

## Development of an educational booklet as a strategy to prevent drug use among truck drivers

*Elaboração de cartilha como estratégia de prevenção do uso de drogas por caminhoneiros*

*Elaboración de un folleto como estrategia de prevención del consumo de drogas por parte de conductores de camiones*

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### ABSTRACT

**Objective:** To develop an educational booklet focused on health promotion and drug use prevention for truck drivers. **Method:** This is an action research project carried out by students and faculty from the multidisciplinary residency program at the Universidade Federal do Oeste do Pará, conducted in 2023 with truck drivers traveling along Highway 163, located in western Pará State. The material was developed in 5 stages: preliminary characterization of the study participants; conceptual framework; booklet development; preliminary presentation and revisions; and final validation. **Results:** A 14-page booklet was created, divided into 11 sections, and made available in both online and print formats. Its content was based on the real-life needs of truck drivers and addresses health-related topics and self-care strategies, aiming to inform and raise awareness about the risks of driving under the influence of alcohol and other drugs. The booklet was designed with the drivers' context in mind, using content synthesis techniques and accessible language to promote not only autonomous learning but also paradigm shifts. **Final considerations:** Educational materials developed from within the daily routines of the target audience, with information that can be easily integrated into their social context, can be effective tools for community-based health education. In the case of truck drivers, the booklet provides basic information about the demanding nature of their profession and the essential health care required for this group of workers.

**Descriptors:** Health promotion; Illicit drugs; Educational and promotional materials; Truck drivers.

### RESUMO

**Objetivo:** Elaborar uma cartilha educativa sobre promoção da saúde e prevenção do uso de drogas para caminhoneiros. **Método:** Trata-se de uma pesquisa-ação, desenvolvida por discentes e docentes da residência multiprofissional da Universidade Federal do Oeste do Pará, realizada no ano de 2023, com caminhoneiros que trafegavam na Rodovia 163, situada no Oeste do Estado do Pará. O material foi desenvolvido em cinco etapas: caracterização preliminar dos sujeitos da pesquisa; abordagem conceitual; elaboração da cartilha; apresentação prévia e correções e validação final. **Resultados:** Foi construída uma cartilha contendo 14 páginas, divididas em 11 domínios, e disponibilizada nos formatos on-line e impresso. Sua elaboração baseou-se nas necessidades encontradas na vida cotidiana dos caminhoneiros e aborda aspectos de saúde e cuidados que visam esclarecer e/ou alertar sobre os riscos de dirigir sob efeito de álcool e outras drogas. A cartilha foi estruturada considerando o contexto de inserção do público, utilizando a técnica de síntese de conteúdo, por meio do uso da linguagem acessível, buscando, para além do aprendizado autônomo, a mudança de paradigmas. **Considerações finais:** O uso de materiais educativos, construído a partir da inserção na rotina dos indivíduos, com agrupamento de informações que possam ser incorporadas no cotidiano social,



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pode ser uma ferramenta eficaz no processo de educação popular em saúde. No caso dos caminhoneiros, a cartilha oferece informações básicas sobre a rotina exaustiva da profissão e os cuidados de saúde necessários a esse grupo de profissionais.

