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When a crash is really an accident: A concept analysis

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Abstract

Background—The debate over using the word accident has encouraged some groups to adopt the word crash, while other groups retain using accident. This article addresses the inconsistent and interchangeable use of the terms accident and crash.

Design—This conceptual analysis used a Critical Review Method, with Critical Theory as the theoretical framework.

Methods—A literature search was conducted in Medline and CINAHL for any papers published through 2011. An extensive review of literature was followed by purposive sampling of articles published in 2011 across countries, disciplines, and contexts.

Results—Forty-seven articles were read in entirety, resulting in two themes for accident: intent and injury. Seven articles were critically analyzed for intent, injury, and underrepresented margins of society (five articles using the term accident, one article using crash and accident interchangeably, and one using crash only). There was congruency on injury across all seven articles. Results were mixed for intent and the incorporation of marginalized people.

Conclusion—Although there is evidence that the use of the word accident should be maintained when the event could not have reasonably been prevented, the theoretical framework highlights this will likely perpetuate the conceptual confusion. The recommendation is to: 1) identify the mechanism of injury, 2) identify event as intentional vs. non-intentional, and 3) identify event as preventable vs. non-preventable.

Keywords

accident; crash; injury; trauma; concept analysis

There has been a long-standing debate regarding the use of the term *accident*. Some professional communities have transitioned away from using the term accident, and in some instances, have officially replaced it with the word crash when the circumstances involve motor vehicles or motorcycles.¹ Professionals in trauma have been among those in the movement away from accident. However, despite the extensive debate and change in terminology, accident is still regularly used by some professionals in trauma care and

research. To understand the meanings of the term accident and its context with motorized vehicles, a concept analysis will be performed.

Background

In the current literature, crash and accident are both frequently used, and sometimes noticeably used interchangeably. This inconsistency is surprising considering the heavy debate that has taken place regarding the appropriate terminology. This scrutiny of the language, primarily argued in 1990's and late 2000's, drew attention to the conceptual confusion over the usage of the word accident in the trauma literature. The message, both implied and formally stated, was that accident suggests the event is as a result of chance, and therefore not preventable. The suggestion was a different word should be used to indicate a preventable event. And while accident was the subject of conceptual analyses well before the extensive debate, interestingly, a modern conceptual analysis was not revisited during or after all the attention. The term crash is not the focus of this conceptual analysis; however, as it is often used interchangeably, it should be noted that its conceptual meaning has never officially been called into question. Since accident continues to pervade present writings, and is often used the same way as crash, the question begs whether there is a different meaning behind these two words, or whether the two words have come to essentially represent the same idea. There is a need for a present-day conceptual analysis to clarify these inconsistencies.

Accident is a term that has long been used, both colloquially and professionally. For nearly a century, there has been at least some acknowledgement of the confusion surrounding the term accident, with perhaps the first concept analysis on "accident proneness" being conducted in 1919.² Subsequent analyses of "accident proneness" and "accident phenomenon", in 1949³, 1960⁴, and 1983² started to address issues of expectedness, avoidability, and intention. Yet these analyses were not born out of a question over vernacular, but instead aimed at converting it from an everyday common-sense term to a scientific construct.⁴

The contemporary argument over the appropriateness of using the term accident in scientific works began in 1978 when its use was formally called into question for the first time.⁵

Doege made the argument that injury is not the result of an accident because this suggests it is a random act, attributable to chance, and lacks fault. Instead, the word injury was actually suggested as a replacement for the word accident.⁵ Initially, little resulted from Doege's argument.

In 1986, however, the term accident was again criticized.⁶ Despite ordinary and medical dictionaries of the time merely defining accident as anything happening by chance, Rutherford pointed out that there was, at least in the context of healthcare, an insinuation of injury. This characteristic therefore made accident inappropriate in the healthcare arena. Injury and trauma were instead offered as replacements for the word accident.⁶ Both Doege and Rutherford were rather brief in their arguments, yet their statements did draw attention to the topic.

