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RESEARCH

Training with a psychosocial health neurolearning approach in Peruvian professionals with health insurance: Experimental study

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ABSTRACT

INTRODUCTION Psychosocial risk factors as determinants of health at work can affect both the physical and psychological well-being of the worker. Training systems that include cognitive-preventive content work best when knowledge construction is based on neurolearning. The purpose of this study was to compare the degree of content processing with the insertion of deterrent (group A) versus persuasive sentences (group B) as an effect of a training with a neurolearning approach to psychosocial health in the work of a group of professionals with health insurance in the Peruvian Amazon.

METHODS Experimental design with pre-/post-test, including two experimental groups plus a control group, n = 48 subjects in total and 16 per group, aged 22-36 years. The training took place between December 2018 and January 2019 with a duration of 18 hours spaced over six weeks. A register previously validated by five experts was used for data collection.

RESULTS The distribution of data in the groups was adequate in both pre-test and post-test, except in post-test in group "B" ($p = 0.002$). In the control group, the results of content processing in both pre-test and post-test remained similar ($p = 0.667$). The processing of psychosocial occupational health content in the post-test was significantly different between the intervention and control groups ($p = 0.001$), distinguishing the processing of content with the insertion of deterrent phrases.

CONCLUSIONS The results indicate that training with a neurolearning approach can improve the processing of content with the insertion of deterrent phrases for compliance with regulations aimed at promoting psychosocial health at work.

KEYWORDS Cognitive neurosciencie, working memory, interview psychological, allied health occupations

INTRODUCTION

Psychosocial risk factors as determinants of health at work are present in all work situations related to the organization, content, and performance of tasks [1]. These risk factors can affect the worker's physical, psychological, and social well-being [1,2].

There is evidence that the motivational attention pattern and affective states are related to the processing of emotionally positive or negative content [3]. Moreover, training systems that include cognitive-preventive content work best when the mechanisms of such knowledge construction are based on neuroscience [4].

In particular, preventive interventions are a vehicle for critical thinking and learning when the focus of attention contains few elements or fragments consisting of words or digits, visual-printed objects, and abstract ideas [5]. An example of preventive interventions are the ones promoted by training with a neurolearning approach.

The literature points out that the processing of emotional content in the occupational and clinical field also works best when the focus of attention, or when the learning system, is supported by neural feedback [4–6]. Cognitive-emotional sentences processed according to neural elements generate positive changes in occupational health and safety inspections [7,8], as content processing responds to semantics and visual feedback of pleasant, unpleasant, and neutral emotional texts [9,10].

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MAIN MESSAGES

- The preventive promotion of psychosocial health at work within international guidelines and through experiential training in Latin America is very limited.
- Training professionals with health insurance based on neurolearning, mediated by cognitive-emotional content is crucial for compliance with psychosocial occupational health regulations.
- The results of this study indicate that deterrent phrases about psychosocial regulations at work have greater motivational significance than persuasive content and higher levels of iconic working memory for most participants.
- The limitation of the study is the exclusion of comparisons between cognitive and emotional content and neutral sentences.

This also extends to deterrent and persuasive phrases as psychological stimuli that modulate attention and emotional and cognitive reactions as descriptive or emotive meanings. Specifically, deterrent phrases have greater motivational significance because they allow for more elaborate processing of severity or deterrence content than those used for adaptive protection, given that they are very sensitive and have a greater impact on content with emotional connotations. For example: "*mandatory inspections are carried out*" or "*fines are imposed*" [9,11]. Meanwhile, persuasive sentences are more concerned with assertive language, which also influences feelings and persuades people to change their behavior by alerting them to future actions or reorienting their system of interests. For example: "*we would appreciate delegating to the occupational health representative*" [8,11].

Regarding the neuropsychological frame of reference, visual working memory and the location of objects in the environment related to the subject of the study are usually processed in the occipital lobes [12]. The left frontal lobe processes working memory, executive planning, immediate attention, concentration, and executive planning [12].

Moreover, a significant body of data indicates that brain neural activities reflect the focus of attention and thinking functions, cognitive processing, learning, and problem-solving tasks [8,13,14]. While the right hemisphere is responsible for episodic memory functions, the frontal poles are responsible for non-verbal memory functions, attentional judgment, and spatial awareness [13,14].

