (TAS-20) and a sociodemographic questionnaire. Descriptive statistics, correlational analyses, dependencies and statistical differences were performed in order to let significant relations emerge. Statistical analyses were performed using SPSS 24.0 for the Window package.

**Results:** Descriptive statistics highlighted high scores related to all alexithymia factors (Difficulty Identifying Feelings, Difficulty Describing Feelings, Externally Oriented Thinking, TAS-20 Total score) in the considered individuals. Correlational analyses provided significant relations with reference to age, years of tenure and the whole set of alexithymic variables. Significant dependencies emerged among the selected predictors (age and years of tenure) and Tas-20 variables (including total score), as well as significant differences between two selected groups (<38 and >38 years of tenure).

**Conclusion:** Alexithymia emerged as particularly present in the considered population of State Forestry officers, demonstrating its sensibility with reference to age and years of tenure variables. The study of psychological phenomena affecting general subjects' condition represent an extension of a present research field of high innovativeness, considering the lack of knowledge referred to the selected sample. Further studies should increase the number of included individuals in order to favor the extension of the emerged results.

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## 1. Introduction

Current research is highlighting the central role of psychological dynamics in the onset of both physical and mental conditions (Callus & Pravettoni, 2018; Castelnuovo, 2010; Conversano, 2019; Conversano & Di Giuseppe, 2021; Espleta et al., 2020; Lenzo et al., 2021; Lyons, & Chamberlain Mackay, 2018; Martino et al., 2021a, 2021b; Merlo, 2019; Merlo et al., 2021; Rapelli et al., 2020; Shahar, 2021; Settineri, 2021). Among the psychological features occurring in line with the above-mentioned role, alexithymia represents a clear example (Goerlich, 2018; McDougall, 1982; Martin & Pihl, 1985; Myles & Merlo, 2021; Nemiah & Sifneos, 1970; Sifneos, 1996; Taylor, 1987; Taylor and Bagby, 2000; Tordeurs and Janne, 2000). As a multidimensional phenomenon, alexithymia represents the inability to distinguish affectivity, thoughts, feelings, physiological responses to environmental conditions and stimuli, supported by severe difficulties in recognizing and expressing feelings along with externally oriented thinking (Barchetta et al., 2021; Martino et al., 2020; Marty & M'Uzan, 1994; Nouemssi et al., 2021; Spencet & Boughner, 2020; Vita et al., 2021). Moreover, recent research considered alexithymia as a personality trait, so its role has been recognized as fundamental for the study of general personality structuring (APA, 2013; Heshmati, & Azmoodeh, 2017; Lumley et al., 2007; Mattila et al., 2009).

With particular reference to externally oriented thinking, well known as *pensée opératoire* in the psychosomatic field (Marty & M'Uzan, 1962), it has been recognized as an etiological factor in the onset of psychosomatic condition and chronic disease (Belugina, 2021; Cohen et al. 1994; Cupertino et al., 2017; Marty, 1991; Taylor & Bagby, 2021). Alexithymia has been found as a determinant factor in the emergence of several conditions (Conti et al., 2021; Ghorbani et al., 2017; Elander et al., 2021; Lanzara et al., 2020; Lumiet et al., 2018; Okanli et al. 2018; Panayiotou et al., 2021; Porcelly & Taylor, 2018; Tesio et al., 2018; Vicario et al., 2021), so that its study represents a consistent opportunity in terms of primary prevention (Kozlova & Brel, 2019; Zamariola et al., 2019).

Despite alexithymia has been studied in depth and with reference to a large number of conditions, some fields still need to be considered. One consistent field is represented by clinical issues related to State Police officers. In particular, recent contributions considered psychological well-being and general status of police officers (Edwards, 2019), but most of the focus was on post-traumatic stress and related disorders (Chung & Hunt, 2014; Cooper et al., 2020; de Timaty et al., 2008; Declercq et al., 2010; McCaslin et al., 2006) as well as crime and dysfunctional behaviors (Sifenos, 2000).

A few studies considered related professions, as in the case of green professions and foresters (Barun et al., 2019; Cooper et al., 2020; Freund et al., 2020; Ricciardi et al., 2018, 2021; Terhost et al., 2020; Thielecke et al., 2020), but research directly dedicated to alexithymia in Forestry Corps officers is missing. Italian State Forestry Corps is a national police agency (civil police force before 31 December 2016, military from 1 January 2017) fully dedicated to criminal investigation (typical police force) and protection of Italy's environment, natural resources, ecosystems, national parks and national forests control.

