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Predicting Psychological Well-Being from Thinking Styles and Alexithymia among Employees

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ABSTRACT

Objective: This study investigated the extent to which thinking styles and alexithymia predict psychological well-being among gas company employees.

Methods and Materials: In a cross-sectional survey, 128 employees of a provincial gas company in Iran were selected through convenience sampling. Participants completed three validated self-report instruments: the Thinking Styles Inventory, the 20-item Toronto Alexithymia Scale, and the 18-item Ryff Psychological Well-Being Scale. Data were analyzed in SPSS 24 using Pearson's correlation coefficients and stepwise multiple regression; statistical significance was set at $p \leq 0.05$, and all assumptions for regression analysis were checked and met.

Findings: Correlational analyses showed that judicial thinking style was positively associated with psychological well-being, whereas liberal, extroverted, hierarchical, oligarchic, and monarchic styles were negatively associated with well-being. All three alexithymia components—difficulty identifying feelings, difficulty describing feelings, and externally oriented thinking—showed moderate negative correlations with psychological well-being. In the final regression model, difficulty describing feelings, liberal, local, and conservative thinking styles, difficulty identifying feelings, and externally oriented thinking together explained 39% of the variance in psychological well-being ($R^2 = 0.39$, $p<0.001$).

Conclusion: Both cognitive preferences (thinking styles) and emotional processing difficulties (alexithymia) are significant correlates and predictors of employees' psychological well-being. Interventions aimed at enhancing awareness and expression of emotions, alongside better alignment between job demands and employees' thinking styles, may help organizations foster higher levels of psychological well-being and, in turn, improve performance, engagement, and long-term staff retention across different organizational units and locations.

Keywords: Psychological well-being, thinking styles, alexithymia, employees, workplace mental health.

Introduction

It is common knowledge that positive mental toughness plays a vital role in today's work environment. Statistics from the mental health field show that a high price is paid for these benefits. In the United States alone, work-related mental health problems are reported to be the leading cause of death for about 120,000 people annually. Approximately 5-8% of the healthcare budget is spent annually on these problems (Katsiferis et al., 2022). However, the damage caused by declining indicators of employee mental health is not limited to employee health; it also reduces engagement (Jason & Erving, 2022) and productivity of the organization and lowers the overall performance of the organization (Dughera, 2022; Shalaka, 2025). For this reason, promoting employees' mental well-being and health has become a top priority for organizations in recent years.

Psychological well-being can mean happiness, joy, and positive feelings in life (Fan, 2016). This multidimensional concept includes autonomy, purposeful living, personal growth, positive relationships, self-acceptance, and mastery of the environment, so improving these components creates a sense of personal satisfaction and happiness in realizing inner potential and living a meaningful life (Wagner et al., 2020). The results of various studies to determine the interactions between psychological well-being and various aspects of people's lives, including work life, show the direct and indirect effects of psychological well-being on employee performance in the organization (Greenier et al., 2021; Shanafelt et al., 2019) and the improvement of employee engagement at work and in the organization (Bakytbekovich et al., 2023; Rasool et al., 2021).

The importance of psychological well-being for organizations underscores the need to study the individual components that influence it, such as emotional and cognitive variables. One variable related to well-being is the appropriate expression of feelings. It is common for professionals to experience a wide range of emotions while performing their work. Of course, the genuine expression of these emotions in the workplace can have detrimental financial, prestige, and performance consequences for organizations (Shuck & Reio Jr, 2014). For this reason, companies try to provide employees with an environment in which they can express their emotions and feelings to a limited extent, within the company's professional norms, or suppress them altogether (Gyu Park et al., 2017). As a result, employees' pressure to regulate their emotions adversely affects their psychological well-being and physical health (Rama et al., 2025; Zapf, 2002). In addition, a person may develop alexithymia in response to severe stress and unbearable feelings (Obeid et al., 2019). In addition, researchers have found that difficulties in recognizing and expressing emotions, distinguishing feelings from bodily sensations, describing feelings, and engaging in objective thinking are the main symptoms of alexithymia (De Berardis et al., 2020; Mahapatra & Sharma, 2018). These symptoms impair the person's social skills and lead to problems establishing and maintaining interpersonal relationships. Therefore, the person's well-being is likely to be impaired and to decrease in such a case. Research showed a significant negative relationship between alexithymia and life satisfaction (Yüksel et al., 2022; Zhang et al., 2021) and psychological well-being (Vredeveld, 2021; Zhang et al., 2021).