It is also known that content processed from graphic stimuli after visual feedback is globally transformed in procedural working memory [14,15] and that internal verbalization is achieved by stimulating Broca's area [8,14]. Thus, the neural features resulting from the simultaneous application of isometric concentration and symbolic thinking are induced by activating the frontal lobe [15,16]. Then, sensory systems and visual feedback are further integrated due to the generic activation of procedural working memory, and the motor performance obtained by combining digital-therapeutic relaxation and isometric concentration is achieved [5,14,16].

According to the available literature, promoting occupational safety culture in Latin America through preventive interventions in the work environment through neurolearning-based training is very limited [17]. However, worker conditions are part of the social determinants of occupational health, which require improved preventive practices within the framework of international guidelines [18].

In the Peruvian organizational context, the workplace must address psychosocial factors with the same intensity as physical, chemical, biological, or ergonomic risks. This is because these factors have become global problems that affect all occupational groups with a substantial impact on health and work performance [17,18]. Therefore, in occupational health and safety management, the promotion of preventive interventions constitutes a competitive advantage, as it is considered a parameter of corporate social responsibility that favors the promotion of learning and a culture of safety at work. The effects of these preventive actions are favorable when these interventions are developed within the same work environment [2,7,19].

The study aims to compare the degree of processing of cognitive-emotional content with the insertion of deterrent phrases (group A) versus the insertion of persuasive phrases (group B) as an effect of training with a neurolearning approach to psychosocial health at work in a group of professionals with health insurance in the Peruvian Amazon.