The confusion surrounding the use of the term accident was then highlighted in a paper in 1988.⁷ The most comprehensive article on the issue to date addressed the fact that accident and injury were used interchangeably, and used in inconsistent ways. The volume of writings on the use of accident exploded in the 1990's, characterized by heavy debate over the terminology. While proponents for ceasing the use of accident argued the word conjured up connotations of fate and acts of God, opponents argued the push for the word's removal was irrational, would alienate the public, and was a form of censorship imposed by a group with one narrow viewpoint.⁸⁻¹⁴ Counter to the proponents argument that the vast majority of injuries and their precipitating events are predictable and preventable, opponents state that removing the word accident inappropriately takes that argument from "vast majority" to "all."^{1,14-14} Yet, on June 8, 1997, the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced its campaign to encourage the removal of the word accident from use and two months later released a proclamation that the word accident would no longer be used by the agency.¹⁰

Finally, in 2001, the British Medical Journal (BMJ) banned the use of the word accident in its journals, except in instances where accident was in a title.¹ The article pointed out that word accident had been inappropriately used for years, despite professional criticism, and continued to pervade current publications. The authors proposed "injuries" as a replacement word. They even argued to the extent that natural disasters, such as earthquakes, being struck by lightning, or avalanches are predictable with modern technology and one could avoid being in a dangerous place.¹

The ban led to clear disapproval by some. There were at least 70 responses published in BMJ, and other opponents published in other journals.¹¹⁻¹⁴ The urge to move away from accident has not been unanimous, where opponents state it is not only unnecessary but undesirable to eliminate this word.¹⁴ Opponents argued that by removing the word accident removes our ability to say that there are instances when there is no one at fault.^{13,14} The debate was not resolved once the ban was instituted, nor did the use of the word accident cease to exist in published papers.

Following the ban of the word accident, there was no official proposal or requirement for the substitute word. NHTSA suggested "crash", "collision", "incident", and "injury" were all appropriate replacement words.¹⁰ Since a vehicular crash, collision, or incident can certainly occur without injury, motor vehicle *injury* is would not always be appropriate, and has not emerged as the leading word for replacement. It is the word crash that has evolved naturally as the most frequent substitute when referencing motor vehicles or motorcycles.¹⁵ Yet, the use of the term accident is still highly prevalent, despite now over a decade since the ban. A medical database search today in the literature will still result in hundreds of articles using the term accident.

Purpose

The purpose of this conceptual analysis is to gain an understanding of the meaning, context, and perspective of the word accident. This analysis will consider multiple perspectives on this issue and examine the conceptual confusion existing in the literature. The goal is to have

a clear and current conceptual understanding of accident, rectify inconsistencies, and offer a final position on this issue. This will aid not only future researchers and clinicians in trauma, but potentially close a divide that has developed among different trauma clinicians and researchers.

Theoretical Framework

This concept analysis used a Critical Review Method, which is guided by Critical Theory. Critical Theory originated in the 1930's at the Frankfurt School in Germany.¹⁶ Its basic assumptions and premises are congruent with nursing's philosophy that care is provided within the context of health and social systems. The use of Critical Theory in nursing has been called "essential for the development of knowledge" for the profession.^{16,17} This method is appropriate because it allows the concerns over economics, politics, and marginalized populations to be acknowledged and examined when finding the true meaning of concepts.¹⁸ The emancipatory aspect of Critical Theory is of particular interest to nursing scientists because of its focus on domination, oppression, and power relations. Nursing's relationship with medicine has been viewed as hierarchical and the professional domination¹⁶ may make nursing a marginalized group in the debate surrounding the term accident. Likewise, there may also be other cultural, geographical, or disciplinary viewpoints that have not been considered in transition away from accident, explaining why some still use and publish with the word accident. They may retain the use of accident because it has meaning relevant to their particular context. If these reasons were not acknowledged or taken into consideration in the movement to ban accident, segments of the professional community concerned with trauma care and research may be marginalized, with replacement words such as crash, not incorporating these diverse views.

Grounded by the Critical Theory epistemology, this analysis will determine if the movement from accident to crash had been economically or politically motivated. Concern over economic motivations arise because the competition for funding is stiff, and preventable events will be deemed worthy of funding over events that are viewed as resulting by chance. Additionally, our socially constructed processes and institutions of the modern day, such as insurance companies, could serve as an economic incentive because where there is fault there can also be financial responsibility. There may have also been political motivations. Law and policy development is linked with the belief an injury can be prevented. Legislators provide greater support to causes that can demonstrate results, such as reduced morbidity.¹⁴ The Critical Review analysis will attempt to rectify the conceptual confusion by using as many viewpoints as possible.

