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Current Research Trends and Research Themes of Breaking Bad News: A Systematic Review

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ABSTRACT

Breaking bad news is challenging and complex for healthcare professionals. The art of breaking bad news is not just difficult to master, but it may also put the physician-patient relationship as well as the overall quality of healthcare in jeopardy. Hence, it is important to keep abreast of recent research trends and themes on breaking bad news to better understand the issues discussed in the research ground. This study, therefore, aims to gauge the research trends and, at the same time, identify the research themes in current literature. A Systematic Literature Review (SLR) of breaking bad news research following the PRISMA-P statement was conducted on articles published within a ten-year period between 2011 and 2020. From the 187 articles obtained from the initial search, the researchers were able to extract 152 articles with full-text access. After screening the articles using the inclusion and exclusion criteria, 35 articles were finally selected, examined, and summarised in a table. Descriptive synthesis analysis was used to analyse the data, which was later thematically classified. The findings revealed three main foci of current breaking bad news research: (a) initiatives to improve breaking bad news; (b) ways to break bad news; and (c) the emotions of healthcare professionals when breaking bad news. The review of current literature has revealed significant research gaps, which is beneficial in determining important but neglected areas of study for future research.

Keywords: *Breaking bad news, Systematic review, Health contexts, PRISMA-P statement, Healthcare professionals*

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INTRODUCTION

Breaking bad news is one of the most important clinical tasks and not something that can be avoided (1). However, delivering bad news is challenging (2), and it has been reported as the most stressful facet of medical work (3, 4, 5). This is because when bad news is delivered, it requires particularly well-thought-out communication to help patients or their family cope with their loss or deal with their grief (6). The most frequent factor that makes bad news encounters unpleasant for many doctors is that they feel underqualified (7). Doctors have been found to lack communication skills, especially when it comes to delivering bad news (8, 9, 10, 11). The lack of communication skills stems from the scarcity of training provided to them, which can also call for doctors' emotional detachment from their patients (9). Paying attention to the receivers' emotions is essential for healthcare professionals to conduct logical and advanced discussions when making patient-related decisions. In addition, doctors reported feeling awkward at times in situations where they were not well trained (8). Hence, when disclosing bad news, doctors with little or no training are more agitated and nervous than well-trained physicians (12, 13). This will, therefore, impact their confidence in delivering bad news (8, 11), and likewise, the receivers' faith in them is also vitiated. Although it may never be easy to deliver bad news (14), training may help reduce the load or stress associated with doing so as it provides ease and confidence when delivering bad news among healthcare professionals (15).

Bad news, no matter how elegantly put, is still 'bad' news. However, the way news is packaged will have a significant impact on both the receivers and the bearers. If inappropriately managed, the patient's health may be jeopardised, the quality of treatment will be impeded, and communication with healthcare professionals will be hampered (9). In contrast, when the delivery of bad news is skilfully managed, difficult choices are justified, patients' wants and concerns are addressed, and emotions are welcomed. This situation necessitates the employment of competent communicators to deliver bad news (8, 9), since the receivers' perceptions of the health situation are heavily influenced by how bad news is delivered (16). Selecting an appropriate technique for delivering bad news may aid receivers in comprehending the information and influencing their perspective and attitudes towards it (8). Therefore, determining the best model for managing bad news encounters may help doctors make better communication choices. There have been several models developed to date to ensure communicating bad news to patients and family members is more structured, organised, and 'successful', among which are: the SPIKES model (17), Kaye's 10-step (18), the BREAKS model (9), the ABCDE model (19), and the COMFORT model (20).

A previous study on physician's challenges in breaking bad news has concentrated on three areas: (a) providing suggestions or ways to deliver bad news; (b) analysing recipients' preferences when receiving bad news; and (c) evaluating training initiatives to strengthen breaking bad news skills (10). Another study conducted in 2012 grouped the breaking bad news literature into six themes: adequate information to patients; divergent cultural perspectives on truth-telling; management of emotions; truth-telling procedures; educating the messengers of bad news; and structures and supports (21). A comprehensive review of dementia disclosure in the first decade of the twenty-first century, covering literature from January 2000 to December 2010 revealed three themes: patients' and caregivers' attitudes and preferences towards dementia disclosure; physician preferences and practices towards dementia disclosure; and process issues related to dementia disclosure (disclosure of the dementia process, including the interventions used to improve the process) (22). Even though the study focused on dementia, the researchers believe that the act of breaking bad news, regardless of the context, is significant. The researchers then interpreted these themes to meet the general context of

breaking bad news as (a) patients' and caregivers' attitudes and preferences when receiving bad news; (b) physicians' preferences and practise when breaking bad news; and (c) how bad news is communicated to patients and family members. According to these three studies (i.e., 10, 21, and 22), research on breaking bad news from 2009 to 2012 focused on three main themes: (a) how bad news is communicated (mostly on the preferences of bearers and receivers), (b) how bad news should be communicated (breaking bad news guidelines and procedures), and (c) education and training related to breaking bad news. Hence, this study intends to continue this effort by examining studies on breaking bad news published in the last decade, from 2011 until 2020. An overview of research trends and research themes on breaking bad news is important to determine the areas of research that have received less attention. Not only that, by identifying current trends, researchers can equip themselves with current techniques and strategies to approach research subjects and materials efficiently. Therefore, this paper aims to examine the current research trends and research themes of breaking bad news in health contexts between 2011 and 2020.