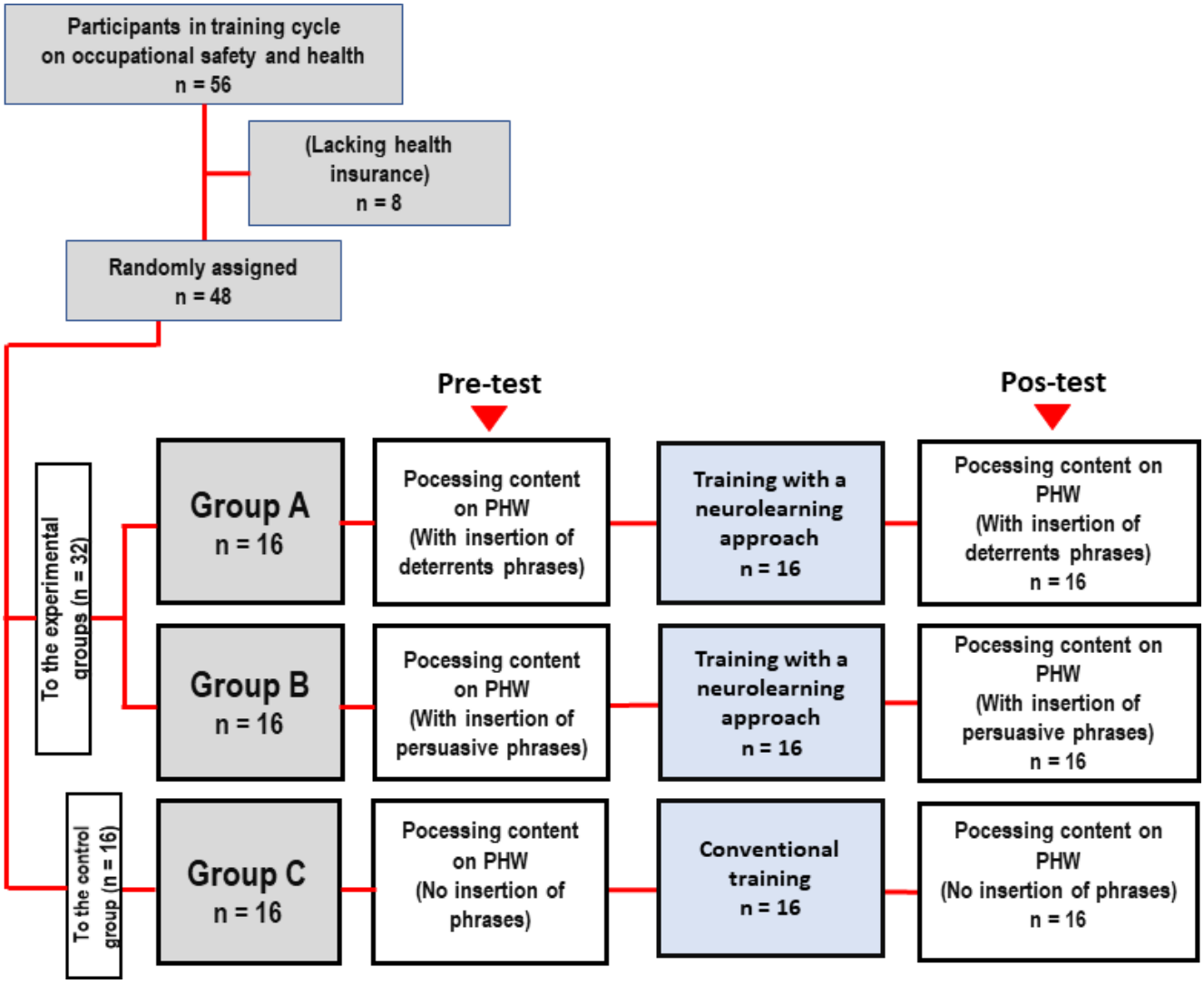
METHODS

Design

An experimental design with pre-test and post-test control groups was used (A/B: O1—X—O2; C: O1—-.- —O2), where the response variable is the processing of content on psychosocial occupational health regulations. The unit of outcome measurement is the number of iconic features (Figure 1).

Iconic features are the number of graphically processed elements within a mental map related to psychosocial occupational health regulations. They are processed interchangeably as semantic categories (in form and location), symbols or figures, words or phrases, acronyms or codes, and through other combined semiotic uses [20,21]. The processing of the above content was compared between group A, with 25 deterrent phrases related to compliance with psychosocial health at work regulations, and group B, with 25 persuasive phrases. The control group C was exposed to neither deterrent nor persuasive sentences (Figure 1). The intervention variable is

Figure 1. CONSORT-SPI flow chart.



CONSORT-SPI: Consolidated standards of reporting Trials-Social and Psychological Intervention.
PHW: Psicosocial helath at work.
Source: Prepared by the authors of this study.

training with a neurolearning approach, targeting groups A and B. The three neuropsychological stimulation techniques used were:

1. Self-relaxing digital therapy.
2. Visual reconstruction.
3. Isometric concentration, accompanied by daily sports practice.

Control group C received conventional training (Figure 1).

The purpose of the control group was to guarantee the credibility of results in the pre-and post-intervention assessment, to evaluate the influence of external variables to ensure that the performance in post-test content processing is the effect of the training, and that the randomization of participants in the intervention groups (A, B) concerning the control group are similar in number of participants.

Participants

Participants for our study were recruited from a training cycle on occupational safety and health, promoted by a professional group, and developed in a university institution in the Peruvian Amazon. The study took place between December 2018 and January 2019.

The sample size was calculated using the G*Power 3.1.9.2 calculator, considering a minimum effect of results ($\eta 2 = 0.06$ to 0.13), a significance level of 0.05% and a power of 95%, the result of which was n = 54/3; that is, 18 participants per group. The sample size determined for this study is consistent with other work [21].

The 48 selected attendees were randomly assigned to intervention groups (A and B) and control group C (16 subjects for each group). A random number table was used to distribute the subjects in a 1:1 ratio (Figure 1). The groups' balancing occurred post-randomization using sex, profession, and position of the participants [22].

The inclusion criteria were as follows:

1. Voluntary and anonymous participation.
2. Being affiliated with a health insurance scheme.
3. Be an engineer or graduate in the food industry.
4. Hold the manager or delegate of occupational health and safety position in a microenterprise located in the Peruvian Amazon.
5. Signing informed consent form.

The exclusion criteria were

1. Failure to complete the mind map.
2. Withdrawal from the study.
3. Lacking health insurance.
4. Be 60 years of age or older.
5. Have training other than in the food sector.

The masking was single-blind, as the participants were unaware of both the group to which they were assigned and the insertion of the deterrent or persuasive phrases in the text. This masking was achieved by presenting the same text and format on psychosocial health at work in all three groups, both pre-test and post-test. Researchers were unblinded to group selection.

Training with a neurolearning approach

Before the pre-test, all participants were trained in constructing content using a mind map. The mind map is an appropriate technique for representing graphic analysis results based on the comprehension and summary of a text [23] because it increases interest in hierarchical learning of related concepts as it favors the identification of variables with their causal relationships due to its multidisciplinary approach [24].