In addition to feelings, how people consider the issues and their thinking style can also affect their psychological well-being (Johnson et al., 2017). One's preferred method of processing information and how one uses one's abilities reflect a person's unique thinking style. Most people have a particular way of thinking, although this tendency may vary depending on the situation and task. The different styles are not superior to each other. Each person has a profile of developed styles shaped by factors such as culture, gender, genetics, education, and occupation (Orm et al., 2021; Rogers et al., 2019). In the theory of mental self-management, Sternberg described 13 thinking styles, grouped into five dimensions: Functions, Forms, Levels, Domains, and Propensities (Sternberg, 1988). Based on experimental data, Sternberg classified thinking styles into three new categories. The first category, the generator of creativity and innovation, has greater cognitive complexity. This category includes legal styles (evaluating people, objects, and situations), legislative styles (being innovative and creative), hierarchical styles (setting priorities), liberal styles (new approaches to performing tasks), and global styles (comprehensive overview of problems)(Liu et al., 2022).

In contrast to the first thinking style, the second category tends to follow norms, indicating a lower level of cognitive complexity. It includes the styles conservative (getting things done using traditional methods), local (focusing on specific and individual details), monarchical (focusing on only one task at a time), and executive (performing functions in a prescribed manner). The third category includes the styles oligarchic (doing several things at once without setting a specific priority), anarchic (getting the job done without setting priorities), extroverted (liking to work with others), and introverted (working more individually). Depending on the situation, such individuals may use the characteristics of the first and second categories. For example, a person may be interested in collaborating with others (extroverted thinking style), have a legal thinking style (belonging to the first type of thinking style), or have a conservative style (belonging to the second type of thinking style) to perform the activity (Zhang & Higgins, 2008). Research has shown how thinking styles, as cognitive preferences, affect emotions and behavior (Ciarrochi et al., 2007). According to studies about psychological well-being components such as self-esteem and autonomy, the first thinking style has higher levels of self-esteem and independence than the second (Ciarrochi et al., 2007; Sarmah et al., 2022). Also, some research indicates a positive and significant relationship between psychological well-being and extroverted, liberal, legal, and hierarchical thinking styles (Páez et al., 2013; Wissing & Temane, 2008). In contrast, some studies found no significant difference between global and local thinking styles and individuals' psychological well-being (Hammad & Awed, 2023). Therefore, it can be assumed that there is a relationship between people's thinking styles, mental health, and psychological well-being (Lu et al., 2022).

Employers who care about employee retention and performance prioritize their employees' psychological well-being and mental health. As one of the most important subdivisions of the gas supply pipeline, the gas company provides services to gas consumers. Given the sensitive nature of the company's relationship with gas consumers, many parts of its organization must remain operational 24 hours a day, seven days a week, without interruption. Due to this volume of activities, employees may experience considerable psychological stress. The problem and the importance of addressing employees' psychological well-being highlight the need to recognize and address their psychological characteristics to improve this organization's health and well-being. Furthermore, providing employees with support processes that make them feel valued by the organization can positively impact their feelings and perceptions and, ultimately, improve their quality of life at work. Additionally, it provides a comprehensive view of organizational decision-makers, formulates macro-organizational strategies, implements them over time, and increases their momentum in adapting to changing circumstances as individual characteristics and social and environmental influences are updated.

In conclusion, based on the literature reviewed, studies on the relationship between thinking styles, alexithymia, and psychological well-being have not been directly applied to the sample of workers. Second, none of the studies simultaneously examined the relationship between different thinking styles in individuals and alexithymia and its impact on psychological well-being. Therefore, the present study's question is: to what extent do thinking styles and alexithymia affect the psychological well-being of gas company employees?

Methods and Materials

The study has been designed as a cross-sectional study to collect data. The STROBE checklist for cross-sectional studies was followed to improve methodological rigor. It is worth noting that in 2020-2021, the statistical population comprised gas company employees. Using self-report tools and convenience sampling, 130 employees participated in this research. Participants were not required to write their names on the survey, and participation in the study was completely voluntary.

Measures

Demographics

This study analyzed participants' sociodemographic characteristics.

