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SHORT COMMUNICATION

Pesticide exposure: occupational safety and health impacts in 2023

Exposición a plaguicidas: impacto en la seguridad laboral y la salud en 2023

Lizbeth Mayte Villegas Narvaez¹

¹ Universidad de las Fuerzas Armadas Espe, Departamento de Seguridad y Defensa. Quinche, Ecuador.

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ABSTRACT

In 2023, occupational health and safety was consolidated as a priority issue in public policies in Latin America, with efforts focused on protecting workers in complex economic and labor environments. In Ecuador, floriculture, a key sector for the economy, faced significant challenges due to workers' exposure to phytosanitary products. Although these chemicals proved essential for agriculture, their use entailed serious health risks, including neurological and respiratory problems, exacerbated by the lack of effective supervision and limited access to specialized health services. Recent studies revealed that the pesticides used mainly affected the nervous system and caused symptoms such as headaches, insomnia and memory loss. In addition, research in Argentina and Mexico confirmed similar patterns, highlighting the dangerousness of the preparation and application stages of these chemicals. The impact on health also extended to the immune system, as demonstrated by studies on the alteration of immunoglobulins due to chronic exposure. The region faced social and economic barriers that hindered the implementation of preventive measures. Many workers, coming from rural communities, lacked adequate training and worked in precarious conditions. Despite initiatives promoted by the Pan American Health Organization and the International Labor Organization, lack of resources limited their impact. Chile stood out as a positive example, managing to reduce occupational diseases through monitoring and training programs. In conclusion, occupational health in floriculture required a comprehensive approach that combined government, business and community actions to protect workers and ensure the sustainability of the sector or unstructured, no longer than 250 words; written in the past tense and in the third person singular.

Keywords: occupational safety; floriculture; phytosanitary products; health impact; preventive measures.

RESUMEN

En 2023, la seguridad y salud laboral se consolidó como un tema prioritario en las políticas públicas de América Latina, con esfuerzos enfocados en proteger a los trabajadores en entornos económicos y

laborales complejos. En Ecuador, la floricultura, un sector clave para la economía, enfrentó desafíos significativos debido a la exposición de los trabajadores a productos fitosanitarios. Aunque estos químicos resultaron esenciales para la agricultura, su uso implicó graves riesgos para la salud, como problemas neurológicos y respiratorios, exacerbados por la falta de supervisión efectiva y acceso limitado a servicios de salud especializados. Estudios recientes revelaron que los plaguicidas utilizados afectaron principalmente el sistema nervioso y ocasionaron síntomas como dolores de cabeza, insomnio y pérdida de memoria. Además, investigaciones en Argentina y México confirmaron patrones similares, destacando la peligrosidad de las etapas de preparación y aplicación de estos químicos. El impacto en la salud también se extendió al sistema inmunológico, como lo demostraron estudios sobre la alteración de inmunoglobulinas debido a la exposición crónica. La región enfrentó barreras sociales y económicas que dificultaron la implementación de medidas preventivas. Muchos trabajadores, provenientes de comunidades rurales, carecieron de capacitación adecuada y trabajaron en condiciones precarias. A pesar de iniciativas promovidas por la Organización Panamericana de la Salud y la Organización Internacional del Trabajo, la falta de recursos limitó su impacto. Chile destacó como un ejemplo positivo, logrando reducir enfermedades laborales mediante programas de monitoreo y capacitación. En conclusión, la salud laboral en la floricultura requirió un enfoque integral que combinara acciones gubernamentales, empresariales y comunitarias para proteger a los trabajadores y garantizar la sostenibilidad del sector.

Palabras clave: seguridad laboral; floricultura; productos fitosanitarios; impacto en la salud; medidas preventivas.

Occupational health and safety are central issues in the public policies of several Latin American countries in 2023, reflecting an effort to protect workers in diverse economic and labor contexts. In the case of Ecuador, this focus has intensified in the last decade. However, specific challenges persist in sectors such as floriculture, where the enforcement of regulations has not reached the expected standards. This sector, characterized by its high dependence on phytosanitary products, highlights problems that transcend borders and affect the entire region.