Two weeks before the end of the conventional training cycle, the members of the intervention groups (A and B) were trained through behavioral modeling on the application sequences of the neuropsychological stimulation techniques with a neurolearning approach (digit-therapeutic self-relaxation, visual feedback, and isometric concentration). These techniques are still undergoing empirical verification [21]. However, some of their benefits assumed in other studies are:

1. Therapeutic digital self-relaxation technique: It has psychophysiological effects for relaxing the autonomic nervous system, allowing for improved cognitive processes.
2. Visual feedback technique (maximum 3.5 minutes): Helps to improve experiential learning. Better results are obtained when applied in small groups and associated with other neuropsychological stimulation techniques [25–27].
3. Isometric concentration technique: Among other benefits, it stimulates working memory, muscle relaxation, and balance awareness, favoring kinaesthetic awakening and the fixation of images constructed in the mental map [21].

During the post-test, participants were admitted from 7:30 to 9:30 in the morning, considering that the highest performance of cognitive activities, such as short-term memory [26], occurs in the early morning hours [28,29]. Sports practice was suggested following Petracovschi & Gombos [30] for six weeks (minimum 30 minutes daily and before attending training sessions). Participants were placed approximately 2.5 meters apart and in groups of a maximum of eight people per room (a total of six rooms). After the semiotic content analysis of the mind maps, the frequency of iconic features and socio-occupational data were recorded. The application time per participant was between 28 and 40 minutes.

The conventional training, including the neurolearning approach training, in groups A and B was of equal duration (18 hours distributed over six weeks). While the conventional training in group C was 15 hours (spread over five weeks), this group did not receive neurolearning approach training.

Data collection and analysis

Knowing that the primary source of information is the mental map generated by the participants, the iconic features were quantified and recorded on a card previously validated by five experts (organizational psychologists and labor lawyers), whose results of the statistical analysis of concordance in four endpoints were adequate according to Kendall's W test ($W = 0.800$; $gl = 3$; $p = 0.007$). The agreement was significantly different from zero ($p < 0.05$) [31].

Activities for statistical analysis followed the standards of the Consolidated Standards of Reporting Trials for social and psychological interventions, CONSORT-SPI, with statistical techniques applied sequentially according to the assessment pathways of the response variable:

1. The normality of the data distribution was evaluated using the Shapiro-Wilk test to verify the similarity of pre-test responses in the three groups (A, B, C). As results followed normal distribution, ANOVA was applied for independent groups (Annex).
2. The normality of data distribution in both stages was determined to assess that the results of the control group's response variable remained unchanged in both pre-test and post-test. The difference in results was then calculated using the Wilcoxon test for related groups, $N < 30$ (Annex).
3. The normality of data distribution was also assessed to verify that the response variables in the intervention

groups (A and B) are significantly different between post-test and pre-test. Then, as the result was inadequate ($p < 0.05$) and $N < 30$, the Wilcoxon test for related groups was applied (Annex).

4. As data followed a non-normal distribution ($p < 0.002$), the Kruskal-Wallis test for independent groups was applied to assess that the post-test response variable was significantly different between the two intervention groups and the control group (Annex).
5. The Kruskal-Wallis test was applied to compare the results of the response variable between pre-test and post-test between groups because it did not meet ANOVA assumptions. The effect sizes were calculated for the outcomes, ε^2, and the post-hoc pre-test match (rpb).

The data were processed using STATA v.15.

RESULTS

Participant characteristics

Of the total 48 participants aged between 22 and 36 years (mean: 23.0 ± 2.08 years), 64.6% (31/48) were males distributed equally in groups B and C with 32.2% (10/31) each, and in females with 35.3% (6/17) each also in groups B and C. According to the profession, group A had an equal distribution of professionals and technicians in the food sector, with 50% (8/16) each. Group B had 56.2% (9/16) professionals, while Group C had 56.2% technicians. According to the position in the microenterprise, 56% of managers were distributed in Group A, 62.5% in Group B and in Group C. Both managers and occupational health and safety representatives were equally distributed with 50% (8/16) each (Table 1).

The normality of data distribution by groups was adequate in both pre-test and post-test ($p > 0.050$), except in group B, which was not adequate, $p = 0.002$ (Table 1). In the pre-test stage, the homocedasticity, i.e., the results of the response variable and its adequate normality of data distribution (Table 1), was also adequate ($p = 0.115$). The results presented in Table 2 are supported, as there are no significant differences in the processing of psychosocial health regulations at work between the three groups ($F = 1.683$, $p = 0.197$).