**Descriptores:** Promoção da saúde; Drogas ilícitas; Materiais Educativos e de Divulgação; Caminhoneiros.

## RESUMEN

**Objetivo:** Elaborar un folleto educativo sobre la promoción de la salud y la prevención del consumo de drogas dirigido a camioneros. **Método:** Se trata de una investigación-acción, desarrollada por estudiantes y docentes de la residencia multiprofesional de la Universidad Federal do Oeste do Pará, llevada a cabo en el año 2023, con camioneros que transitaban por la Carretera 163, ubicada en el oeste del estado de Pará. El material fue desarrollado en cinco etapas: caracterización preliminar de los sujetos investigados; abordaje conceptual; elaboración del folleto; presentación preliminar con correcciones; y validación final. **Resultados:** Se elaboró un folleto de 14 páginas, dividido en 11 secciones, disponible en formatos impreso y digital. Su elaboración se basó en las necesidades identificadas en el cotidiano de los camioneros y enfoca aspectos de salud y autocuidado con el fin de aclarar o alertar sobre los riesgos de conducir bajo los efectos del alcohol y otras sustancias psicoactivas. El folleto fue estructurado considerando el contexto sociolaboral del público objetivo, utilizando la técnica de síntesis de contenido con un lenguaje accesible, buscando no solo el aprendizaje autónomo, sino también la transformación de paradigmas. **Consideraciones finales:** El uso de materiales educativos construidos a partir de la inserción en la rutina de los individuos, con información que pueda ser incorporada en su vida cotidiana, puede representar una herramienta eficaz en el proceso de educación popular en salud. En el caso de los camioneros, el folleto ofrece información básica sobre la extenuante rutina de la profesión y los cuidados necesarios para la salud de este grupo profesional.

**Descriptores:** Promoción de la salud; Drogas ilícitas; Materiales educativos y de divulgación; Conductores de camiones.

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## INTRODUCTION

The road transport system is the main method of cargo transportation in Brazil, playing a central role in driving the country's economy. Truck drivers are often subject to exhausting work schedules. As a result, the use of substances — both legal and illegal — can be driven by precarious and inadequate working conditions, further intensified by biopsychosocial factors such as sedentary lifestyles, poor posture, unhealthy eating habits, lack of sleep, financial stress, extended time away from family, and logistical issues with cargo management.<sup>1,2</sup>

Many truck drivers seek medical help only when serious health issues arise, often neglecting preventive care. Consequently, these workers typically turn to health services due to chronic illnesses such as diabetes, hypertension, and respiratory conditions, all of which can significantly impact quality of life and even lead to death if not properly managed.<sup>3</sup> In addition, many seek care for mental health issues such as depression and anxiety.

Occupational health disorders directly affect the physical and mental well-being of truck drivers. Poor diets — high in calories and low in nutritional value — alongside insomnia and irritability are alarmingly common among this group.<sup>4</sup> In Brazil, most professional drivers, particularly those in cargo transport, work irregular hours and often stay awake for more than 18 hours a day, impairing their performance and alertness.<sup>5</sup>

The work performed by truck drivers is vital to society. However, when carried out under the influence of psychoactive substances, it compromises not only the transportation of goods but also the workers' own quality of life. Furthermore, it poses significant risks to public safety, as operating large vehicles while under the influence of drugs endangers everyone on the road. Amphetamines and other illicit substances, used to keep drivers awake, are easily accessible through illegal markets. From 2013 to 2016, over 82% of amphetamine purchases occurred at gas stations.<sup>6</sup>

Psycho-stimulant drugs enhance alertness and reduce the need for sleep, with amphetamines and cocaine being among the most common. Amphetamines are synthetic drugs that may come in the form of tablets, capsules, powder, or injectables, and are usually taken orally. They increase synaptic dopamine levels and block dopamine reuptake.<sup>7</sup>

This use of legal or illegal drugs can have serious consequences. When combined with poor nutrition and physical inactivity, it can lead to obesity, which increases the risk of developing chronic conditions such as diabetes mellitus and cardiovascular diseases, particularly hypertension — the most prevalent health issues among these professionals.<sup>8</sup>

In response to this situation, regulations have been introduced in Brazil to promote the well-being of truck drivers, reduce substance use, and increase monitoring through toxicological testing.<sup>9</sup> Because of this legislative framework, the active involvement of regulatory agencies is essential to ensure compliance with laws aimed at curbing alcohol and psycho-stimulant abuse among truck drivers.<sup>10</sup>

Therefore, there is clearly a need for preventive campaigns and health education initiatives that address the dangers of using psychoactive drug and the unhealthy lifestyle habits commonly found among in truck drivers. In addition, highway inspections must be performed diligently to detect amphetamine use and prevent traffic accidents.