### **1.1 The current study**

The current study aimed at exploring the presence and the role of alexithymia in a sample of male State Forestry Officers. In order to access alexithymia and to evidence its role, directions, dependencies and possible prevalence between groups, the following hypotheses were formulated:

- the presence of alexithymia in State Forestry forces may represent a consistent phenomenon;
- there could be significant and positive correlations among alexithymia factors, age and years of tenure;
- age and years of tenure could represent predictors for the onset and the maintenance of alexithymia;
- there could exist significant differences between groups on the basis of years of tenure.

## **2. Method**

### **2.1 Procedure and participants**

The sample consisted of 59 healthy male subjects, aged between 48 and 67 years old (SD=3.436). All subjects were recruited on the basis of their work activities, so that the whole sample consisted of State Forestry Officers (*State Forestry Corps*, CFS, Italian State Police Agency, part of *Carabinieri's Comando unità per la tutela forestale, ambientale e agroalimentare* since 1<sup>st</sup> January 2017). The research was carried out at the University Hospital "G. Martino" of Messina, Italy, with the aim of exploring clinical psychological characteristics of the selected sample. Every participant fully completed the protocol, including sociodemographic characteristics (e.g. age and professional tenure) and the Toronto Alexithymia Scale (TAS-20). Data were collected including age and professional tenure. Before adhering to informed consent, each participant was informed about the anonymous nature of the methods of data processing, consistent with the 1964 Declaration of Helsinki and its later amendments.

## 2.2 Measures

The Italian version of the Toronto Alexithymia Scale (TAS-20) (Bagby et al., 1994; Bressi et al., 1996) was administered to assess alexithymia, together with a sociodemographic questionnaire including age and years of tenure. TAS-20 is a self-reported questionnaire comprising 20 items, which are scored on a five-point Likert scale and consists of three subscales representing three main features of the construct. Difficulty Identifying Feelings (DIF), including seven items, measures the difficulty in distinguishing between specific emotions and/or recognizing bodily sensations connected with emotional arousal. Difficulty Describing Feelings (DDF), including five items, indicates the inability to verbalize and express one's perceived emotions. Then, Externally Oriented Thinking (EOT), including eight items, suggests the tendency to operative thinking and to solve internal conflicts by external projection instead of focusing on emotional experience (Taylor et al, 2000). Total scores  $\leq 51$  points indicate no alexithymia, scores ranging from 52 to 60 denote possible alexithymia, whereas scores  $\geq 61$  classify the individual as alexithymic. The original version of the TAS-20 presented an internal consistency of .81 (Cronbach's  $\alpha$ ), reporting a three-factor structure accounting for 31% of the total variance, respectively difficulty in identifying feelings (.78), difficulty in describing feelings (.75) and externally oriented thinking (.66). In 1996 Bressi et al. published a cross validation of the TAS-20, performing the psychometric analyses on the basis of both clinical and non-clinical subjects; particularly, the  $\alpha$  coefficient scores obtained with the non-clinic sample were .75 for the total scale, .77, .67 and .52; the clinical sample scores were .82 for the full scale, .79, .68 and .54 for the three factors (Bressi et al., 1996). According to further studies, TAS-20 is considered as a well-structured and efficient instrument to assess alexithymia both in clinical and non-clinical samples (Caretto et al., 2011; Craparo et al., 2015). In the present study, the reliability of the subscales expressed through Cronbach's alpha was .73, .34 and .54 for DIF, DDF and EOT, respectively. Whereas, the reliability for the total scale was equal to .76.

## 2.3 Data analysis

Descriptive statistics were computed for the used measures. Specifically, the percentages of participants falling in the different TAS-20 ranges were calculated. Then, correlation analyses were performed to evaluate the associations of alexithymia (and its subscales) with age and professional tenure (Pearson's  $r$ ). Multivariate linear regression was used to assess each of the TAS-20 factors' dependences (including Difficulty Identifying Feelings, Difficulty Describing Feelings, Externally Oriented Thinking and TAS-20 Total score), on a set of independent predictors (Age, Professional tenure). The Student's  $t$  test compared professional tenure groups ( $<38$  and  $>38$ ), referring to Difficulty Identifying Feelings, Difficulty Describing Feelings,

Externally Oriented Thinking and TAS-20 Total score. Statistical analyses were performed using SPSS 24.0 for the Window package. A  $p$ -value smaller than 0.050 was considered to be statistically significant.