In the control group, the results of processing content on psychosocial health at work in both the post-test and pre-test remained similar ($p = 0.667$). This ensures that the changes in the results in the intervention groups ("A" and "B") are acceptable in the sense that the results obtained in the post-test are significantly different from those obtained in the pre-test, $p = 0.001$ (Table 3).

Results also confirmed that the processing of psychosocial health content at work in the post-test is significantly different between the intervention groups (A and B), and in turn, concerning the control group's results, $p = 0.001$ (Table 4).

The processing of the response variable was significantly different between post-test and pre-test in group A versus group B ($p = 0.001$), with a large effect size in both groups (A, $\varepsilon^2 = 0.758$; B, $\varepsilon^2 = 0.760$) (Table 5). It can be distinguished that the processing of content with deterrent sentence insertion (group A) on psychosocial health at work is significantly different (median: 46 versus 41.5) and with larger effects compared with group B ($p = 0.001$, rpb = 0.949) (Table 5).

Likewise, Group A had a larger improvement of iconic traits related to psychosocial health at work, raging between 22 (20 to 42) to 26 (20 to 48) compared with Group B, where the increase was smaller: ranging from 14 (19 to 33) to 24 (19 to 43) iconic traits. The predominant score range with optimal performance in group A was between 45 and 48 iconic traits for 50% (8/16) of the participants.

DISCUSSION

This study compared the effects of training with a neurolearning approach to psychosocial health regulations at work. Forty-eight insured food workers were divided into two experimental and one control group. In order to verify the effect of the training by differentiating the response variable with the insertion of deterrent versus persuasive phrases, the results were evaluated before and after the intervention.

The result indicates that training with a neurolearning approach can substantially improve the processing of content when deterrent phrases are inserted for compliance with regulations aimed at promoting psychosocial health at work.

This result is mainly supported by the fact that the response variable's values remained similar in the pre-test of the three groups ($p = 0.197$) and in the pre-/post-test of the control group ($p = 0.667$). Likewise, the groups were balanced considering the socio-occupational variables of sex, profession, and position of the participants, following the suggestions of Moscrop et al. for studies in the health sciences [22], excluding workers older than 60 years. The sample size of participants is consistent with other studies that present characteristics linked to the subject of content construction and working memory in Peru [21], as in the case of other studies conducted in Germany [10], the United Kingdom [3] and China [6,25,27].

Deterrent phrases generate greater motivational significance due to their emotional connotation for compliance with national regulations on psychosocial health at work, particularly in one of the five components of Peruvian occupational safety and health. These results converge with the reports of Kousta et al. [3], who compared the effects of exposure to 40 words with negative emotional content and 40 words with positive emotional content on various topics in English university students. According to the frequency of responses, they concluded that negative words had a greater advantage than positive words ($p = 0.001$), a significance of results similar to that of our study ($p = 0.001$) with a 48.8% (22.4/45.94) higher performance than the pre-test. However, most workers in the German group were female (91% versus 31.1% Peruvian). These comparative results are supported by previous studies [9,27], which concluded that words or phrases with emo-

Table 1. Descriptive statistics in processing content on psychosocial health at work.

Group	N	Sex		Pre-test (IF number)			Post-test (IF number)		
		Males	Females	Shapiro-Wilk (p)	Mean	SD	Shapiro-Wilk (p)	Mean	SD
Experimental									
A (with insertion of deterrents phrases)	16	11	5	0.277	23.5	2.160	0.133	45.94	1.769
B (with insertion of persuasive phrases)	16	10	6	0.427	22.81	1.759	0.002	40.63	2.918
Control									
C	16	10	6	0.059	22.12	2.910	0.333	21.88	1.708

IF: iconic features. SD: standard deviation.
Source: Prepared by the authors of this study.

Table 2. ANOVA results of content processing on psychosocial health at work (pre-test).

Source	Gl	Cuadratic mean	"F" ratio	p	Shapiro-Wilk (p)	Levene test (p)
Intergroups	2	7.563	1.683	0.197	0.159	0.115
Intragroups	45	4.493				
Total	47					

Source: Prepared by the authors of this study.

Table 3. Comparison of pre-test versus post-test results of psychosocial occupational health content processing.