Educational materials can serve as tools for health promotion in public health settings. Although educational materials — such as manuals, booklets, and brochures — are not standalone solutions, even when combined with other strategies such as awareness campaigns, informational activities, or regular health check-ups, they can still produce meaningful outcomes.<sup>11,12</sup>

According to the authors,<sup>12</sup> educational materials should be designed to guide and empower individuals to care for themselves. They may include written content and/or visuals, aiming to promote health in ways that are compatible with the audience's reality. Technological tools such as digital booklets or printed materials can help facilitate the learning process.<sup>13</sup>

Creating an educational booklet with accessible, easy-to-understand content plays a crucial role in popular health education methodologies, contributing to both social development and scientific advancement.<sup>14</sup>

Therefore, the aim of this study was to develop an educational booklet focused on health promotion and drug use prevention for truck drivers.

## METHOD

This is an action research study conducted as part of a broader research project titled *Use of Illicit Drugs and Quality of Life of Truck Drivers Traveling on BR-163 – Cuiabá-Santarém Highway*. The study was conducted during the first half of 2023 at a checkpoint of the Brazilian Federal Highway Police (PRF) in the city of Santarém, state of Pará, specifically in a metropolitan region connecting Manaus to Belém — a major route for freight transportation and truck traffic.<sup>15</sup> The project was developed in partnership with the PRF and a team from the Universidade Federal do Oeste do Pará (UFOPA), composed of faculty in nursing and pharmacy as well as nurses, dentists, and pharmacists from the Multiprofessional Residency Program in Family Health, including graduate and undergraduate students.

The project team was responsible for providing care and guidance during the approach to truck drivers. This part of the research was only possible after the PRF requested that truck drivers stop along one of the country's major highways, which connects the North region to other regions such as Mato Grosso, Mato Grosso do Sul, São Paulo, Bahia, and Curitiba.

The project involved health promotion activities for truck drivers, including blood pressure measurement, capillary blood glucose testing, bioimpedance analysis, and oral health counseling. Additionally, a questionnaire was administered covering: a) sociodemographic aspects – sex, age, marital status, education level; b) work-related aspects – working hours, time in the profession, income; c) health behaviors and habits – use of addictive substances, pre-existing conditions, and medication use. Data collected served as the foundation for the development of the educational material and structured the overall project, with results presented by topic in previously published articles.<sup>16,17</sup> This study focuses specifically on the construction of the educational booklet, linking it to the prevention of legal and illegal substance use among truck drivers.

Based on the health promotion activities carried out during the project, a clear need emerged to provide truck drivers with a practical guidance tool. The booklet was chosen as an educational instrument due to its easy handling in areas without internet access and its accessible language. The development of the material followed 5 adapted steps, based on methodologies used in previous studies<sup>11-14</sup> aimed at knowledge production. The steps included: (1) preliminary characterization of the study participants; (2) conceptual framework, aiming to define the legal and illegal drugs to be addressed in the booklet, based on a literature review; (3) booklet development; (4) preliminary presentation and revision; (5) final validation of the educational material.

The first step — preliminary characterization of the study participants (sociodemographic profile, work-related aspects, and health behaviors and habits) — was conducted through activities carried out at the PRF checkpoint. This phase took place over four sessions held in April and May 2023, during morning and afternoon shifts, involving a total of 60 truck drivers.

The second step involved defining the conceptual framework through a literature review on the proposed topic, which informed the selection of relevant themes for structuring the material. A total of 3 databases were used: the Virtual Health Library (BVS), the Scientific Electronic Library Online (SciELO), and the National Library of Medicine (NLM) — the latter responsible for indexing in the Medical Literature Analysis and Retrieval System Online (MEDLINE) and providing access via PubMed.

To search these 3 databases, the descriptor “caminhoneiros” (Portuguese term for “truck drivers”) was used, with the survey conducted in Portuguese. Specific filters were applied in each database to refine the selection, as presented in Box I below:

Box I: Overview of materials used for the literature review

Database	Filters	Total
BVS	Occupational health	7 articles
	Substance use disorders	
	Men's health	
	Last 5 years	
SciELO	Collections: Brazil	3 articles
	Last 5 years	
PubMed	Single filter (truck drivers)	7 articles
Total		17 articles

Source: Prepared by the authors, 2023

In the third stage, the educational booklet was developed, including both pre-textual and textual elements. Its construction considered aspects such as language, the use of illustrations, and layout design, in order to ensure that each topic within the educational material was presented with appropriate content, language, and visual organization. This development was informed by the literature review, the profile of the truck drivers, and an interdisciplinary approach, aiming for the educational material to reflect insights from various fields within the health sciences.