METHODOLOGY

This paper uses a systematic literature review method to examine recent literature on breaking bad news. A systematic review is sought to organise relevant data that meets set eligibility criteria to address a particular research question. The systematic review conducted in this paper focused on articles indexed in one reputable database, ScienceDirect, to provide a broad picture of breaking bad news studies conducted in health contexts in the past ten years following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols (PRISMA-P) statement suggested by Moher et al. (23). The researchers divided the review into three stages based on the PRISMA-P statement as suggested by a previous study (24), as illustrated in Figure 1:

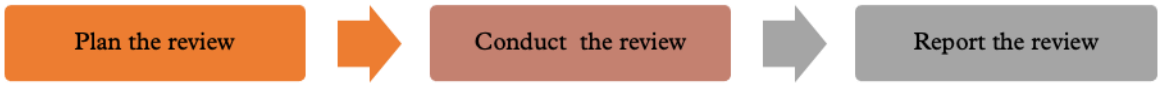

Figure 1: Three stages of systematic literature review

In the plan the review stage, the researchers described the eligibility criteria and how the information is sourced. Then, in the subsequent step, the conduct the review stage deals with data gathering, and finally, the report the review stage is when the researchers report the data items or categories before discussing the findings.

First Stage: Planning the Review

The research articles in the review were sourced through a systematic search in the ScienceDirect database for papers published in the past decade (2011–2020). ScienceDirect was selected as it has the second-highest precision of all evaluated engines (PubMed, ScienceDirect, Scopus, and Google Scholar) after Google Scholar (25), and it was also reported as the most

precise of all evaluated engines (ScienceDirect, ILD, PubMed, and Google Scholar) (26). In addition, ScienceDirect enables researchers to carry out specific searches in terms of limitations and abilities, making it convenient to retrieve relevant papers. According to Kitchenham and Charters, a single database search is deemed sufficient if it can provide high quality peer-reviewed papers and may have an insignificant effect on the search outcomes (27). In addition, the researchers also have complete full-text access to research papers in the ScienceDirect database, which is important to enable them to carry out the necessary analysis.

At the outset, a research procedure was developed before the actual review was conducted. This research method is necessary to guarantee that not only relevant research papers are reviewed within the scope of this study but also that researcher bias is minimised (28). The researchers utilised Boolean search as their search strategy, entering "bad news", "bad news in health contexts", "breaking bad news," and "breaking bad news in hospitals" as descriptors in the search field. The keyword search terms used were kept general to encompass a wider range of publications related to the topic. This search is limited to papers published in the last ten years (2011–2020) and was conducted between May 2011 and August 2021. To further clarify the review procedure, the researchers formulated a list of criteria for the inclusion and exclusion of articles, which are shown in Table 1:

Table 1: The inclusion and exclusion criteria

Inclusion Criteria	Exclusion Criteria
Research-related articles	Non-research articles (including reflective journal of health professionals & article reviews)
Complete research papers	Non-complete research articles (e.g., abstracts)
Articles that contain these two components/factors: (a) purpose of the research (objectives) & (b) methodology section	Articles that do not contain these two components/factors: (a) purpose of the research (objectives) & (b) methodology section
Articles written in English	Articles written in languages other than English
Articles which are related to health contexts	Articles which are not related to health contexts
Health professionals communicate bad news to patients/family	Patients communicate the bad news to family/relatives

The inclusion and exclusion criteria are essential to ensure that only relevant papers are reviewed. These criteria established the parameters for the systematic review, ensuring that the searches are consistent and abide by a standard protocol. The inclusion criteria are crucial in ensuring the objectivity of the article searched. The exclusion criteria, on the other hand, are variables that determine the ineligibility of the articles discovered. Only research-related articles and complete research papers were selected, as the review aims to examine the theoretical and methodological perspectives of previous research on delivering bad news. This corresponds to two specific components of the articles examined by the researchers, which are the research purpose and the methodology. In addition, only articles written in English and related to delivering bad news in health contexts were selected for the review. Another criterion for inclusion is that only research addressing the delivery of bad news by health professionals will be selected.

Second Stage: Conducting the Review

It is important to note that the actual review takes place in the second stage. Through the following Boolean search: "bad news", "bad news in health contexts", "breaking bad news" and "breaking bad news in hospitals", the researchers found 187 research articles. Out of the 187 articles, only 152 articles were retrieved by the researchers, as these articles provided full-text access. After screening the articles based on the inclusion and exclusion criteria specified in the research protocol, only 35 articles were selected. The process of selecting the articles is illustrated in Figure 2.