Methods

A Critical Review does not take a linear process. Contrary to traditional positivist approaches that reduce an analysis to a set of steps, a Critical Review is more reflective and dialogic. However, the analysis can be difficult to follow without any structure, so some methodological organization is provided here to enhance clarity of the procedure carried out. In order to achieve the goals of inquiry in the critical paradigm, the concept accident was examined in the context of historical values. Thus, the first step was to search Medline and

CINAHL to find articles published through 2011, the ten-year mark since BMJ's ban. This included reviewing all literature published on this topic dating back to the early writings of the 1970's. This in-depth review formed a sound understanding of the evolution of the debate, starting at its origin, and the views of both the proponents and opponents on eliminating the word accident. It also fostered the detection of when crash emerged in the debate.

Next, the meanings of the word accident, expressed both outright and subtly, which were predominately featured in the literature were identified. These recurring meanings associated with the word accident were then consolidated into important themes. The identification of themes was only conducted for the word accident because it appears widely accepted that crash is defined as a preventable, non-random collision. For the purpose of this analysis, a crash was limited to motor vehicles and motorcycles. Since the word crash has been so heavily involved in the debate, and often replaces or is used interchangeably with accident, it was expected a small sample of articles using the term crash would also need to be included for the analysis of the word accident to be complete and uncover the distinctions between the two words.

Once the themes were identified, then a sample of articles published in 2011, which used the word accident, were purposively chosen to demonstrate the broad scope of its use. In attempting to understand the reasons why some authors retain its use, special attention was paid to ensure different countries and disciplines concerned with trauma care and research were incorporated in the purposive selection. This breadth attempted to account for marginalized professionals concerned with trauma science. Intra-study margins were defined as vulnerable people that may be at an increased risk for a traumatic event and/or injury, such as older adults or those with comorbid conditions, who may be habitually screened out trauma research. The selected literature was then evaluated according to the themes identified, context of its use, and apparent cultural, historical, or social influences.

Results

Forty-seven articles were read and reviewed, and nine predominate meanings of the word accident emerged, which are listed in Table 1. All of these defining characteristics were stated outright at least once in the literature, and often repeatedly. From the entire body of articles written on this topic, Table 1 summarizes what invested professionals on this topic have defined as the meaningful characteristics of the word accident.

The list provided in Table 1 was then collapsed into two themes: intent and injury. Initially a third theme of duration was created to account for the sudden nature described in the articles; however, this element was not retained because it is less controversial and would not add value to the critique or analysis. It was elected to remove this theme and continue only with intent and injury. Intent covers the elements that the event is random, unexpected, without intent, without fault, cannot be prevented, cannot be predicted, and cannot be controlled. Injury is heavily discussed in the literature, but whether its existence is a mandatory characteristic is less clear. There is question as to whether accident implies an injury has actually resulted from the event, or if accident is just the mere event itself without

an injury needing to be directly articulated. Despite the lack of clarity on this, and in fact perhaps because of this, injury was considered a theme to help clear the ambiguity.

With these themes identified from the 47 articles, a sample from the 2011 literature was then investigated for the use of the word accident. The articles using the word accident were narrowed down and ultimately selected to represent a broad range of disciplines, geographic locations, and contexts. Five articles using the word accident were selected for analysis. With mixed results appearing, it became clear that adding a very small sample of articles using the term crash would indeed be advantageous in the analysis. An article which used accident and crash interchangeably was added for examination, as was an article that never used the word accident. Table 2 summarizes the final purposive sample (n=7). There was consideration to add more articles that used crash and did not use the word accident; however, in reviewing the literature published without the word accident, it became evident that this circumstance was regionally dominated by the United States and professionally dominated by Trauma physicians, Public Health epidemiologists, and Injury Control researchers. Because this Critical analysis intentionally sought a breadth of perspectives, adding additional articles holding the same point of view was deemed of no additional value (see Appendix for details on the selected articles).