### 3. Results

In Table 1, the descriptive statistics of the used measures are reported.

**Table 1.** Descriptive Statistics

	Age	Professional tenure	DIF	DDF	EOT	TOT
Mean	60.08	40.29	28.19	18.27	27.59	74.05
Std. Deviation	3.436	3.353	5.090	3.226	3.856	9.166
Minimum	48.00	29.00	10.00	8.000	17.00	36.00
Maximum	67.00	46.00	34.00	23.00	34.00	87.00

Descriptive statistics highlighted the presence of high scores of alexithymia in the considered sample of subjects. Regarding the different ranges of the TAS-20 total score, 94.9% of participants was classified as alexithymic (scores  $\geq 61$ ), whereas only 5.1% as not alexithymic with  $\leq 51$  points. There were no participants falling in the 52-60 score range suggesting possible alexithymic traits.

**Table 2.** Correlations of TAS-20 scores with age and professional tenure

		Age	Professional tenure
Difficulty Identifying Feelings	Pearson's r	0.523	0.325
	$p$ -value	<b>&lt; .001*</b>	<b>0.012*</b>
Difficulty Describing Feelings	Pearson's r	0.275	0.155
	$p$ -value	<b>0.035*</b>	0.240
Externally Oriented Thinking	Pearson's r	0.318	0.305
	$p$ -value	<b>0.014*</b>	<b>0.019*</b>
TAS-20 Total score	Pearson's r	0.521	0.364
	$p$ -value	<b>&lt; .001*</b>	<b>0.005*</b>

\* $p < 0.05$ . Bold values were significant values

As reported in Table 2, age positively correlated with both TAS-20 subscales and total score. High correlations were especially found with DIF and the overall alexithymic traits. Regarding professional tenure, positive medium-sized associations emerged with DIF, EOT and TAS-20 total score but not with DDF. In order to deepen possible causal relations among the above

reported variables and considering the number of subjects involved in the present study, regression analyses were performed (Table 3).

**Table 3.** Multivariate linear regressions analysis

	Age		Years of tenure	
	B(CI)	<i>p</i>	B(CI)	<i>p</i>
Difficulty Identifying Feelings	.701 (.301/1.101)	<b>.001*</b>	.105 (-.305/.515)	.610
Difficulty Describing Feelings	.25 (-.034/.544)	<b>.043*</b>	.006 (-.290/.302)	<b>.006*</b>
Externally Oriented Thinking	.285 (-.047/.617)	.091	.166 (-.174/.507)	.332
TAS-20 Total score	1.241 (.520/1.962)	<b>.001*</b>	.278(-.461/1.016)	.455

\* $p < 0.05$ . Bold values were significant values

Table 3 reports the values emerged with reference to regression analyses, involving Age and Years of tenure as predictors and TAS-20 factors (including total score) as dependent variables. Age appeared to be a predictor of alexithymic components' higher scores. DIF, DDF and Tas-20 total score explained statistically significant dependencies according to the reported values. Referring to Years of tenure, the only significant dependence was referred to Difficulty in describing feelings.

**Table 4.** Comparisons between groups

	<38 years	>38 years	<i>p</i> value
Difficulty Identifying Feelings	25,875 $\pm$ 3,403	28,232 $\pm$ 3,803	<b>.001*</b>
Difficulty Describing Feelings	17,062 $\pm$ 4,024	18,720 $\pm$ 2,7973	.079
Externally Oriented Thinking	24,687 $\pm$ 5,963	29,348 $\pm$ 4,023	<b>.034*</b>
TAS-20 Total score	67,625 $\pm$ 9,763	76.302 $\pm$ 7.741	<b>.001*</b>

\* $p < 0.05$ . Bold values were significant values

Student's T test was used in order to highlight the existence of possible differences between years of tenure groups (<38 years and >38 years) with reference to alexithymia. As showed in Table 4, most of the values were significant. Significant differences emerged with reference to DIF, EOT and Tas-20 total score, showing high mean values in older subjects.

#### 4. Discussion

The current study aimed at highlighting the presence, the role and the relations of alexithymia in a population of State Forest officers. Through a comprehensive literature review a lack of knowledge in this particular population emerged.