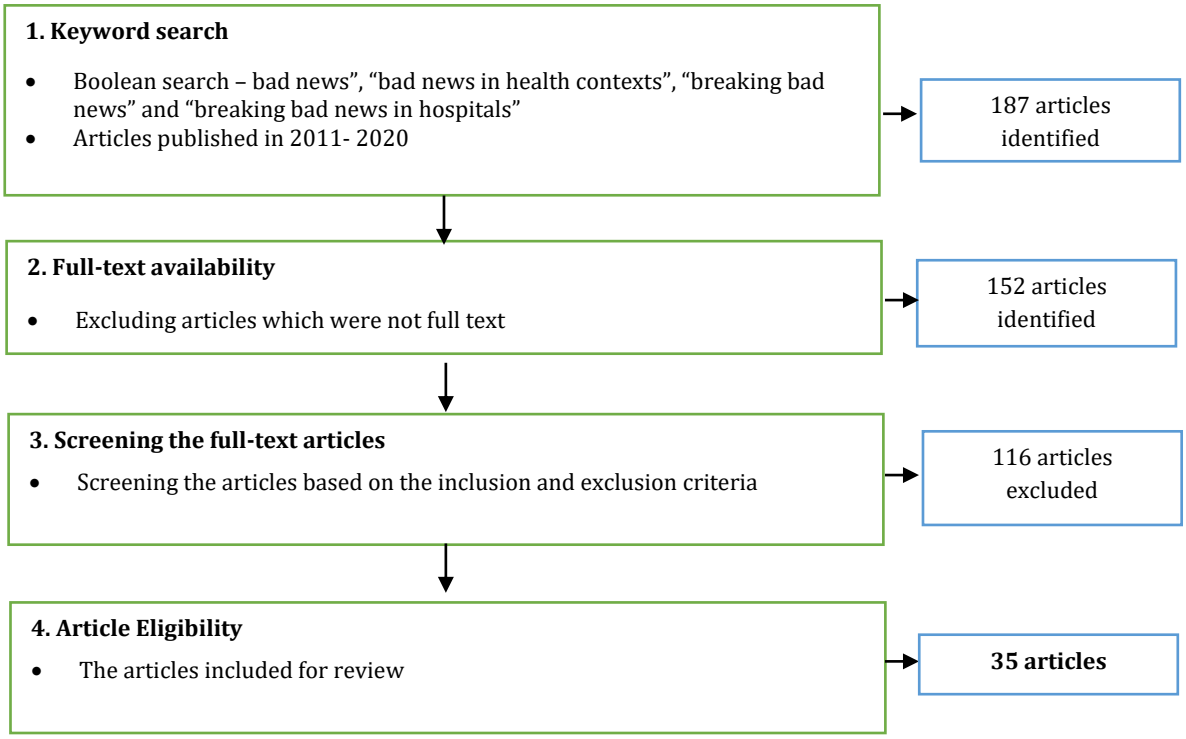

Figure 2: Process of selecting relevant articles

The final set of 35 research articles was carefully read while the purpose of the study as well as the research methods utilised to achieve the stated objectives were carefully recorded. These key points were extracted from the articles and summarised in a table. The table was labelled with various categories, including the two components or variables determined in the study procedure (purpose and methodology). All the information gathered was subsequently summarised (refer Appendix). The summary of the collected information was synthesised and categorised into prominent themes using descriptive synthesis analysis of the tabulated data in the table. The analysis was carried out manually through a careful reading of the selected papers.

Third Stage: Reporting the Review

Once the key points in the articles were identified, extracted, and summarised, four main themes derived from the review were reported. The themes are: (a) the distribution of breaking bad news studies over time; (b) the research designs; (c) the prevalent breaking bad news research themes; and (d) the current breaking bad news research gaps.

Quality Assurance of the Data Search, Screening Process and Extraction Process

To ensure the quality of the data search, screening, and extraction processes, the researchers enlisted three reviewers who are experts in the field of healthcare communication. They reviewed the process of selecting articles based on the inclusion and exclusion criteria specified in the research protocol. The reviewers were then requested to score a list of conditions to ensure the relevance and suitability of the chosen articles used for this review. This screening process in the form of a list of conditions is to replace the constructs used in the Risk of Bias Assessment, which are often included in systematic reviews. Since quality and risk of bias are used interchangeably in previous studies (29), both tools are useful to determine the quality of the articles.

The experts were asked to respond to a list of questions by allocating a score of 1 to 5, with 1 being very relevant', 2 being relevant, 3 being moderately relevant', 4 being slightly relevant', and 5 being not relevant'. The list of questions acts as conditions that the articles need to meet to be considered as part of the review materials (30). The conditions are as follows:

1. Is/are the purpose(s) of the study concerned with breaking bad news in the health context?

2. Is/are the research instrument(s) utilised appropriate for the study's objectives/goals?

3. Is/are the method(s) of analysis helping to provide answers to the research objectives?

4. Is the target population relevant to the review? – healthcare professionals should be the ones breaking bad news to patients or family members.

The weight of each item was calculated by adding the three experts' scores on each of the four conditions and using the proof provided (20 scores). Articles were of poor quality if the score is five or less, medium quality if the score is between six and ten points, high quality if the score is between eleven and fifteen points, and very high quality if the score is between sixteen and twenty points. The quality audit verified the content of the articles, revealing that 24 were of very high quality and 12 were of high quality. Therefore, all 35 articles that went through the final screening were qualified to be used in this review. Finally, the reviewers also assessed the data extraction conducted by the researchers. The 35 articles used in this study addressed the extraction of data from three main parts, namely the abstract, introduction, and methodology, to report the two variables determined in the study procedure (purpose and methodology). The

data search, screening, and extraction processes were performed independently, and no discrepancies were identified among the reviewers.

FINDINGS AND DISCUSSION

As recommended by Azazi and Shaed (31), the researchers have summarised the characteristics of the 35 articles published from 2011 to 2020 in a table (see Appendix A). This summary table outlined the four key findings of the review as described in the following sections.

The Distribution of Breaking Bad News Studies over Time

The 35 articles selected for the systematic review were published between 2011 and 2020. The 10-year period is adequate to observe recent research trends on the topic of breaking bad news, specifically in the context of health. The following figure, Figure 3, illustrates the trend of breaking bad news research conducted in the past ten years.