The articles that were purposively selected were then analyzed to determine if the authors addressed intent, injury, and underrepresented margins of society. Injury was found to be attended to across all seven articles. The interest in injury data resulting from the event, even in all of the accident articles, coincides with the arguments made for using the word crash. There appears to be congruency on the issue of injury between these two terms.

When examining the articles that used the word accident for its stance on intent, the results were mixed. In fact, it was fairly divided on this characteristic among the five articles using the term accident. Two of the articles held the position that a motor vehicle event is not random and is preventable, and therefore was categorized as positive for intent.^{19,20} Three of the articles using accident did consider the possibility of chance and that certain circumstances can be viewed as random and unpreventable.²¹⁻²³ When looking at the article that used crash only and the one that used crash and accident interchangeably, strong similarities were seen between these two articles.^{24,25} Not too surprisingly, they both stood on the side that events are predictable and preventable, but more interesting was that they were in the company of two of the articles strictly using the word accident.^{19,20}

Vulnerable populations that could potentially be marginalized were not always considered. In three of the four instances where it did not appear that the authors made efforts to account for populations frequently underrepresented, the authors also held the position that the event is not a result of chance, and therefore positive for intent.^{19,21, 24,25} Conversely, two of the three articles that acknowledge an element of chance also acknowledged the marginalized populations.^{20,22,23}

Discussion

The results of this analysis did find differing characteristics, emphasizing why conceptual confusion has existed in the literature. Moreover, the findings have instilled some question about the mainstream push for eradicating the word accident. The least complicated result was that all articles were concerned with injury status. So this defining attribute is essentially duplicated in both terms, and does not serve as a differentiating factor between the two terms. This initial result would point to the thought these two words might mean the same thing. The redundancy in meaning of both words would serve no purpose in using both and doing so would only contribute to the confusion. This would have potentially served as a platform for solely using crash instead of accident.

However, what unfolded when looking at the theme intent did not remain consistent with the findings seen under the theme injury. Instead, there were differences among the articles using accident, with three of the five articles holding the position there was no intent behind some events and were the result of random chance.²¹⁻²³ The other two articles opposing this position were in agreement with the articles using the term crash.^{19,20,24,25} This discrepancy on the meaning of intent among the articles using the term accident indicates accident is not just a redundant term to crash; it has some defining characteristics distinct from the meaning of the word crash.

The results regarding the incorporation of potentially marginalized people were also interesting. Both of the articles using the word crash did not consider underrepresented groups.^{24,25} Of the two additional articles that also did not include them, one believed there is intent behind the event and one believed in chance.^{19,21} That amounted to three of the four articles holding the position that an event is characterized by intent and not making any effort to account for populations frequently underrepresented. Moreover, two of the three articles that believe there is not intent behind the event did acknowledge the marginalized populations.²²⁻²³ Together this makes the case stronger for not eliminating the word accident. If articles using the word accident are more conscious of the people at-risk in the margins, that term will be less socially oppressing. If it is a matter of suppressing the voices of the few in favor of dominant views in order for crash to push out the term accident, our evolution only takes us in the direction of culturally and socially constrained meanings.¹⁸

The implications of these results, in many ways, contradict the mainstream idea that accident should be removed from the vocabulary of trauma professionals. Based on this analysis, it does not appear there is sufficient evidence to abandon the word accident. There are differentiating characteristics between the word accident and crash, in terms of intent. Due to these differences, removing a word that assumes different defining elements essentially removes one's ability to say what they mean.

However, through the Critical Theory's historical evaluation, it is apparent that retaining the use of the word accident is liable to perpetuate the conceptual confusion. Thus, the recommendation of this Critical Review is to: 1) identify the mechanism of injury,²³ 2) identify the event as intentional versus non-intentional, and 3) identify the event as preventable versus non-preventable. By consistently identifying intent and prevention, this

can address the characteristics unique to the term accident without requiring its inclusion in the literature and practice setting, which has contributed to a century-old conceptual debate.

Limitations

There are several limitations to this analysis. First, there are thousands of articles that use the term accident, so it was not possible to include all articles or even an article from each subcategory of usage. Also, while a Critical Review calls for purposive sampling seeking breadth and diversity, the articles sampled were not enough to decisively and unwaveringly draw conclusions about the use of the word accident. Presented here are findings and conclusions based on a small sample. A more exhaustive analysis could potentially reach different conclusions.