The technological tool to be used in structuring the booklet was also defined during this stage. The team selected the Canva Pro® application, which was used collaboratively by all team members to create the booklet. This choice was based on the tool's user-friendly interface, availability of free design elements, and its capacity to deliver strong visual communication and professional results.<sup>18</sup>

In the fourth stage, a preliminary presentation of the educational material was conducted, marking the initial phase of its validation. This session was organized and carried out by multiprofessional residents and faculty from UFOPA, involving a total of 11 professionals who acted as validation judges. The criteria assessed included language, content, and presentation. Regarding language, the team evaluated whether the material was accessible and understandable to individuals with varying levels of education.

As for the content, the aim was to verify its alignment with scientific literature, particularly with respect to the accuracy of the concepts used. Finally, in terms of presentation, reviewers assessed whether any elements — such as inappropriate illustrations, excessive content, or poor distribution of text and images — could cause discomfort or hinder readability.

The fifth and final stage involved the definitive validation of the material, during which language, content, and presentation were once again reviewed. This phase served to confirm that the adjustments recommended by the validation committee had been made, allowing the material to be formally registered, published, and printed.

Thus, the validation process occurred in two phases: first, the evaluation of the preliminary version of the material, and second, the review of the revised version in the final stage.

The study was approved in advance by the Research Ethics Committee of the UFOPA under opinion number 5.870.227. All ethical considerations were duly observed in accordance with current legislation.

## RESULTS AND DISCUSSION

In the first stage of developing the booklet, the study participants were characterized. A total of 60 truck drivers traveling along BR-163 (Santarém–Cuiabá) agreed to take part in the study.

In the second stage, a literature review was conducted to support the selection of topics for the educational material, which was structured around the following themes: introduction, health promotion, and drug use — covering types, effects, harms, oral health, social problems, and consumption. In the booklet, these topics were

organized as: a) Introduction; b) Quality of life; c) What are drugs of abuse?; d) What are the most commonly abused substances?; e) Effects of drugs on the brain; f) Drugs and oral health; g) Potential social issues; h) Information on consumption; i) Conclusion.

In the third stage, the educational material was created using the digital platform Canva Pro®, chosen for its ease of use, intuitive tools, and the ability to collaboratively edit content across multiple accounts. This allowed for joint development of the material by the project team members.

The content was built upon the team's direct interactions with truck drivers during educational sessions, which enabled the delivery of information and open dialogue between participants and the project team. These exchanges revealed which topics generated the most questions, misunderstandings, or required further clarification — an essential step in defining the structure of the educational material. This aligns with the understanding that educational tools should be developed with the target audience, not for them, ensuring that the material is grounded in their social reality and is therefore meaningful.<sup>19</sup>

During this phase, the booklet was designed as a public health technology aimed at health promotion, with particular attention to ensuring accessibility for diverse population groups, especially those in socially vulnerable situations in terms of income and education. To avoid overwhelming the reader, the content was presented in a concise format. Research shows that short texts accompanied by illustrations make educational materials more engaging.<sup>20</sup> Therefore, illustrations were added to enhance the context and make the reading experience more dynamic and appealing. This simplified writing approach was also supported by participant data: 100% male participants; 43.5% aged between 41 and 60; 32% had not completed primary education; and the majority were from the state of Pará (31.6%), followed by Mato Grosso (18%).<sup>16,17</sup>

The themes explored in the educational material go beyond biological aspects, encouraging reflection on broader social issues. Typically, each page introduces the topic with a guiding question, aiming to capture the reader's attention and make the content more interactive (Figures 1 and 2).