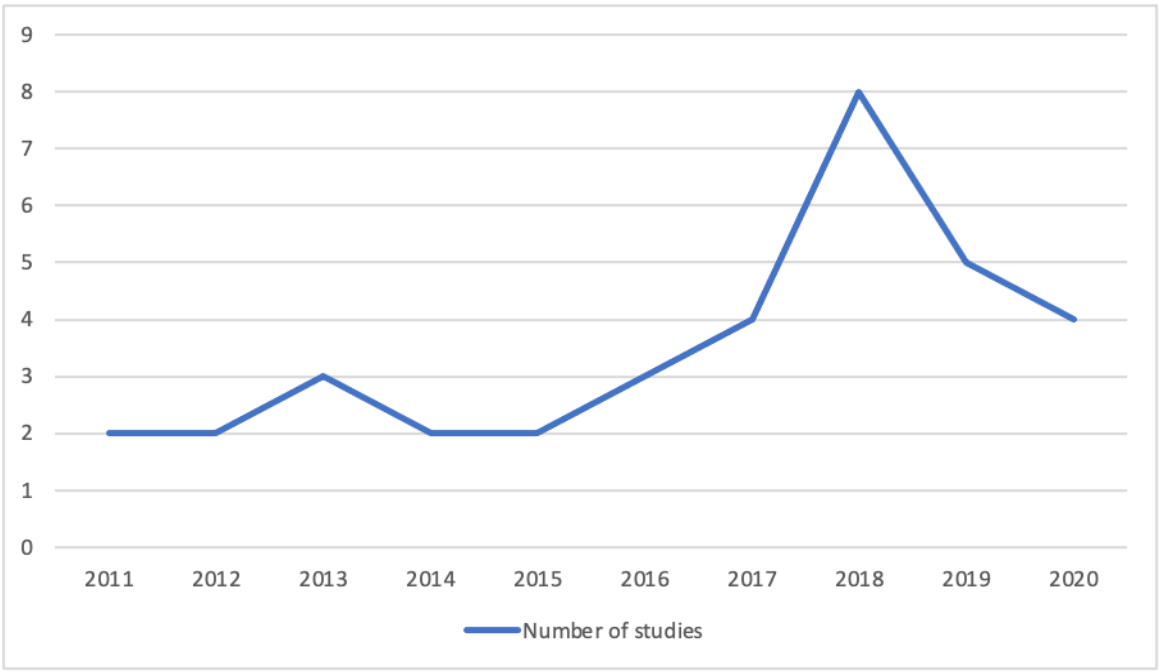

Figure 3: Number of breaking bad news research done per year

Based on the analysis of breaking bad news research over the 10-year period, the pattern shows a steady increase in the first three years and a slight drop in 2014, which later continued to stay stagnant for a year. Research related to the delivery of bad news saw a steady rise, which began

at the end of 2015 and continued steadily before reaching its peak in 2018. A year later, in 2019, a sudden plunge was seen in the number of breaking bad news studies, which continued in the following year, 2020. Overall, even though the number of articles published had a fluctuating trend in the past decade, the overall number of articles published has shown a gradual increase. The finding is similar to a previous study that found an annual increment in the number of studies published in this area (32). This rising trend is believed to be correlated with the focus on a more patient-centred healthcare industry (32), which resulted in an increased interest in breaking bad news topics in health contexts. This pattern encourages researchers to include more breaking bad news studies in health settings in the future.

The Research Designs

Over the course of a decade, breaking bad news studies have utilised different designs: quantitative, qualitative, and mixed method. The following figure shows a summary of study designs in breaking bad news research:

