Reducing the risk of long-term complications underpins the efforts of patients, families, and clinicians to manage diabetes on a daily basis (1). People with diabetes take primary responsibility for implementing their own treatment; therefore, clear, objective, accurate, and evidence-based information is essential to equip their informed decision-making toward the goal of reducing complications risk (2).

People with type 1 diabetes (3) or type 2 diabetes (4,5) have been shown to significantly overestimate their risk for major complications when compared with published prevalence data. The use of terminology and framing of health communications (6), particularly gain- or loss-framing of risk messages (7), shapes and influences the effectiveness of such messages on attitudes, intentions, and behaviors. Gain-framing of health messages highlights the benefits of a specific behavior or other risk factor, whereas loss-framing focuses on the losses associated with a risk factor or failing to engage in a specific behavior (7).

A meta-analysis review reported gain-framed messages to be superior to loss-framed messages in encouraging health behavior change (7). There is clear potential for emotive, confusing, or negatively framed complications information to interfere with the capacity of people with diabetes to make objective self-management decisions regarding their diabetes.

Choice of message wording and terminology has been shown to exert a significant influence on patients with cancer (8), treatment decision-making by health professionals in addiction medicine (9), and pain perception (10). Yet, there has been very little research into language, risk message framing, and terminology used in communicating with people with diabetes, despite claims that negative diabetes language is demotivating and harmful (11–13).

Health-related media messages and images are powerful and have been shown to override guidelines from authoritative sources for body weight goals and other health indices (14). People with diabetes and their
families are known to actively search for information about complications through various forms of media (15,16). Diabetes-specific media produced by not-for-profit national diabetes organizations are promoted and seen as reliable and trusted sources of information about diabetes management and related topics and have greater penetration and higher credibility than mass media among people with diabetes (17,18). Previous research evaluating information about blood glucose targets suggests that the quality of information presented in diabetes-specific media about glycemic targets is inadequate and confusing (19). This study extends the available research by evaluating the language and communication of information about long-term diabetes complications presented in diabetes-specific media sources.

The prospect of developing long-term diabetes-related complications is a primary source of diabetes distress and significant anxiety for people with diabetes of all ages, as well as their parents, partners, and families (20–22). A recent study of U.S. mass media coverage of diabetes identified confusing information and framing of messages that could be contributing to high levels of reported stigma and distress for people with either type 1 or type 2 diabetes (23). Hence, this study also investigates how diabetes-specific media sources communicate about the psychological distress associated with the diagnosis or progression of complications.

The study aimed to evaluate the quality of complications language, the framing used to present messages about the risk of complications, and the quality of information associated with psychological distress presented in North American and Australasian diabetes-specific media.

**Research Design and Methods**

**Study Design and Materials**

The content analysis approach used in this study was adapted from methodology previously used to analyze media messages about diabetes glycemic targets (19). The theoretical framework underpinning this approach is derived from Prospect Theory and message-framing literature applied in many health communication settings (6,24,25). According to Prospect Theory (25), people respond differently to information about the consequences of a behavioral decision depending on whether the same consequences are presented as gains or losses.

Four online and print publications specifically targeting people with type 1 or type 2 diabetes and produced by North American and Australasian national diabetes organizations were selected for analysis: *Diabetes Forecast* (American Diabetes Association) (17), *Diabetes Dialogue* (Canadian Diabetes Association) (26), *Circle* (Diabetes Australia) (18), and *Diabetes Magazine* (Diabetes New Zealand) (27). These were selected on the basis of language and cultural consistency and similar national standards for diabetes management. Hard copies and access to online issues were obtained for the 2015–2017 editions, where available. A total of 25 published magazine issues were obtained for analysis. The publications, circulation, and details of relevant articles retrieved from each are presented in Table 1.

**Procedures**

Each issue was searched manually from front to back covers to identify any text references to complications of type 1 or type 2 diabetes. All references to non-specified complications plus specific mentions of four main long-term complications of diabetes—retinopathy, nephropathy, neuropathy, and cardiovascular disease (CVD)—regardless of terms used to define them were included in the coding process. Other complications of diabetes such as cancer and cognitive impairment were excluded from analysis.

**Coding Framework**

References to diabetes complications were analyzed at two levels:

1. Each mention of complications was coded for the language and terminology used to define them.

2. The subset of references containing a risk message linking the development or progression of complications to other variables, including glycemic factors, diabetes treatment, self-management behaviors and genetics, was assessed for the following variables:

   a. Diabetes type: whether the complications risk message was linked to type 1 diabetes, type 2 diabetes, both, or unspecified

   b. Gain or loss framing: whether the risk message was framed as a loss or gain

   c. Risk-reduction strategies: suggested strategies to reduce the likelihood of the complication(s) that accompanied the risk message

   d. Quality of evidence to support the risk association: risk messages about complications were coded for the quality of explanation to support the implied or overt link between the risk factor and risk of complications. The levels of quality were defined as:

      • No explanation: the link between the risk factor and complications was presented with no explanation for the association with risk

      • Minimal explanation: linked the risk factor to complications with a minor level of explanation or a reference to published data

      • Evidence-based explanation: includes reference to published data or research findings to demonstrate how modifying the risk factor contributes to complications risk elevation or reduction

   e. Mention of related psychological issues: whether any mention was made of the psychological issues associated with the risk, diagnosis, or progression of diabetes complications.
Intercoder reliability was assessed via two coding exercises. The first examined the inclusion or exclusion of references to test the reliability of decisions regarding items meeting criteria for inclusion. To confirm the viability of the coding framework and address any coding difficulties, the two raters initially coded a sample of publications independently and then met to discuss interpretation of the coding variables. Agreement was initially lower between the two coders on whether a reference met criteria for being a reference to diabetes complications, mainly due to the second coder being diabetes naive. After clarification of differences by discussion, consistency improved between the coders on these variables.