Another limitation is that these results are based on an analysis conducted by one individual, therefore thematic comparisons among research team members was not possible. Efforts to mitigate this limitation included bracketing, a qualitative methodology used to remain neutral and “bracket” personal preconceptions, and consultation with a conceptual analysis expert for the Critical Review methodology. Despite these efforts, there is still the potential for bias in the results.

A final limitation is that of the Critical Review Method. While this method, and the underlying Critical Theory, is particularly relevant in nursing and became frequently used by nurse scientists in the 1980's, it is often criticized for being overly negative in nature.^{15,16} This approach questions the status quo and provokes nurses to constructively reflect on existing norms. Despite the relevance of this topic to trauma nurses, nurse practitioners, and nurse scientists, nursing has been noticeably absent in the discussions about using the term accident. Nurses concerned with trauma care may find they side with banning the term accident; however, this should not be concluded passively at the margins while dominate groups hold the debate. Although a Critical Review approach can feel uncomfortable as it challenges a dominate social construct, it should elicit reflection about the use of the word accident within the context of nursing.

Conclusions

This Critical Review highlights the possibility that dominant views may have influenced the movement to avoid the word accident, while discounting geographical, cultural, or professional differences and vulnerable groups. There may in fact be a place for the word accident in healthcare. The results here suggest we should not eliminate the word accident when the event could not have reasonably been prevented, such as a sudden change in the weather or road conditions, a medical incident in the driver that was not anticipated, or an object unexpectedly interfering with the path of the vehicle. In such instances, there is an element of chance involved, where the event could not have been reasonably foreseen. Proponents of eradicating the word accident would argue that weather, medical conditions, or avoiding a collision with an object can be predicted or prevented. While theoretically this could be true in an ideal world, the reality is there are some instances where, even with the

best of intentions, highest precautions, and most acute sense of awareness that an event will still occur. There is that possibility. In such situations, accident is the most relevant word.

However, despite this conclusion, it is recognized that crash will be suitable in most cases. Indeed, most events are preventable, and attributable to situations such as alcohol use, driver distraction, or speeding. And in such instances, accident would not be the most suitable word. Furthermore, based on the examination of the historical movement to change healthcare's language and the Critical Review of the literature, it is evident that continued use of the word accident would only perpetuate conceptual confusion among trauma professionals. Although these results suggest the use of accident has a place in the literature when even great efforts at prevention would have failed because there was a true element of chance, it is recommended that the best practice for consistency is to identify the mechanism of injury in addition to identifying the event as intentional vs. non-intentional and preventable vs. non-preventable.

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Key Points

- All articles analyzed did address whether an injury occurred, which was deemed a meaningful characteristic of the word accident.
- Using the theme of intent, it was found there are differentiating characteristics between the word accident and crash.
- Articles using the word accident were found to be more conscious of marginalized populations, which makes a stronger case for retaining the word accident.
- The use of the word accident is appropriate when the event could not have reasonably been prevented.
- Best solution given historical context is: 1) identify the mechanism of injury, 2) identify if event was intentional, and 3) identify if event was preventable.

Table 1

Frequently featured meanings of the word accident in the literature

1. Its use implies the event was random
2. Its use implies the event was unexpected
3. Its use implies there was no intent
4. Its use implies there can be no fault
5. Its use implies the event was sudden
6. Its use implies it cannot be prevented
7. Its use implies it cannot be predicted
8. Its use implies it cannot be controlled
9. Its use leaves the presence of injury unclear

Table 2

Summary of purposively selected articles

Authors	Country	Discipline	Intent ⁺	Injury ⁺	Margins ⁺
Andersson & Chapman ²¹	UK	Geography/ Environment	No	Yes	No
de Oña et al. ²²	Spain	Civil Engineering	No	Yes	Yes
Kwon et al. ²³	Canada	Neurology	No	Yes	Yes
Ouellet ¹⁹	USA & Thailand	Accident Analysis	Yes	Yes	No
Smolensky et al. ²⁰	USA	Occupational Medicine	Yes	Yes	Yes
*Ju & Sohn ²⁴	Korea	Industrial Engineering	Yes	Yes	No
**Stein et al. ²⁵	USA	Trauma	Yes	Yes	No

* Accident and crash used interchangeably

** Accident never used

⁺ Intent: No if authors see event may be random, unexpected, without intent, without fault, cannot be prevented, cannot be predicted, and cannot be controlled. Injury: Yes if injury info collected. Margins: Yes if attempted to include a vulnerable population.

