

NTS in agriculture – A news media analysis

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SUMMARY

The current study examined news media reports of agricultural accidents through a mixed-method content analysis. This was done to identify instances of NTS previously found in agriculture.

KEYWORDS

Non-technical skills, agriculture, media

Introduction

Media coverage of farming accidents can supplement official injury surveillance (Scott & Dalton, 2020). Stories of agricultural fatalities and injuries have been routinely collected and catalogued in the US for specific regions in private databases. In 2015, AgInjuryNews was launched as the only publicly available collection of news media reports on farm injury in the world (Burke et al., 2020). Various studies have summarised injury trends by querying these databases, which can in turn inform prevention activities (Scott & Dalton, 2020). Media articles can also be analysed through content analysis (Phi, 2019), as these may feature self-reports or witness reports.

In the UK and Ireland, agriculture is the most dangerous industry. However, to our knowledge, there is no research project conducted using news media reports as primary source of surveillance of agricultural injuries in these countries, which marks an important gap in the literature. The news media can feature valuable details which are otherwise unavailable, providing insight into contributing factors involved in agricultural injuries, including non-technical skills (NTS) i.e., social and cognitive skills which complement technical knowledge and skills and contribute to safe and effective task performance. NTS have been previously identified as useful in agriculture through an interview study with farmers from the UK (Irwin & Poots, 2015). The current study aimed to consolidate the developed taxonomy of NTS by analysing news media reports.

Method

Relevant media articles were identified retroactively through a Google search conducted in Oct-Nov 2020 based on keywords such as “farm injury”, “farm accident” etc. Additional relevant articles were retrieved directly from newspaper websites. Both agricultural commercial media and general media articles were included, as well as from a few other online sources. Access did not require ethical approval as the information was freely available and collected from secondary sources. Inclusion criteria consisted of articles featuring agricultural incidents which occurred after 2015 in UK or Ireland and sufficient detail on contributing factors either through self- or witness reports or media coverage. After scanning the articles, exact duplicates were excluded. Forty articles were retained describing a total of 19 incidents. Articles were analysed using a mixed-method content analysis based on previously identified NTS (Irwin & Poots, 2015), elements and positive and negative behaviours in agriculture, whereby quantitative content analysis is used to measure frequency, and qualitative content analysis is used for more in-depth analysis.

Results

Instances of decision making were most frequently coded in the articles (n=34) of all NTS categories, mostly in the form of positive examples of adaptive decision making, whereby the farmer generated an alternate course of action in response to environmental cues (n=20). These behaviours typically prevented a more serious accident: *Obviously I stopped the tractor as quick as possible*. Conversely, most decision-making errors occurred due to a poor assessment and management of risk, whereby the farmer ignored task guidelines and protocols that might have minimised risk (n=16): *She wasn't wearing a safety helmet*, or by poorly identifying and selecting options, whereby the farmer jumped straight into the first identified option (n=9): *Opened the tank to agitate it again before spreading*. Most situation awareness errors occurred due to poor gathering of information (n=17), either because of unavailable knowledge of the environment or the task (n=8), forgetting elements (n=5), irregular scanning of the environment (n=4) or focusing on irrelevant aspects (n=2): *one hogget turned back without being seen by any of us*. At the comprehension level, some farmers appropriately recognised and responded to indications or cues within the environment (n=9), whilst others engaged in actions that indicated poor knowledge of equipment or task (n=8): *Inexplicably I reached for the extendable ladder and placed it at quite a tight angle*. Finally, some articles (n=6) also featured poor projection of future events, whereby the farmer engaged in an action which had immediate adverse consequences: *A quick mix and get it out, I thought*.

In terms of teamwork and communication, many articles featured instances of positive information exchange, whereby farmers shared safety-critical information (n=16) regarding their location or when raising the alarm post incident: *The driver shouted 'look out' at me*. Some articles also featured positive instances of co-ordination (n=6), whereby farmers engaged in agreed work activities in concert with other workers: *I said to the driver to drop them, and I would push them off when he was gone*. Nevertheless, some errors also occurred in this NTS category due to poor information exchange, whereby the farmer did not pass on or share important information relevant to the task (n=3) or due to poor delegation and task sharing, whereby farmers were reluctant to accept help even when fatigued or ill (n=2): *None of my family knew where I was*. A few leadership errors also occurred in the form of poor directing or guiding task behaviour, whereby a new worker was allowed to engage in tasks without training or supervision, and of poor leading by example, whereby farmers took risks in front of others.

Most task management behaviours identified fell under the organisation of resources and infrastructure element (n=22). Whilst some articles featured farmers who followed relevant guidelines for arranging a safe work environment (n=7) or ensured that necessary equipment was present and used (n=10), others featured workers who engaged in faulty workarounds (n=15) or ignored or failed to use suitable equipment for the task (n=6): *Was attempting to manually unclog grain from a combine harvester*.

Discussion

The results of the current study show the importance of NTS for agricultural safety. Nevertheless, it should be noted that media reports can only supplement official injury surveillance systems (Scott & Dalton, 2020). Potential limitations, such as the fact that more serious and fatal events are more likely to be covered, may have affected data availability and completeness.

References

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