The presence of high levels of alexithymia emerged through methods, so that it was possible to notice how most of the subjects presented high levels of alexithymia. In particular the overall score of alexithymia appeared to be consistent, over the threshold suggested by validation studies (with direct reference to Tas-20 in both English and Italian versions). High scores of alexithymia have been found in different populations, so that it was possible to compare the emerged scores with three main domains related to physical outcomes (e.g. psychosomatics, hence dermatological, cardiovascular, gastrointestinal functional/structural outcomes; Baysak et al., 2020; Grandi, S et al., 2001; kano et al., 2018, 2020; Picardi et al., 2000; Porcelli, 1999; Settineri et al., 2019; Vadini et al., 2019).

In line with this result, other studies evidenced the presence and the role of alexithymia in the general onset of physical conditions, plus metabolic syndromes and specific conditions (Aluja et al., 2020; Biolcati et al., 2018; Colic et al., 2016; Craparo et al., 2018, 2020; Fantinelli et al., 2019; Kajanoja et al., 2019; Karukivi, 2016; Lemche et al., 2014; Lumiet, 2006; Martino et al., 2019; Stingl et al., 2018).

Regarding age and years of tenure, these two independent variables appeared to be consistent in terms of dependences and assumed directions. Starting from correlations, all relationships appeared as significant, rather than professional tenure in its relation with difficulty in describing feelings. Age emerged as positively consistent with all alexithymia variables, suggesting how aging assumed the same direction of alexithymia increase. These directions are well supported in literature, both in clinical and neuroscientific terms (Colesso, 2012; Orrù et al., 2020, 2021; Correro et al., 2021; Ihme et al., 2013; Marchetti et al., 2019; Marchi et al., 2019; Onor et al., 2010; Paradiso et al., 2008; Safara & Salmabadi, 2021; Tartaglioni et al., 2020; Yuruyen et al., 2017). With reference to years of tenure, the obtained results suggested positive and significant relations with alexithymia. Through a comprehensive review of the literature, it is possible to notice how current and past literature report items more related to pathological outcomes than to alexithymia itself (De Vente et al., 2006; Larsson et al., 2010; Saeidi et al., 2020). Particularly, alexithymia appears to be related to psychopathological outcomes such as burnout, activity-related stress, secondary traumatic stress, PTSD (Agustin et al., 2020; Carmassi et al., 2014; Franco et al., 2021; Mattila et al., 2007; Riethof et al., 2020). More attention on prevention should be paid, since a consistent lack of knowledge emerged.

In order to deeply study the emerged directions through correlational analysis, to confirm them and to find possible causal relations, linear regression were performed. In line with the above-mentioned correlations, significant dependences were obtained. Age and years of tenure served as consistent predictors, demonstrating causal relation with alexithymia. Accordingly to the current state of the art, age and years of activity assume a central role in the psychological

functioning of individuals. Along with causal relations, significant differences in alexithymia expression were found, with higher scores in subjects of major experience.

Finally, the present study represented an opportunity to throw light onto unknown phenomena and relations emerge. The role of alexithymia was confirmed by high presence in terms of scores and relations with relevant predictors. Moreover, further studies are required in other geographical areas of northern and central Italy to compare the presence and levels of alexithymia in different populations of State Forestry Officers.

## **Conclusions**

The current study highlighted high scores of alexithymia in a population of State Forestry officers, together with significant directions and causal relations with relevant variables such as age and years of tenure. The clinical significance of the emerged results consists of clear indications in the field of further research, prevention and specific interventions. The role of alexithymia in the onset of physical and mental conditions highlights the need to deepen knowledge and subsequent strategies useful for the decrease of dysfunctional patterns. The strengths of the study consist of its innovativeness, along with denotation of a consistent lack of research in the field and the use of a well-known and psychometrically strong instrument. Despite the research highlighted significant results, some limitations are present. First, the number of included subjects was low, constituting difficulties in the extension of results to other populations. Hence, subsequent research should improve the extent of the number of included individuals and widen the analysis to female subjects. In this regard, the present clinical psychological research represented a first step analysis based on a set of relevant dynamics in a disregarder population.

## **Author contributions**

SG made significant contribution to the design of the research study and drafting of the manuscript. LR gave significant contribution to the draft part of the manuscript. AC performed statistical analysis and provided the interpretation of data. CG and GS provided significant contribution in participants' recruitment and drafting part of the manuscript. FF provided contribution to the draft part of the manuscript. GM made significant contribution to the design of the research study, drafting of the manuscript, interpretation of the data and critically revised the manuscript. All the authors gave their final approval of the manuscript to be submitted.

## **Conflict of Interest Statement**

The authors declare that the research was conducted in the absence of any potential conflict of interest.



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