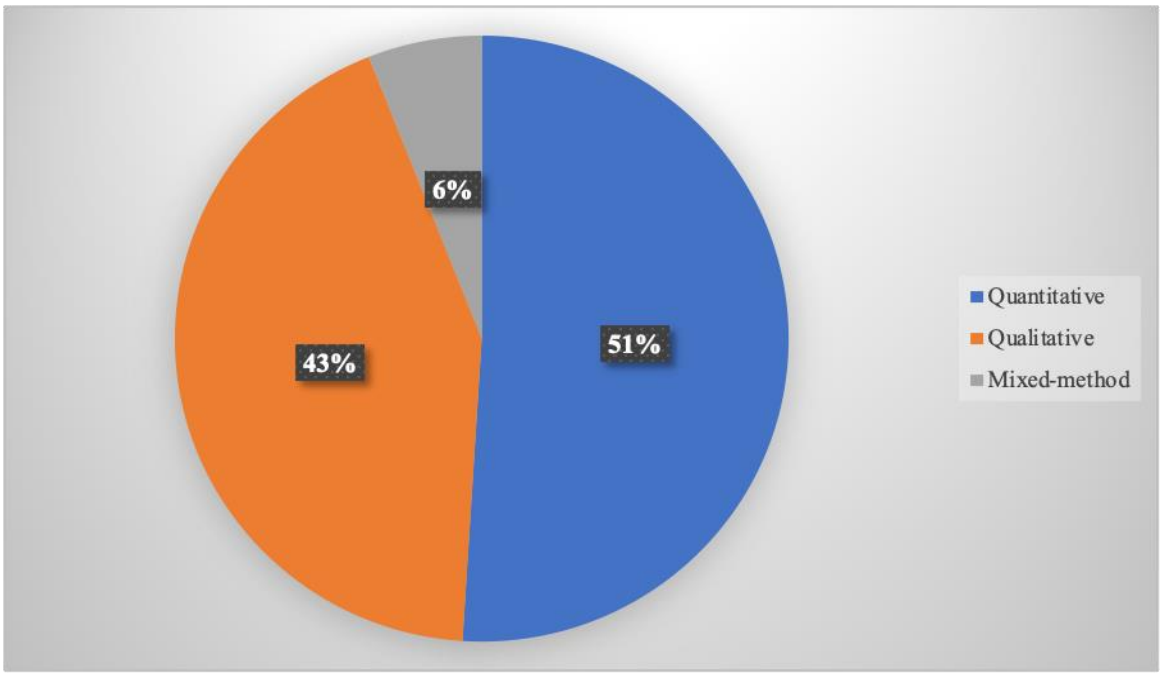

Figure 4: Types of research design used in past research on breaking bad news (2011-2020)

The most common study design is quantitative, followed by qualitative and mixed method research designs. Only 6% of the studies (2 studies) on breaking bad news reviewed in this paper were conducted using a mixed method approach, which is a significant contrast to the

number of studies conducted using the quantitative (51%–18 studies) and qualitative (43%–15 studies) paradigms. Mixed-method research design refers to studies that collect both quantitative and qualitative data, regardless of which came first. The data for one of the mixed-method studies was gathered via chi-square tests and interviews, while the data for the second mixed-method study was gathered through focus group interviews and questionnaires. Both studies are interested in the respondents' views, with one focusing on respondents' preferences for breaking bad news models and the other on whether respondents believe that online teaching may help residents improve their attitudes and perceptions about breaking bad news. This may be explained by the nature of an opinion or a perspective study that requires both qualitative and quantitative perspectives to strengthen the collected data and prevent the data from being only 'he says, and she says'. When the data is triangulated, the validity of the data is enhanced (33). Another possible reason for this is that healthcare professionals who conducted this research work in hectic environment. They may have to deal with impromptu changes, and having both qualitative and quantitative views in their research would take up more of their already limited time.

The highest percentage of breaking bad news studies have been shown to employ a quantitative research design, which allows researchers to highlight trends or issues. Moreover, quantitative methodology is often used in health research, especially studies exploring patients' views and opinions, as it can include a large data population (34). However, quantitative methodology is incapable of providing a description of the intricacies of bad news communication. This calls for qualitative research to fill this gap and provide a more comprehensive look into breaking bad news research. This may explain why there is a slight difference in proportion between research employing the qualitative and quantitative approaches. It could be said that in the last decade, both quantitative and qualitative research have played a balanced role in breaking bad news research.

The Prevalent Breaking Bad News Research Themes

Research has shown meaningful themes are formulated from the review of literature (35). Similarly, in this study, three prevalent themes emerged to summarise studies conducted in the past ten years on the subject of delivering bad news in health settings. The themes are listed in Table 2

Table 2: Three main research themes of recent breaking bad news research

No	Themes	Descriptions
1	Breaking bad news training /education for healthcare professionals	Fourteen studies were on healthcare professionals' or medical students' training on breaking bad news (24, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48). • Ten studies discussed how training, or the use of a specific intervention or method would positively affect the delivery of bad news (36, 37, 38, 41, 43, 44, 45, 46, 47, 48). • Four studies discussed the participants' evaluation of the training that they had received (36, 37, 38, 44). • One study particularly focused on the discussion of how healthcare professionals can be trained (42). The training's modules mostly include simulated patients or simulated clinical encounters to train the participants. • One study was conducted on the use of online teaching to help improve the beliefs and perceptions of healthcare professionals when breaking bad news (36).
2	Ways of communicating bad news among healthcare professionals	Eight studies discussed healthcare professionals' ways of communicating bad news to patients (49, 50, 41, 51, 52, 53, 54, 55). • Five studies focused on the difficulty of delivering the news, different bad news delivery styles, and the good and bad ways of communicating bad news (49, 41, 51, 53, 55). • One study was conducted on healthcare professionals' characteristics and patient-centred approach to the way the news is delivered to patients/caregivers (54). • One study focused solely on the right time for healthcare professionals to disclose bad news to family members (50). • One study was on the model used to break bad news (55).
3	Emotions of healthcare professionals related to delivering bad news	Five studies focused specifically on healthcare professionals' physiological stress when delivering bad news (31, 56, 57, 58). • Two extended the discussion by looking at how stress affected their bad news delivery (56, 57).

Three themes were found to be the most prevalent in breaking bad news research: (a) initiatives to improve breaking bad news (training and education); (b) ways to break bad news, including the guidelines and models of breaking bad news; and (c) the emotions of healthcare professionals when breaking bad news. This is not entirely surprising, as these three themes have a strong connection in guaranteeing high-quality healthcare service, which begins with the requirements for good service, is followed by training to offer good service, and ends with the execution of that service. This is affirmed by a statement made by previous researchers that, as a healthcare service provider, a hospital is appraised not just on the quality of its facilities but more on the quality of the services provided (59). And to ensure quality service, health

professionals, which include those who deliver bad news, are vital to healthcare delivery, which is the lifeline of the health system.

