

Developing And Standardizing A Catastrophic Thinking Scale For Staff In Physical Education And Sports Science Colleges

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Abstract

Objectives. This study aimed to develop and standardize a catastrophic thinking scale for employees in colleges of physical education and sports sciences.

Materials and Methods. A descriptive survey design was used. The population comprised 180 employees. Participants were selected purposively: 100 employees for scale development, 10 for a pilot test, and 70 for standardization (total sample = 52.396% of the population). Data were collected by administering the developed scale across these stages to support the standardization process.

Results. The scale items and themes were clear and relevant to employee work-related issues. Findings indicated that continuous work pressures may contribute to fragmented catastrophic thinking. Overall, the scale demonstrated the capacity to measure catastrophic thinking among employees in a broader and more comprehensive way than previously assumed. The results also emphasized the need for greater attention to employee well-being, as occupational stress can foster catastrophic and unbalanced thinking that may affect work performance.

Conclusions. The catastrophic thinking scale is ready for use in assessing employees in physical education and sports sciences colleges. Regular monitoring and periodic studies are recommended to better understand catastrophic thinking and support employee well-being. Future research should apply the scale to different samples to strengthen its usefulness and expand evidence for its implementation.

Keywords: Catastrophic Thinking; Scale Development; Scale Standardization; Physical Education Staff; Sports Science Colleges

Introduction

Psychological factors have a substantial influence on individuals' behavior and work performance, and one cognitive pattern that can be particularly harmful in occupational settings is catastrophic thinking—a negative style of thinking marked by excessive fear, pessimism, and the expectation of worst-case outcomes. Individuals with catastrophic thinking may overestimate danger in everyday situations (e.g., believing a minor symptom will become a serious illness), which can lead to persistent anxiety, reduced concentration, and decreased productivity (Birrre & Morgan, 2010; Didymus et al., 2021; Kyambade et al., 2024). In workplace settings, this cognitive distortion can weaken discipline, increase

distraction, and ultimately impair job performance (Afzal & Torralba, 2024; Akdeniz, 2024). The urgency of addressing this issue is increasingly evident because unmanaged catastrophic thinking can quietly escalate work stress, reduce well-being, and compromise service quality and organizational effectiveness, especially in higher-education environments where employees often face continuous deadlines, complex administrative demands, and high performance expectations (Adewale et al., 2024; Didymus et al., 2021; Hakim et al., 2023). Recent psychological and occupational studies have highlighted the relationship between maladaptive thinking patterns and work stress, well-being, and performance outcomes; however, within colleges of physical education and sports sciences, catastrophic thinking remains difficult to identify and measure due to the absence of a population-appropriate standardized scale (Aiken, 1985; M. Dhanabhakym & Sarath M, 2023; MacNamara et al., 2010). This practical gap limits institutions' ability to conduct early detection, map risk levels, and design targeted support or intervention programs based on accurate evidence. The novelty of the present study lies in developing and standardizing a catastrophic thinking scale specifically tailored to employees in colleges of physical education and sports sciences, with item content reflecting their real work context and organizational demands, thereby providing a validated tool that can distinguish varying levels of catastrophic thinking and strengthen future research and evidence-based workplace interventions. Accordingly, this study focuses on employees working in colleges of physical education and sports sciences, with data collection conducted from October 1, 2025, to January 3, 2026, in selected southern governorates (Abduh et al., 2024; Ahmed & Al Salim, 2024).

Materials and Methods

Study Participants.

The research adopted a descriptive survey approach to develop and standardize a catastrophic thinking scale for employees in colleges of physical education and sports sciences. The study population included 180 employees from these colleges, and participants were selected using purposive sampling (Sugiyono, 2017). The sample was distributed across the scale-development stages as follows: 100 employees for scale construction, 10 employees for the pilot test, and 70 employees for standardization. Overall, the total sample represented 52.396% of the population. Participants were recruited from colleges located in selected southern governorates during the period October 1, 2025 to January 3, 2026.

Study organization.

Data collection relied on multiple tools, including expert interviews, relevant Arabic and English references, and online resources. The main instrument was the Catastrophic

Thinking Scale for Employees, constructed through a structured process. First, the phenomenon of catastrophic thinking was defined theoretically, and the objective of the scale was specified (measuring catastrophic thinking among employees). Second, a theoretical framework guided the identification of the scale dimensions. Third, the proposed dimensions were presented to experts in sports psychology, measurement, and management to evaluate content coverage and clarity; a 75% expert agreement threshold was used to retain dimensions. Fourth, scale items were drafted for each dimension and formatted using a five-point Likert response (Strongly Agree, Agree, Sometimes, Disagree, Strongly Disagree), including positive and negative statements. Fifth, items were reviewed by experts for logical suitability and revised where needed. The scale was then administered in a pilot test (December 2, 2025) to confirm clarity, feasibility, and time required for completion. After refinement, the scale reached its final form with 25 items across five axes: cognitive bias, uncertainty, ethics of anticipation, emotional influences, and conspiracy theories.