Figure 1: Page 8 of the booklet – Types of drugs

Source: Prepared by the authors, 2023

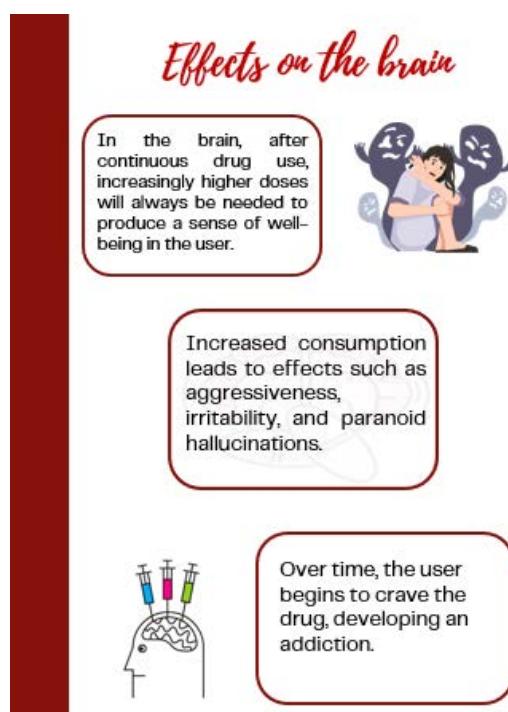


Figure 2: Page 11 of the booklet – Effects on the brain

Source: Prepared by the authors, 2023

Figure 1, corresponding to page 6 of the booklet, presents a brief introduction to the most commonly used drugs among truck drivers, based on findings from the integrative literature review. An introduction to the topic was necessary to provide context for the subsequent discussion on the effects of drugs — shown in Figure 2, on page 11 of the booklet — as well as their impact on the brain, with a focus on the most frequently reported consequences in the

literature. Studies have emphasized that these effects directly influence mental health and contribute to substance dependence.<sup>21,22</sup>

The material also addressed oral health, considering the specific characteristics of the target audience — truck drivers — who spend long hours each day inside their trucks, often without access to adequate facilities for oral hygiene. Additionally, this is a topic that remains largely overlooked. Thus, special care was taken in writing this section, given the presence of technical terms in the field, such as halitosis (commonly known as bad breath) and stomatitis (described as mouth sores), as illustrated in Figure 3, on page 12 of the educational material.



Figure 3. Page 12 of the booklet – Oral health vs. use of drugs of abuse

Source: Prepared by the authors, 2023



Figure 4. Page 14 of the booklet – Relevant information on drug consumption

Source: Prepared by the authors, 2023

The predominant use of red in the design of the booklet was chosen to evoke a sense of danger, as this color is commonly associated with warning signs. Attention to color usage is a key part of educational material development, as it enhances contrast, reduces monotony, and improves readability — ultimately making the visual experience more appealing.<sup>23</sup> Other studies<sup>24,25</sup> on the development of educational booklets — such as those on child care during the COVID-19 pandemic and breastfeeding support rooms — highlight the challenges of adapting language and selecting illustrations that best align with the intended message. Furthermore, these studies show that such tools are effective in disseminating information and facilitating health promotion.

Before finalizing the booklet, additional content related to drug use was incorporated (Figure 4, page 14). This allowed the booklet to conclude with reminders emphasizing the health and safety risks associated with drug use for truck drivers and the broader public.

Truck drivers carry out daily tasks that expose them to numerous occupational hazards, including long work hours, cargo handling, road dangers, and a lifestyle that often does not support good health. These conditions can lead to various social issues, especially within families, and make drivers more vulnerable to alcohol and psycho-stimulant abuse, such as amphetamines and cocaine.<sup>18</sup>

In the fourth stage — the preliminary validation of the booklet — review was carried out by university professors and professionals from the UFOPA multiprofessional residency program in the fields of nursing, pharmacy, and dentistry. This phase was crucial for identifying the need to adjust the language, content, and layout to ensure the material was accessible and easy to understand. The reviewers (who were exclusively faculty members from the university) recommended condensing the content and shortening sentences, as the initial version contained overly dense text. Based on this feedback, the team opted to improve the distribution of text and illustrations across the pages.