The Current Breaking Bad News Research Gaps

The review conducted on delivering bad news research from 2011 to 2020 revealed a rising tendency. Despite this rising trend, there is a general scarcity of literature on the topic (60). The findings of this research showed that 35 investigations were performed on this subject over the ten-year period, indicating a lack of research interest. Even though this research utilised resources from only one search engine, ScienceDirect, the figure is still indicative of the possibility of inadequate research. More research on breaking bad news should be conducted since it is such a demanding and difficult task, and health professionals, particularly those who deliver the news, will greatly benefit from it.

In general, past research on breaking bad news focused heavily on how healthcare professionals should convey bad news and how recipients would receive the news. One clear gap identified in the literature on breaking bad news is examining the process of breaking bad news.

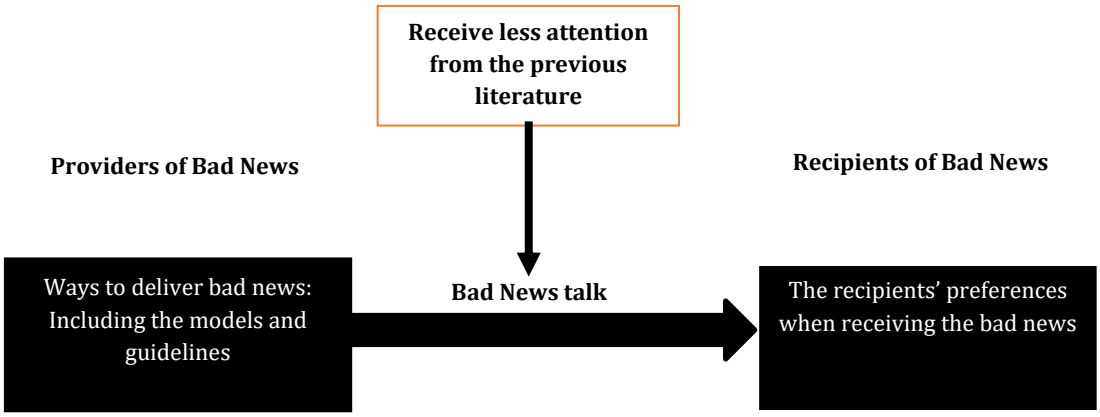

Figure 5: The gap in the breaking bad news talk literature

Figure 5 shows how bad news 'talk' connects the providers and recipients during breaking bad news interaction. The breaking bad news act would not be possible without it. When it comes to breaking bad news, talk' is the main course. Breaking bad news talk is the conversation between the providers and recipients of bad news. It explains "what's going on" during the process of delivering bad news. It gives a glimpse into real-world interactions involving in-the-moment conversations between providers and recipients during bad news exchanges. This method is critical for revealing the "good" and the "bad" in breaking bad news communication, which will subsequently offer legitimate responses to healthcare professionals' inadequate practices during breaking bad news interaction. However, the current review indicates that this research

focus has received little attention. Hence, future research should aim to fill this gap by specifically examining bad news talk in health settings.

In addition, given that healthcare professionals are the primary bearers of bad news, special attention should be given to them. Numerous studies have emphasised the role of the primary actor by providing them with models and guidelines to successfully deliver bad news. The emphasis has always been on the efficacy of the training as a guide for successful communication of bad news to the clients who are the receivers of the news. From the viewpoint of the news providers, breaking bad news literature is viewed as demonstrating a method for the successful delivery of bad news. It is a linear process that leads to a certain end result. However, many factors originating from the news providers influence the practice of breaking bad news and, as a result, the overall efficacy of the activity. Figure 6 illustrates the linear process and the research gap derived from this process:

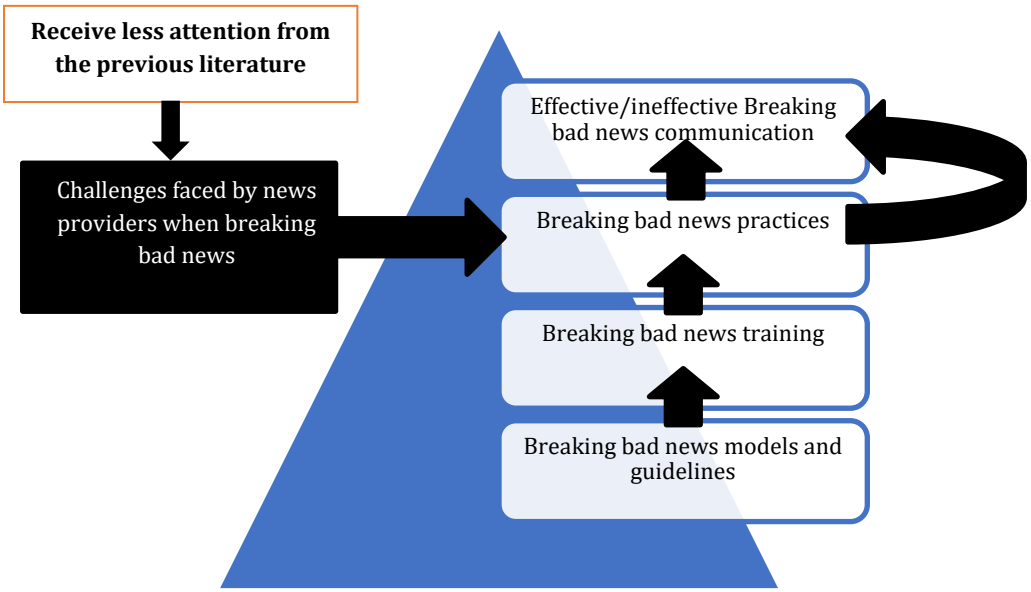

Figure 6: The linear process of breaking bad news and the breaking bad news challenges gap found in the literature