Thinking Styles Inventory (TSI): This is a 104-item scale that was developed in 1991 according theory of mental self-government; the TSI is a self-report Likert scale questionnaire in which respondents rate themselves on a 7-point scale, ranging from 1 (not at all well) to 7 (extremely well), describing the way they normally carry

out their tasks (Sternberg, 1988). The twenty-four items fully represent these three thinking styles. Eight items constitute one scale, each assessing a style. The participant can score a maximum of seven and a minimum of one for each item (Zhang, 2000). The present study employed the Persian version of the inventory. Its Cronbach's alpha was reported to be 0.83 in Iran (Najafian & Sedighi, 2016). In the present study, Cronbach's alpha was .75

Toronto Alexithymia Scale: A 20-item self-report measure of alexithymia. The items are rated on a Likert scale from 1 (strongly disagree) to 5 (strongly agree). The three factors include identifying feelings, describing feelings, and externally-oriented thinking (Bagby et al., 1994). Internal consistency of the scale, as measured by Cronbach's alpha, for the total score and three subscales has been reported at 0.85, 0.82, 0.75, and 0.72, respectively. The test-retest reliability among 67 samples with a 4-week interval ranged from r = 0.80 to r = 0.87. At the same time, the correlations among the subscales of emotional intelligence (r=0.80), psychological well-being (r=0.78), and psychological helplessness (r=0.44) confirmed the construct validity (Khosravani et al., 2021).

Ryff's Psychological Well-Being Scale (PWBS): Ryff (1989) developed this scale in 1989 to evaluate the six components of individuals' psychological well-being (Ryff, 1989). The short form of this questionnaire consists of 18 items that measure six subscales: self-acceptance, positive relationships with others, autonomy, mastery of the environment, purpose in life, and personal growth, on a six-point Likert scale (1=strongly disagree to 6=strongly agree). Cronbach's alpha coefficients for the six factors of self-acceptance, environmental mastery, positive relationship with others, purpose in life, personal growth, and autonomy are 0.51, 0.76, 0.75, 0.52, and 0.73, respectively (Ryff & Keyes, 1995). In Iran, the reliability of the PWBS has been reported at 0.75 using Cronbach's alpha method (Dehnavi et al., 2015).

After arranging a meeting with the company, the researchers met with the Company. In the next step, after a briefing to clarify the research objectives and obtain participants' consent, the questionnaires were provided to personnel willing to participate in the research. Data were analyzed by using SPSS Statistics version 24.

Findings and Results

A total of 128 questionnaires were required for analysis. The mean and standard deviation of the participants' ages were 38.48 and 6.93, respectively, and the age range was 26 to 59 years. In terms of education, 4 participants (3.1%) had a diploma, 7 participants (5.5%) had a postgraduate degree, 72 participants (56.3%) had a bachelor's degree, 42 participants (32.8%) had an MA degree, and 3 participants (3.2%) had a doctoral degree.

Table 1

Correlation analysis of predictor variables and psychological well-being

No.	Variable	Mean	SD	psychological well-being
Thinking styles	local	37.88	6.353	-0.17
	Judicial	45.95	5.384	0.24**
	Legislative	41.79	7.626	0.13
	Executive	44.89	6.332	-0.17
	Liberal	46.87	5.700	-0.32**
	Extrovert	47.84	5.660	-0.24**
	Hierarchical	44.59	4.642	-0.18*
	Global	35.75	7.946	0.08
	Conservative	34.71	8.640	-0.13
	Introverted	28.79	8.415	-0.14
	Anarchic	35.82	6.452	-0.059
	Oligarchic	31.31	7.890	-0.28**
	Monarchic	33.90	6.353	-0.19-
Alexithymia	Difficulty in recognizing feelings	14.40	4.474	-0.42**
	difficulty in describing feelings	11.53	3.423	-0.44**
	externally-oriented thinking	19.99	3.198	-0.39**

*Source: research findings *=p<0.05 **= p<0.01*

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The results of Table 1 show a positive and significant relationship between judicial thinking style and psychological well-being. There is also a significant negative correlation between liberal, extroverted, hierarchical, oligarchic, and monarchic styles with psychological well-being. Regarding the alexithymia scale, all three subscales, namely difficulty in recognizing feelings, difficulty in describing feelings, and externally-oriented thinking, have a relatively strong negative and significant relationship with psychological well-being.