Group	N	Pre-test (IF number)		Post-test (IF number)		Mean range	Wilcoxon (T)	p
		Minimum	Maximum	Minimum	Maximum			
Experimental								
A (with insertion of deterrents phrases)	16	20	27	42	48	8.50	3.526	0.001
B (with insertion of persuasive phrases)	16	19	26	33	43	8.50	3.526	0.001
Control								
C	16	19	26	19	25	3.75	0.431	0.667

IF: iconic traits.
Source: Prepared by the authors of this study.

Table 4. Non-parametric comparison of post-test content processing.

Group	Post-test (IF number)		Kruskal-Wallis (H)	Gl	p	Effect size (ε^2)
	Mean	Median				
Experimental						
A (with insertion of deterrents phrases)	45.9	46.0				
B (with insertion of persuasive phrases)	40.6	41.5	41.0	2	0.001	0.872
Control						
C	21.9	21.5				

N: 48; IF: iconic traits. ε: epsilon.
Source: Prepared by the authors of this study.

tional connotations modulate attention and convey valuable information to improve cognitive processing on specific topics.

Responses to deterrent or persuasive phrases, at all stages of the assembly of visual resources, are at the cortical level as people pay more attention to emotional content with a motivational connotation [26]. These contents are analogous to words with risk warnings in hazardous environments [27]. Furthermore, these relationships can be extrapolated to the neural changes that induce increased parietal brain activation, assessed as positive potentials during emotional word processing. This is because words are comparable to positive or negative emotional valence and imagery materials [9,27].

By generically activating procedural working memory, the integration of sensory systems related to working memory itself and visual feedback is enhanced, as well as the combined motor execution systems between digitotherapeutic relaxation and isometric concentration. This integration affects cortical connections with subcortical synchronization between the hippocampus, septum, and cerebellum [5,14,16].

Table 5. Comparison of content processing with deterrent versus persuasive sentence insertion (between pre-test and post-test).

Group	N	Pre-test (IF number)	Post-test (IF number)	Kruskal-Wallis (H)	Gl (p)	Effect size (ε^2)
		Median	Median			
Experimental						
Match1–2 A (with insertion of deterrents phrases)	**16**	**23.0**	**46.0**	**23.49**	**1** (**0.001**)	**0.758**
Match1–2 B (with insertion of deterrents phrases)	**16**	**23.0**	**41.5**	**23.54**	**1** (**0.001**)	**0.760**
Control						
Match1–2 C	**16**	**21.0**	**21.5**	**0.01**	**1** (**0.939**)	**0.000**
Post-hoc test (DSCF)				**Mann-Whitney (U)**	**p**	**Effect size (r_{pb})**
Matchj1–2 A versus Match1–2 B				6.50	**0.001**	**0.949**

DSCF: *Dwass-Steel-Critchlow-Fligner*; IF: iconic traits.
Source: Prepared by the authors of this study.

In another study, content reconstruction had 44% performance comparing between one and four neuropsychological stimulation techniques on Peruvian occupational safety and health topics [21], without insertion of specific words or phrases, and there is concordance in the significance of results (p = 0.009 versus p = 0.001). However, how the sample size was calculated is not known. The sample characteristic differs from our study in the number of groups compared (5 versus 3) and in the age of the participants (18 to 20 years versus 22 to 36 years). Similarly, there is agreement with the results of processing the content of severe sentences used five years ago for national and local regulatory compliance in five components of Chinese occupational safety and health [6]. This agreement is also consistent with Olofsson et al. [13], who previously explained why sentences conveying severe or punitive consequences for non-compliance with regulations had greater motivational significance than assertive sentences in content related to environmental adaptation and short-term behavior modification.

However, there are some differences with the report by Kissler et al. [10], who compared unpleasant and pleasant adjectives on different topics in German students. In that work, the advantages were for unpleasant words (p = 0.005), with an increase of 67% over the pre-test versus 48.8% in performance, with a significance of p = 0.001 in their study. One aspect to consider is that the size was smaller (n = 14 per group versus n = 16 in Peru).

Non-verbal stimuli elicit different emotional effects in the brain due to their biochemical readiness to cause emotional reactions [15,25]. In this framework, emotional language becomes as essential for understanding human behavior as it is for generating effects on cognitive processes that require more elaborate thoughts or encodings of stimuli [9]. In the present study, the stimuli were based on iconic language [20,21], which has been empirically tested, for example, to achieve greater engagement between teachers and students in higher education [21].