Statistical analysis.

All analyses were performed using SPSS (version 23). Item quality was examined using item discrimination by comparing upper and lower groups (27% highest vs. 27% lowest scores) with independent-samples t-tests ($p < 0.05$). Item–total correlations and axis–total correlations were calculated using Pearson’s correlation coefficient to assess internal consistency and construct alignment ($p < 0.05$). Reliability was evaluated using Cronbach’s alpha and the split-half method, with Spearman–Brown correction applied. Scoring procedures were based on a five-point system for positive (5–1) and negative (1–5) items, and final results were prepared using raw and standardized scoring as part of the standardization process.

Results

Standard Scores and Norm Levels of the Employees’ Catastrophic Thinking Scale

To establish normative interpretations for the Employees’ Catastrophic Thinking Scale, raw scores were converted into **standardized scores (Z)** and **adjusted standardized scores (T)**. The results are presented in **Table (1)**. **Table (1)**

Raw score of the research sample, standardized score (Z), and adjusted standardized score (T) of the Employees' Catastrophic Thinking Scale

No	Raw Grade	Standard Grade (Z) Modified	Standard Grade (T)	No	Raw Grade	Standard Grade (Z) Modified	Standard Grade (T)
1	72	2.14322	23.43	36	93	-1.91524-	34.54
2	76	2.14322	26.55	37	93	-1.91524-	34.54
3	76	2.14322	26.55	38	93	-1.91524-	34.54
4	76	2.14322	26.55	39	93	-1.91524-	34.54
5	78	2.15321	27.55	40	93	-1.91524-	34.54
6	78	2.15321	27.55	41	93	-1.91524-	34.54
7	78	2.15321	27.55	42	93	-1.91524-	34.54
8	80	2.12824	27.79	43	95	-1.01113-	39.78
9	80	2.12824	27.79	44	95	-1.01113-	39.84
10	80	2.12824	27.79	45	95	-1.01113-	39.84
11	80	2.12824	27.79	46	95	-1.01113-	39.99
12	80	2.12824	27.79	47	95	-1.01113-	39.99
13	80	2.12824	27.79	48	95	-1.01113-	39.99
14	81	2.11934-	28.81	49	95	-1.01113-	39.99
15	81	2.11934-	28.81	50	95	-1.01113-	39.99
16	81	2.11934-	28.81	51	95	-1.01113-	39.99
17	82	2.06710-	29.33	52	95	-1.01113-	39.99
18	82	2.06710-	29.33	53	95	-1.01113-	39.99
19	84	1.96261-	30.37	54	95	-1.01113-	39.99
20	84	1.96261-	30.37	55	104	1.01110	39.98
21	84	1.96261-	30.37	56	104	1.01110	39.98
22	85	1.91036-	30.90	57	104	1.01110	39.98
23	85	1.91036-	30.90	58	104	1.01110	39.98
24	85	1.91036-	30.90	59	105	0.91110	40.22
25	86	1.85812-	30.87	60	105	0.91110	40.22
26	90	1.72223-	31.78	61	107	0.81120	41.22
27	90	1.72223-	31.78	62	107	0.81120	41.22
28	90	1.72223-	31.78	63	109	0.81000	42.13
29	90	1.72223-	31.78	64	109	0.81000	42.13
30	90	1.72223-	31.78	65	115	0.71421	46.11
31	90	1.72223-	31.78	66	115	0.71421	46.11
32	90	1.72223-	31.78	67	115	0.71421	46.11
33	91	1.77533-	32.96	68	119	0.61421	47.94
34	91	1.77533-	32.96	69	119	0.61421	47.94
35	91	1.77533-	32.96	70	119	0.61421	47.94

Classification of Catastrophic Thinking Levels

To identify catastrophic thinking levels, responses were ranked in ascending order after calculating each participant's total score using Microsoft Excel. Five normative levels were established: **weak, acceptable, average, good, and very good**, as shown in **Table**

(2).Table(2)*Levels of responses regarding catastrophic thinking among employees*

No	Level	Values That Fall Within The Level	Frequency	Percentage	Ranking
1	Weak	72–81	16	23%	Third
2	Acceptable	82–91	18	26%	Second
3	Average	92–101	20	29%	First
4	Good	102–111	10	14%	Fourth
5	Very Good	112–120	6	8%	Fifth
the total				100%	

Based on Table (5), the highest score obtained by the sample was 119, and the lowest score was 72. The most frequent category was the average level (92–101), with 20 participants (29%), indicating that most employees demonstrated a moderate level of catastrophic thinking. The acceptable level ranked second, followed by the weak level. The good and very good categories were less frequent.

Mean Differences from the Hypothetical Mean

The overall level of catastrophic thinking was further examined by comparing the sample mean with the hypothetical mean using a one-sample t-test. Results are presented in **Table (3)**.