Appendix

Details of the purposively selected articles

Authors, Title, Yr	Country	Discipline	Intent	Injury	Margins
Andersson, A. K. & Chapman, L. (2011). The impact of climate change on winter road maintenance and traffic accidents in West Midlands, UK. <i>Accident Analysis and Prevention</i> , 43, 284-289.	UK	Geography & Environmental Sciences	Strong lean in position event is random (i.e. weather) Some efforts can be done to reduce crash events, but the best of efforts can't beat mother nature. The expected reduction in crashes is due to projected warmer weather	Yes, concern for casualties.	No, not included.
de Oña, J., Mujalli, R. O., & Calvo, F. J. (2011). Analysis of traffic accident injury severity on spanish rural highways using bayesian networks. <i>Accident Analysis & Prevention</i> , 43, 402-411.	Spain	Civil Engineering	Leans toward the position that chance can be involved, such as atmospheric conditions/factors.	Yes, injury severity collected.	Yes- no evidence of imposed restrictions that excluded margins.
Kwon, C., Liu, M., Quan, H., Thoo, V., Wiebe, S., & Jette, N. (2011). Motor vehicle accidents, suicides, and assaults in epilepsy – A population based study. <i>Neurology</i> , 76, 801-806.	Canada	Neurology	Leans toward position of event being random, etc., based on their results. Since epilepsy is not associated with MVC any more than general population, then they run the same <i>chance</i> as others.	Yes, had to be present (and seek medical care).	Accounted for a potentially marginalized group- Epileptics Still bound within its structure: use of ICD-9 codes and Alberta Health Care Insurance Plan Registry
Ouellet, J. V. (2011). Helmet use and risk compensation in motorcycle accidents. <i>Traffic Injury Prevention</i> , 12, 71-81.	USA (California) & Thailand	Accident Analysis	Lean toward event is not random for purpose of this study and there is a precipitating factor. Do acknowledge possibility of chance factor, but took efforts to exclude these events.	Yes, injury data collected.	Did include multiple geographic locations, but no obvious effort to otherwise include margins. *so use accident in the way crash means
Smolensky, M. H., Milia, L. D., Ohayon, M. M.,	USA (Texas)	Occupational Medicine	Strong lean toward position of not random	Yes, injury implied to be involved	Did appear to reach farther out to

Authors, Title, Yr	Country	Discipline	Intent	Injury	Margins
& Philip, P. (2011). Sleep disorders, medical conditions, and road accident risk. <i>Accident Analysis and Prevention</i> , 43, 533-548.			and is preventable. Fatigue is the result of conditions – a treatable/ preventable symptom	(not outright discussed)- does refer to mortality.	margins by including “less restrictive variables”
*Ju, Y. H. & Sohn, S Y. (2011). Quantification method analysis of the relationship between occupant injury and environmental factors in traffic accidents. <i>Accident Analysis & Prevention</i> , 43, 342-351.	Korea	Industrial Engineering	Leans toward the position that accident is preventable and predictable. All vehicle, safety, and “accident” variables held in a position of preventable. Uses accident and crash interchangeably throughout.	Yes, injury variables collected.	No, narrowly focused and no effort to include margins.
** Stein, D. M., Kufera, J. A., Ho, S. M., Ryb, G. E., Dischinger, P. C., O'Connor, J. V., & Scalea, T. (2011). Occupant and Crash Characteristics for Case Occupants With Cervical Spine Injuries Sustained in Motor Vehicle Collisions. <i>Journal of Trauma-Injury Infection & Critical Care</i> , 70(2), 299-309.	USA (Maryland)	Trauma	Strong lean towards position events are preventable. Technology and automotive safety improve crash rates because these events are preventable. Seeks to address more preventable variables.	Yes, multiple injury variables included.	No. In fact aims to include only the most common types of cases.

* Accident and crash used interchangeably

** Accident never used