In the fifth and final stage, validation was conducted by 11 health professionals, both internal (faculty members) and external (field practitioners in primary health care), who acted as validation judges. This group included graduate students from the multiprofessional residency program in Dentistry, Pharmacy, and Nursing as well as university professors with expertise in educational material development and PhDs in public health and toxicology.

Regarding layout and formatting, conceptual and structural adjustments were made to ensure that the final product was suited to the needs and context of the intended audience. The team also confirmed that the initial validation feedback had been fully addressed.

The validation process revealed the challenge of producing an educational material that was both content-rich and accessible in its language. The final version effectively supported health promotion and drug use prevention among truck drivers, raising awareness about the harms associated with substance use.

Well-designed and highly rated educational booklets often follow similar strategies, including a question-and-answer format, simple writing, accessible language, and attractive illustrations. These features contribute to a more engaging experience and help readers better understand the content. Across the referenced studies, the importance of educational materials as tools that can positively impact individual health outcomes is reinforced.<sup>26,27,28</sup>

The development of educational materials requires a solid foundation of scientific research, an understanding of the target audience, and active participation from that audience in the construction process. Additionally, the material must be tailored to factors such as age, education level, and social, cultural, or even political considerations that may affect learning and receptivity to the content.<sup>29</sup> These factors were all carefully analyzed to ensure the content would be relevant and appropriate for truck drivers in Brazil.

After validation, the booklet was registered with an International Standard Book Number, cataloged, and assigned a Digital Object Identifier (<https://doi.org/10.29327/5284018>). It was later printed and distributed to PRF at BR-163 in order to serve as a guide for drivers, a resource for professionals during roadside interactions, and a potential tool for community-based health education. The educational material is also available for free online via the website of the Health Education Laboratory at UFOPA, and can be shared in PDF format.

In this way, educational materials can support health promotion, democratize scientific knowledge, encourage independent learning, and serve as effective tools for spreading high-quality health information.<sup>19</sup>

Popular health education is defined by its educational process rooted in everyday experiences across both formal and informal settings. It spreads organically within society, through dialogical interactions and shared lived experiences, while emphasizing the horizontal relationship between those who teach and those who learn.<sup>30</sup> In educational materials, this approach is reflected in the collaborative creation process involving the target audience.

This study revealed gaps and challenges in truck drivers' access to health care and information. Thus, it highlights the importance of producing materials tailored to the needs of marginalized and vulnerable populations.

The main limitation of the study was the inability to distribute printed copies of the booklet directly to all participants due to the high cost of printing. However, a digital version was made available, and a limited number of printed copies were provided to the local PRF base. These materials can be distributed to truck drivers traveling along BR-163 (Cuiabá–Santarém) or in other regions during future outreach activities.

## FINAL CONSIDERATIONS

This research project responds to a regional vulnerability related to the flow of large vehicles along a highway in the state of Pará, which exposes society to increased risks of traffic accidents and violence associated with the use of legal and illegal drugs. The development of the booklet served as a strategic response within the action research framework, chosen as a tool to promote the health of truck drivers.

The study reclaims an approach to health education that extends beyond the institutional boundaries of the university, encouraging professionals and diverse sectors of society to recognize that health integrity involves holistic and intersectoral perspectives. To achieve this, educational tools are needed that embrace the fundamental premise of education: knowledge is not transferred but collectively constructed.

Therefore, bringing the issue of drug use among truck drivers into public discussion — alongside the creation of an educational material that reflects the reality of Brazil's Northern region — represents a starting point for broader conversations about freight transport practices, labor precariousness, and the development of public policies aimed at this professional group.

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## AUTHOR CONTRIBUTIONS

**Deliane dos Santos Soares** and **Ellen Kricia Duarte Ribeiro Castro** contributed to the conception and writing of the manuscript. **Fabiane Corrêa do Nascimento** contributed to the conception and writing of the manuscript. **Flávia Garcez da Silva** contributed to the final revision of the manuscript. **Elaine Cristiny Evangelista dos Reis** contributed to the critical review and final revision of the manuscript.

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