Table (3) *Arithmetic Mean, Standard Deviation, Hypothetical Mean, and T-value for catastrophic thinking among employees*

Number	Sample mean	Standard deviation	Hypothetical arithmetic mean	T-value	sig	Indication
70	93.23	4.068	75	20.122	0.000	Function

Significant at $p < 0.05$; degrees of freedom ($n - 1$) = 69.

Interpretation of Findings (Discussion of the Variable)

Taken together, Tables (5) and (6) indicate that employees showed an **overall average level** of catastrophic thinking. The distribution in Table (5) suggests that most participants fell within the **average** category, while Table (6) confirms that the **observed mean score (93.23)** differs significantly from the hypothetical mean (**75**), indicating that catastrophic thinking is present at a measurable level in this group.

This pattern may be explained by **continuous work pressures**, which can contribute to worry-based thoughts and cognitive distortions. Catastrophic thoughts can occur in many

individuals; however, a smaller group may intensify such thoughts and attempt to justify them despite their pessimistic nature (Barakat, 2009). Considering that the participants were employees exposed to daily job demands, maintaining psychological well-being becomes essential. Establishing healthy boundaries is part of self-care and can protect mental and emotional well-being, which in turn supports better functioning and work performance (Jamal, 2023).

Discussion

Overview of the Main Hypotheses

This study was guided by two main hypotheses: (H1) a catastrophic thinking scale can be developed and standardized with clear items that reflect the work context of employees in colleges of physical education and sports sciences, and (H2) the developed scale will be suitable for identifying different levels of catastrophic thinking among employees.

Conclusions Drawn From the Study and Comparison With Prior Literature

The results support both hypotheses. The scale was successfully developed and finalized in **25 items across five axes** (cognitive bias, uncertainty, ethics of anticipation, emotional influences, and conspiracy theories). The psychometric evidence showed strong indicators of quality: most items demonstrated acceptable discrimination and significant item–total correlations, and reliability was high (Cronbach’s $\alpha = 0.955$; Spearman–Brown = 0.962). In terms of employee levels, the largest proportion of participants fell within the **“average”** category (92–101), indicating that catastrophic thinking exists at a moderate level among employees. This aligns with general psychological and occupational perspectives described in the introduction, where work stress and ongoing pressures can contribute to worry-based cognition and maladaptive thinking patterns. The discussion is also consistent with the view that some individuals may intensify pessimistic interpretations and attempt to confirm them despite limited evidence and that psychological boundaries and self-care are relevant for maintaining emotional functioning under stress (Birrer & Morgan, 2010; Kyambade et al., 2024; MacNamara et al., 2010)

Importance of the Results

These findings are important because they provide a **context-specific instrument** for assessing catastrophic thinking in a professional group that has rarely been measured using an adapted tool. The availability of a standardized scale strengthens the capacity to diagnose cognitive risk patterns, quantify levels, and evaluate organizational well-being more systematically (Afzal & Torralba, 2024; Bf et al., 2020; Saul McLeod, 2024).

Practical Applications

Practically, the scale can be used by colleges to (1) screen employees' catastrophic thinking levels, (2) identify groups that may benefit from psychological support, and (3) guide workplace interventions such as stress-management programs, counseling referrals, or well-being workshops. It can also be applied in routine institutional monitoring to support employee mental health and preserve work performance.

Further Research Potential

Future research should apply the scale to larger and more diverse samples across additional regions and job categories, and examine relationships between catastrophic thinking and variables such as workload, job satisfaction, burnout, and performance. Further validation studies (e.g., factor structure testing and predictive validity) are also recommended to strengthen the instrument and expand its use in occupational and educational settings.

Conclusions and Recommendations

Conclusions

This study aimed to develop and standardize a catastrophic thinking scale for employees in colleges of physical education and sports sciences using a descriptive survey design. The scale was constructed through expert review, pilot testing, and standardization procedures, resulting in a finalized instrument that can be applied to assess catastrophic thinking in this employee population. Overall, the findings indicate that the scale adequately addresses employee-related issues through its wording and themes and is capable of measuring catastrophic thinking in a broader and more comprehensive way than previously assumed. The results also suggest that catastrophic thinking may be intensified by continuous work pressures, highlighting the importance of monitoring employees' psychological well-being because occupational stress can contribute to unbalanced catastrophic thinking that may affect work performance.

Recommendations

1. Implement the catastrophic thinking scale in colleges of physical education and sports sciences, as it is ready for practical use.
2. Conduct periodic assessments and studies to monitor catastrophic thinking and related workplace psychological factors.

3. Strengthen institutional attention to employee well-being through regular support initiatives, recognizing that psychological state significantly influences work performance.
4. Apply the scale in future research with differe

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Conflict of interest

The author declares that there is no conflict of interest regarding the publication of this study.

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