Stepwise multiple regression was used to predict employees' psychological well-being based on alexithymia components and thinking styles.

Table 2

The predictive effect of alexithymia components and thinking styles on the adjusted psychological well-being index

	B	S.E	Beta	T	P	R	R2	F	P
Fixed value	87.148	7.217		12.075	0.001				
Difficulty in describing feelings	-.594	.216	-.255	-2.749	0.001				
Liberal	.483	.115	.345	4.210	0.001				
Local	-.380	.108	-.302	-3.500	0.001	0.63	0.39	12.93	0.001
Conservative	.242	.082	.262	2.962	0.004				
difficulty in identifying feelings	-.353	.160	-.198	-2.204	0.019				
Externally-oriented thinking	-.457	.211	-.183	-2.171	0.032				

Note: *Source= research findings*

The results of the final step of the stepwise regression, after six steps, in Table 2 show that the predictor variables together explain 39% of the variance in the adjusted index of psychological well-being. The results of the analysis of variance for the predictive model of the adjusted index of psychological well-being indicated that at least one predictor variable had a significant effect ($p<0.001$). Difficulty in describing feelings (t= -2.74, B= -0.25), liberal style (t = 4.21, B= 0.34), local thinking (t= 3.50, B= -0.30), conservative thinking style (t=2.96, B= 0.26), difficulty recognizing feelings (t= -2.20, B= -0.35), and externally oriented thinking (t= -0.217, B= -0.18) have a significant predictive effect on the index of psychological well-being.

Discussion and Conclusion

This study aimed to examine the relationships among different thinking styles, components of alexithymia, and psychological well-being among workers. Companies' attention to employees' psychological well-being can significantly increase workforce performance, productivity, and loyalty, and improve employees' health and satisfaction in their personal and professional lives (Armaou et al., 2020). The results suggest a significant relationship between six thinking styles and psychological well-being .

Stepwise multiple regression analysis indicated a positive and significant relationship between legal thinking style and psychological well-being. Also, there was a significant negative correlation between psychological well-being and liberal, extrovert, hierarchical, oligarchical, and monarchical thinking styles. These results suggest that a preference for a legal thinking style in task completion is associated with higher levels of psychological well-being. In contrast, a preference for liberal, oligarchic, extroverted, hierarchical, and monarchical thinking styles is associated with lower psychological well-being, consistent with previous research (Costa & Botelheiro, 2021). The relationship between liberal, oligarchic, extroverted, hierarchical, and monarchical styles and psychological well-being aligns with the literature (Morales-Rodríguez et al., 2020; Páez et al., 2013). Nevertheless, as Foody et al. (2019) suggest, there is no significant relationship between global style and psychological well-being.

To explain the results, characteristics such as analyzing goals, formulating strategies, making decisions, and making logical comparisons are hallmarks of legal thinking (Govindan et al., 2020; Mendoza & Martins, 2006). It pertains to analyzing life plans, evaluating the environment to make the best decisions, and determining the right strategy to promote personal

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growth and, ultimately, achieve psychological well-being (Smith & Ulus, 2020).

Sternberg's analysis can explain the inverse relationship between liberal, monarchical, hierarchical, oligarchical, and extroverted thinking styles and psychological well-being (Sternberg, 1988). Sternberg considered people who prefer a liberal thinking style as creative, seeking new ways to solve problems and challenging traditions and practices. Although these characteristics have positive functions, they can also lead to difficulties (Zhu & Zhang, 2011). For example, stepping out of one's comfort zone is often stressful; trying the unknown may ultimately lead to failure, and breaking traditions or challenging standard norms and practices may lead to exclusion and isolation (Balkis & Isiker, 2005); these problems may be associated with lower psychological well-being.

As for the monarchical thinking style, we can also refer to its importance of focusing on a single activity until it is completed. Usually, these people prefer to address the general aspects of an issue rather than its details (Güner & Erbay, 2021). This can lead to neglecting other vital aspects and reducing the dominance of peripheral events around them. At the same time, focusing exclusively on a short-term problem may divert attention from more distant goals and broader horizons. In addition, people with a monarchical mindset are more inclined than others to view problems and criticism as personal matters (Benson & Standing, 2002; Saini et al., 2022). This may affect the quality of their relationships with others.