Phytosanitary products, essential in agriculture and horticulture to prevent diseases and pests, have worrying side effects. In countries such as Ecuador, floriculture has become a key sector for the economy, employing thousands of people, many of whom start working early. However, this economic growth has come at the expense of adequate occupational risk management. Workers are exposed to these substances daily, both directly and indirectly, which leads to health problems documented in various studies.

In a broader context, Latin America in 2023 continues to be one of the regions most vulnerable to the adverse effects of occupational exposure to chemical substances. Countries such as Colombia, Mexico, and Argentina present similar problems, with agricultural and flower workers facing health risks due to the handling of pesticides. These risks include respiratory diseases, neurological problems, and damage to other bodily systems, such as the immune and musculoskeletal systems. Furthermore, the implementation of occupational safety regulations varies considerably between countries in the region, exacerbating inequalities and hindering a unified response.

Recent studies in Ecuador have shown that the pesticides used in floriculture mainly affect the nervous system. Among the most common symptoms reported by workers are headaches, insomnia, memory loss, and lack of concentration, which often go unnoticed by doctors. In Latin America, this problem is aggravated by the lack of access to specialized health services and the authorities' limited monitoring and control capacity. Despite efforts to regulate the use of these chemicals, the reality is that many countries in the region lack the necessary resources to supervise labor practices effectively.

In Ecuador's specific case, research such as Jiménez Proaño's in 2022 highlights that ergonomic risks are also an important factor in the occupational health of flower workers. Repetitive movements, forced postures, and the carrying of heavy objects increase the likelihood of developing musculoskeletal disorders. Although this study reported a low incidence of symptoms because the workers had been in their jobs for less than a year, it is reasonable to assume that these problems worsen over time, highlighting the need for early preventive measures.

A critical aspect that has also been documented in Latin America is the impact of pesticides on the immune system. Research such as that of Pérez Bejarano in 2014 indicates that exposure to these chemical agents can alter the production of immunoglobulins, generating hypersensitivity, dermatitis, and other clinical problems. This type of study highlights the importance of monitoring the visible short-term effects and the underlying and long-term consequences on workers' health. In countries such as Mexico and Brazil, where intensive agriculture is a crucial part of the economy, the results are similar, underlining the regional nature of the problem.

The situation is comparable in Argentina. According to Flores (2022), horticultural and floricultural activities in this country also depend heavily on phytosanitary products. A study on Potential Dermal Exposure (PDE) and the Margin of Safety (MOS) revealed perilous pesticide preparation and loading stages. Although no significant differences were found between horticultural and floricultural activities regarding absolute exposure values, workers in both sectors face high risks due to the accumulation of residues in the work environment, especially in greenhouses.

The region also faces social and economic challenges that influence occupational health. Many workers in the floriculture sector come from rural communities with limited access to education and training, which makes it challenging to adopt safety measures. In addition, job insecurity and the need to maintain a stable income lead many employees to ignore the risks associated with their work. In 2023, these conditions have not improved significantly, and governments face the difficult task of balancing economic growth with the protection of labor rights.

At the regional level, initiatives such as those promoted by the Pan American Health Organization (PAHO) and the International Labor Organization (ILO) seek to strengthen occupational health policies in Latin America. These include promoting less toxic chemicals, implementing training programs, and strengthening labor inspection systems. However, the impact of these initiatives remains limited due to a lack of resources and differences in implementation capacity between countries.

A positive example is Chile, where occupational safety legislation has made significant progress in protecting agricultural workers. Through monitoring and training programs, the country has reduced the incidence of occupational diseases related to pesticide exposure. These achievements could serve as a model for other countries in the region, including Ecuador, where efforts to implement similar measures have faced more significant obstacles.

Despite this progress, much remains to be done. By 2023, occupational health and safety in floriculture and other vulnerable sectors in Latin America will require a comprehensive approach that considers both technical and socioeconomic aspects. This includes improving access to personal protective equipment, increasing the enforcement of working conditions, and fostering a culture of prevention that involves employers and workers.

In conclusion, floriculture's occupational health and safety situation reflects a broader problem affecting all of Latin America. The risks associated with pesticide exposure and poor working conditions underscore the need for coordinated action between governments, companies, and international organizations. Only through a joint effort will it be possible to ensure that economic growth does not come at the expense of workers' health. This approach will not only improve the quality of life of employees but will also contribute to the sustainability of the floriculture sector in the region.

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CONFLICT OF INTEREST

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