The strength of our study lies in including three neuropsychological stimulation techniques, complemented by habituated occupational psychomotor activity [30], which contribute to experiential learning and enhanced professional development in the workplace [25]. Our study covers a group of food professionals predominantly in the Peruvian Selva Alta, wich are the least studied in the area, through controlled trials with the insertion of cognitive-emotional content. However, this is a very limited experimental exercise based on the neurolearning approach for compliance with psychosocial occupational health regulations, despite its benefits for workers and employers.

The perspective of learning with a neurolearning approach is broad, as training on experiential experiences increases working memory for attitude change. These attitudes relate to compliance with national and local regulations other than occupational health regulations (e.g., to prevent physical and environmental hazards). Future studies should consider comparing different lines of business occupational groups and the number and duration of exposures to iconic content. Our study suggests that occupational safety and health professionals adapt their business communication systems, integrating text, iconic, voice, and motion messages. Above all, knowing that training professionals with a neurolearning approach are relevant to reorienting preventive interventions from a neuropsychological perspective, with a prior assessment of experiential learning on cognitive-emotional content linked to psychosocial health regulations at work.

The study developed a training cycle with a neurolearning approach based on applying neuropsychological stimulation techniques, which provides the basis for improving training effectiveness for personnel linked to health and safety at work. This was developed through the insertion of deterrent or persuasive phrases, which contribute to greater performance in processing cognitive-affective contents in fulfilling psychosocial health regulations at work.

An limitation of the study is the smaller sample size than calculated (n = 18 versus n = 16 participants). However, as the results of the response variable exceeded both the expected

effect and significance level, we consider that the generalisability of the results remains stable. The second limitation is the exclusion of neutral statements in comparing results. In this respect, the literature indicates that the results compared between deterrent-persuasive and neutral statements are differentiated [3,5,10,15,25]. Therefore, the conclusion remains that by inserting dissuasive sentences, content processing is improved. Finally, according to neuropsychological stimulation techniques, the results indicated the promotion of the processing of the cognitive-emotional content of sentences and responded to an approximation by indirect extrapolation of other studies.

CONCLUSIONS

The results of this study indicate that training with a neurolearning approach based on applying three neuropsychological stimulation techniques provides the basis for improving the processing of content by inserting deterrent phrases for compliance with regulations aimed at promoting psychosocial health at work in professionals in the food industry.

Contributor roles LFAT, CJBE, and FDM: conceptualization, methodology planning, data management, project management, drafting of the original manuscript, critical review, and approval of the manuscript.

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Capacitación con aproximación al neuroaprendizaje de salud psicosocial en profesionales peruanos con seguro sanitario: estudio experimental

RESUMEN

INTRODUCCIÓN Los factores de riesgo psicosociales como determinantes de la salud en el trabajo pueden afectar tanto al bienestar físico como al bienestar psíquico del trabajador. En los sistemas de formación que incluyen contenidos cognitivo-preventivos, funcionan mejor cuando la construcción del conocimiento está basada en el neuroaprendizaje. El objetivo del estudio fue comparar el grado de procesamiento de contenidos con inserción de frases disuasivas (grupo A) versus inserción de frases persuasivas (grupo B), como efecto de una capacitación con aproximación al neuroaprendizaje de la salud psicosocial en el trabajo de un grupo de profesionales con seguro sanitario de la Amazonía peruana.

MÉTODOS Diseño experimental con pre/posprueba, que incluyó dos grupos experimentales más un grupo de control: n = 48 sujetos en total, 16 por cada grupo, con edades entre 22 y 36 años. La capacitación se desarrolló entre diciembre de 2018 y enero de 2019 con una duración de 18 horas, espaciadas en seis semanas. Para la recogida de datos se utilizó un registro previamente validado por cinco expertos.

RESULTADOS La distribución de datos en los grupos fue adecuada tanto en preprueba como en posprueba, excepto en posprueba del grupo B (p = 0,002). En el grupo control los resultados del procesamiento de contenidos, tanto preprueba como en posprueba, se mantuvieron similares (p = 0,667). El procesamiento de contenidos sobre salud psicosocial en el trabajo en posprueba fue significativamente diferente entre los grupos de intervención y el grupo control (p = 0,001), distinguiéndose el procesamiento de contenidos con inserción de frases disuasivas.

CONCLUSIONES Los resultados indican que la capacitación con aproximación al neuroaprendizaje, puede mejorar el procesamiento de contenidos con inserción de frases disuasivas para el cumplimiento de normativas orientadas a promover la salud psicosocial en el trabajo.