A negative and significant relationship between hierarchical thinking style and psychological well-being may seem unexpected, as when adequately prioritized, such people often allocate the most time and resources to the most important things and can successfully manage stress and time (Jun, 2018). However, this does not necessarily mean that high-priority tasks lead to better psychological well-being for the individual. For example, for an individual for whom work is always a higher priority than family and friends, work-family conflicts are very likely. They may even affect the quality of their job tasks and well-being in the long run (Lin et al., 2022).

In contrast to the hierarchical thinking style, individuals with an oligarchical thinking style perform their work without adhering to specific hierarchies, instead distributing available resources equally and simultaneously (Zollo et al., 2021). On the other hand, in a situation with unlimited time and resources, distinguishing between individuals with either of these thinking styles is not easy (Sternberg, 1988). However, because resources for many problems are limited, ignoring urgent problems can make completing the task stressful and anxious. Finally, wasting opportunities and resources can lead to feelings of failure and inadequacy (Kloutsiniotis et al., 2022; Rees et al., 2015).

A person with an extroverted thinking style successfully communicates with others and willingly collaborates as a team member with high social sensitivity. They use relationships with others as their primary means of obtaining information. However, in many cases, these individuals rely too heavily on the opinions or approval of others to make decisions (Zollo et al., 2021). In some cases, a lack of recognition from others may lead to low self-confidence and self-acceptance (Stoll et al., 2020). About the second hypothesis about the relationship between alexithymia and psychological well-being, stepwise regression analysis suggests the presence of relatively strong negative and significant relationships between all three components of alexithymia, namely difficulty identifying feelings, difficulty describing feelings, and externally oriented thinking, and psychological well-being. However, the results of this study are consistent with the findings of other studies in this area (Thorberg et al., 2020; Warchoł-Biedermann et al., 2022).

It can be concluded that alexithymia is negatively and significantly associated with individuals' psychological well-being. Characteristics such as an impaired initial understanding of emotions and feelings, and an inability to express them to others, may adversely affect their interpersonal relationships and limit their communication. On the other hand, their primary goals and life meanings may be influenced by their externally oriented thinking and impaired imagination, thereby overshadowing their psychological well-being. Finally, hierarchical regression results showed that alexithymia and the liberal, local, and conservative thinking styles accounted for 39% of the variance in the adjusted index of psychological well-being. In addition, it is hypothesized that the liberal and conservative thinking styles are likely better predictors than other variables because of their positive relationship with psychological

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well-being. These results support the view that a liberal thinking style is correlated with psychological well-being and is a good predictor of it. Attention to employees' thinking styles in organizations can significantly influence people's job design and employment. Since work tasks are related to people's thinking styles, we can expect an increase in well-being. Emotional components can also influence well-being. Therefore, it is suggested that organizations identify individuals' dynamic characteristics to pave the way for improving their mental health. Strategies such as providing appropriate training or, if necessary, referring individuals to counseling and psychotherapy centers can prevent psychological harm to individuals and potential negative consequences for the company.

Every research has its limitations. Due to the cross-sectional design and self-report measures, the results were limited, and causal relationships between variables could not be determined. The statistical population of the present study comprised employees of Hormozgan Province Gas Company. Although there is no evidence of differences between them and other workers, caution should be exercised when generalizing the results to other populations. Accordingly, it is suggested that researchers use experimental and longitudinal studies in their future research to obtain more stable results. It is also recommended that factors such as marital status, work-family conflict, ethnic subcultures, personality type, etc., could be considered differences in the socio-cultural context. Similar studies should be conducted in other provinces to provide a basis for consistency in research findings. The results indicate that decreased psychological well-being has significant negative consequences at the individual and organizational levels. Therefore, managers and decision-makers are recommended to implement strategies to reduce alexithymia in employees, identify their employees' thinking styles, and sufficiently consider their impact on psychological well-being.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

This article is based on a research project between Gas Company and Shahid Beheshti University, which the Research and Technology Office of Shahid Beheshti University approved (IR.Shahid Beheshti. REC 419153, 2021/10/22). Research procedures involving humans were conducted in accordance with the National Research Committee's ethical standards, the Helsinki Declaration of 1964 and its revisions, or equivalent norms. A consent form was also obtained online before data collection began, and participants could participate in the research and provide information or withdraw.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contribute to this study.

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