Figure 6 depicts the challenges that news providers encounter, which have a major influence on the overall efficacy of breaking bad news delivery. Unfortunately, it has received little attention in previous research. According to Buckman (17), there are five main challenges to breaking bad news among news providers: (a) feeling professionally incompetent when delivering bad news; (b) being blamed for the news; (c) receiving intense reactions from the news recipients; (d) experiencing fear of expressing emotions; and (e) fearing worst (illness, death, and failure). Research identifying the challenges faced by healthcare providers has psychological benefits, as the findings may help to decrease stress, anxiety, and emotional burden. As a result, healthcare providers will have greater confidence when breaking bad news and be prepared to face the

repercussions (61). This research gap has created space for future studies to look at the communication challenges that doctors face when delivering bad news and how these challenges can impact practice.

CONCLUSION

This paper provides a comprehensive evaluation of breaking bad news research in a variety of health settings published from 2011 to 2020. A total of 35 articles were reviewed, representing a wide variety of research designs and foci. Breaking bad news research shows a rising tendency, particularly in recent years (i.e., 2017 to 2020). The study revealed three prevalent research topics among healthcare professionals: (a) initiatives to improve breaking bad news (training and education); (b) ways to break bad news, including the guidelines and models of breaking bad news; and (c) the emotions of healthcare professionals when breaking bad news. The researchers believe that the findings shown in this review will help inform other researchers about the gaps in current research and help them better position their future investigations.

As this systematic review was conducted on a single database, 'ScienceDirect', a cross-search on other databases would yield contradictory or complementary findings. Therefore, this paper recommends that future reviews conduct a comprehensive search of other databases. The paper also suggests more research be conducted on breaking bad news topics, especially employing a mixed-method approach, which will allow for a large data population as well as the ability to examine the intricacies of breaking bad news communication. More importantly, more attention should be given to breaking bad news 'talk' and the challenges faced by the bearers of the news.

APPENDIX

Summary of breaking bad news research (2011-2020)

No	Author(s)	Research question(s)	Method(s)
1.	von Blanckenburg, Mareike Hofmann, Winfried Rief, Ulf Seifart & Carola Seifart (62)	• How patient prefer the bad news to be delivered to them?	• MABBAN questionnaire • Quantitative research
2	Jessica Hahne, Ting Liang, Kaveh Khoshnood Xiaomin Wang & Xin Li (51)	• How do doctors communicate diagnosis and prognosis to patients?	• Semi-structured interviews - Content analysis. • Qualitative research
3	Felix Michael Schmitz, Kai Philipp Schnabel, Daniel Bauer, Ulrich Woermann & Sissel Guttormsen (47)	• How the use of video-based worked examples enables medical students to successfully prepare for breaking- bad-news (BBN) encounters with simulated patients (SPs)?	• Randomised and blinded field trials • Quantitative research • Use of simulated patients
4	Valerie Carrard, Céline Bourquin, Sandy Orsini, Marianne Schmid Mast & Alexandre Berney (41)	• How do students perceive the use of virtual patient (VP) simulation in a breaking bad news training?	• Focus groups - Thematic analysis. • Qualitative research • Use of simulated patients
5	Rose-Lima Van Keer, Reginald Deschepper, Luc Huyghens & Johan Bilsen (55)	• How bad news was communicated in the Critical Care context?	• Ethnographic fieldwork - interactive observation, in-depth interviews and reading patients' medical records - Thematic analysis. • Qualitative research
6	Samar Ahmed, Soha Ashry & Guy Widdershoven (36)	• Is online teaching help to improve the residents' beliefs and perceptions in breaking bad news?	• Focus group and questionnaire • Mixed-method research
7	Ambika Paramasivan, & Deborah Khoo (43)	• How do different standardized Patients and Peer Role Play in terms of	• Anonymized pre- and post-questionnaires

		Experience, Efficacy, and Cost-Effectiveness in the Residency Training Module for Breaking Bad News?	• Quantitative research • Use of simulated patients
8	Julia Vermylen, Gordon Wood, Elaine Cohen, Jeffrey Barsuk, William McGaghie & Diane Wayne (48)	• How mastery learning (SBML) curriculum for breaking bad news (BBN) was developed? • What is the minimum passing standard for skills acquisition?	• 15-item checklist and six scaled items were developed • Quantitative research • Simulation-based learning
9	Scott Hickman & Antonio Gangemi (54)	• How can surgeons be trained to deliver bad news to patients in futile care context?	• Interviews • Qualitative research
10	Simone Goebel & Hubertus Maximilian Mehdorn (63)	• How do the patients prefer the bad news to be communicated to them? • What are the consequences of the mismatch of patients' communication preferences?	• Patients' Preferences Scale – rating system • Quantitative research
11	Gi Lim & Aimee K. Gardner (56)	• How does EQ influence the doctors' ability to deliver bad news?	• Checklist and EQ assessment • Quantitative research • Use of simulated patients
12	Gamze Sarikoc, Senay Sarmasoglu, Hilal Tuzer, Melih Elcin & Carina Layat Burn (45)	• How is the anxiety level of SPs when receiving the bad news? • Would relaxation exercises affect SPs' anxiety levels?	• Pre and post-tests • Quantitative research • Use of simulated patients
13	Anand Narayan, Sergio Dromi, Adam Meeks, Erin Gomez, & Bonmyong Lee (9)	• What is the doctors' experience in communicating bad news to patients?	• Questionnaire • Quantitative research
14	Olivia Purnima Danzi, Cinzia Perlini, Federico Tedeschi, Mimma Nardelli, Alberto Greco, Enzo Pasquale Scilingo, Gaetano Valenza & Lidia Del Piccolo (39)	• How physicians' supportive communication affects analogue patients' (APs) heart rate variability (HRV) and recall?	• Intra- and Inter-group quantitative comparisons • Quantitative research
15	Felix Michael Schmitz, Kai Philipp Schnabel, Daniel Bauer, Cadja Bachmann, Ulrich	• How do different presentations of worked examples on medical students'	• A randomized and blinded field trial • Quantitative research

	Woermann & Sissel Guttormsen (46)	breaking-bad-news skills affect students' learning?	• Use of simulated patients
16	Benjamin Derbez (50)	• When is the right time to disclose information about genetic risk to kin to the family?	• Ethnographical fieldwork - Observation • Qualitative research
17	Marianne Brouwers, Hans Bor, Roland Laan, Chris. van Weel & Evelyn van Weel-Baumgarten (37)	• How medical students evaluate a helical BBN training programme?	• a helical BBN training programme,
18	James Gorniewicz, Michael Floyd, Koyamangalath Krishnan, Thomas W. Bishop, Fred Tudiver & Forrest Lang (38)	• How effective is the BBN communication training module?	• A randomized control trial • Quantitative research
19	José António Ferraz Goncalves, Carla Almeida, Joana Amorim, Rita Baltasar, Joana Batista, Yusianmar Borrero, João Pedro Fallé, Igor Faria, Manuel Henriques, Helena Maia,Teresa Fernandes, Mariana Moreira, Susana Moreira, Camila Neves, Ana Ribeiro, Ana Santos, Filipa Silva, Susana Soares, Cristina Sousa, Joana Vicente & Rita Xavier (57)	• How difficult it is to deliver bad news to patients with life threatening diseases?	• Questionnaire • Quantitative research
20	Mia Nelson, Daniel Kelly, Rachel McAndrew & Pam Smith (64)	• Where are the origins of recipients' emotional experiences when receiving bad news in the paediatric oncology setting?	• Thematic analysis. • Qualitative research
21	Asta Kristiina Toivonen, Sari Lindblom-Ylänne, Pekka Louhiala & Eeva Pyörälä (65)	• How medical students reflect on their emotions concerning breaking bad news?	• Students' reflections - qualitative content analysis. • Qualitative research
22	Diane Pastor, Robin Cunningham, Patricia White & Stacey Kolomer (44)	• How effective is Interprofessional Clinical Simulation for Delivering Bad Health News in Palliative Care?	• Observation • Qualitative research • Use of clinical simulations
23	Emily Porensky & Brian Carpenter (58)	• How do cancer patients receive bad news?	• Experimental paradigm comparing two communication strategies

			• Quantitative research
24	Masoomeh Imanipour, Zahra Karim & Naser Bahrani (66)	• How well do Iranian critical care nurses know about breaking bad news?	• Questionnaire Quantitative research
25	Joanne Shaw, Rhonda Brown & Stewart Dunn (67)	• How doctors' physiological stress affects their bad news delivery?	• Interaction content analysis • Qualitative research • use of clinical simulations
26	Laura Fieschi & Barbara Burlon (40)	• How can the use of cinema help Midwifery students in breaking bad news?	• Content analysis • Qualitative research
27	Seifart C, Hofmann M, Bär T, Riera Knorrenschild J, Seifart U, Rief W (68)	• Are the recommended steps of SPIKES protocol used by doctors meet the patients' satisfaction when receiving the bad news?	• MABBAN Questionnaire • Quantitative research
28	Milou Sep, Mara van Osch, Liesbeth van Vliet, Ellen Smets & Jozien Bensing (52)	• How clinicians' affective communication during a bad news consultation will decrease patients' physiological arousal and will improve recall?	• Skin conductance test • Quantitative research
29	Raquel Gomes Martins & Irene Palmares Carvalho (69)	• What models do patients prefer for communicating bad news? • Why do patients prefer such models?	• Chi-square & interviews (content analysis) • Mixed method research
30	Joanne Shaw, Rhonda Brown & Stewart Dunn (70)	• How do doctors cope with breaking bad news?	• Semi-structured interviews • Qualitative research
31	Joanne Shaw, Rhonda Brown, Paul Heinrich & Stewart Dunn (71)	• How is the experience of stress among doctors in bad news consultations?	• Skin conductance test • Quantitative research • Use of clinical simulations
32	Christian Burgers, Camiel Beukeboom & Lisa Sparks (49)	• How the doctors should and should not communicate the bad news to patients?	• Rating messages • Quantitative research
33	Joanne Shaw, Stewart Dunn & Paul Heinrich (53)	• What are the common bad news delivery styles used among doctors?	• Interaction content analysis • Qualitative research

34	Karen Sue Schaepe (72)	• What are the first impressions of cancer patients when learning about their cancer diagnosis?	• Narrative analysis • Qualitative research
35	Laura Vail, Harbinder Sandhu, Joanne Fisher, Heather Cooke, Jeremy Dale & Mandy Barnett (73)	• How the experienced clinicians deliver bad news? • What is the relationship between physician characteristics and patient-centredness?	• Roter Interaction Analysis System. • Quantitative research

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