A second exercise assessed reliability of framing decisions on a sample of 10% of all references included in the coding analysis, with inter-rater reliability assessed using Cohen’s $\kappa$ test of agreement. One author (L.J.B.) coded all articles, with the second author (E.J.F.-C.) reviewing a 10% sample to establish intercoder reliability. Assessment of intercoder reliability using Cohen’s $\kappa$ produced scores of 0.91 for gain or loss framing of a risk message and 0.89 for quality of evidence, indicating excellent agreement (28).

Results
In total, 125 articles that included references to the major long-term complications of diabetes were identified for the study period in feature articles ($n = 77$, 61%), brief pieces ($n = 35$, 28%), advertisements ($n = 10$, 8%) and advice columns ($n = 4$, 3%). Every issue included at least two articles with complications references, with an overall mean of five references per issue (SD = 2.4, range 2–11). The highest mean number of articles including references to complications was found in United States–based Diabetes Forecast (7.5 ± 1.8).

Complications Language
References to CVD were the most frequent (37%), followed by references to retinopathy (31%), nephropathy (28%), neuropathy (25%), and unspecified complications (25%). Table 2 shows the detailed terminology most frequently used to refer to each category of complications.

Of the 125 articles that included references to major diabetes complications, most ($n = 82$, 66%) contained a risk message, and these were included in further analysis of the nature of complications risk language, framing, and psychological distress.

References to complications without risk messages occurred in articles such as personal stories of living with diabetes, for example "Looking back, Keisha Cooper . . . should have known type 2 was something to worry about. Her grandmother died of the disease, after losing five fingers and both of her legs to complications. And her mother was diagnosed with type 2 in 1989" (Diabetes Forecast January/February 2016, p. 48).

More than half the articles ($n = 70$, 56%) did not indicate whether the complications information applied to type 1 diabetes, type 2 diabetes, or both, using the generic term diabetes or no defining term. Complications information was explicitly linked to type 2 diabetes ($n = 32$, 25%), type 1

---

### Table 1. Characteristics of Publications and Articles Including Complications References

| Country       | Publication (Number Issues in Sample) | Number of Articles With Complications References | Number of Articles With Complications References in Each Issue, mean (SD) | Number of Articles With Complications References in Each Issue, range |
|---------------|--------------------------------------|-------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------|
| United States | Diabetes Forecast (6)                 | 45                                              | 7.5 (1.8)                                                                | 5–9                                                                |
|               | Bimonthly Print/online 500,000        |                                                 |                                                                          |                                                                     |
| Canada        | Diabetes Dialogue (6)                 | 31                                              | 5.2 (3.0)                                                                | 2–11                                                               |
|               | Quarterly Print/online >91,000        |                                                 |                                                                          |                                                                     |
| Australia     | Circle (6)                            | 24                                              | 4.0 (0.9)                                                                | 3–5                                                                |
|               | Quarterly Print 140,000               |                                                 |                                                                          |                                                                     |
| New Zealand   | Diabetes Magazine (7)                 | 25                                              | 3.6 (2.4)                                                                | 2–11                                                               |
|               | Quarterly Print/online 45,000         |                                                 |                                                                          |                                                                     |
| Total sample  | (25 issues)                           | 125                                             | 5.0 (2.4)                                                                | 2–11                                                               |
Risk factors associated with increased or decreased likelihood of long-term complications were coded into categories and are presented in Table 3. The most frequently cited risk factor for the development of complications was “having diabetes” (66%). Many of the variables linked to the development or progression of diabetes complications were described briefly and lacked detail, for example “high blood glucose levels” or “staying a healthy weight.”

Loss-framed messages dominated in the communication about the risk of diabetes complications. That is, a focus on losses or negative complications outcomes was used in almost two-thirds of the risk messages compared with gain-framed messages that focused on the benefits to complications outcomes (loss-framed, n = 52, 63%; gain-framed, n = 30, 37%). The majority of risk messages (n = 57, 65%) were presented without any explanation of how the risk factors linked to complications development or progression or any supporting evidence such as data from published research. A minimal level of supporting evidence was provided for 17% (n = 15) of the complications risk messages, and 18% of risk messages (n = 16) were accompanied by related research evidence. One in five risk messages (n = 17, 21%) were presented without a suggested strategy to manage the complication risk. Table 4 shows the broad categories and subcategories of risk-reduction strategies that accompanied the majority (n = 65, 79%) of risk messages. These were typically presented as brief statements or instructions (e.g., “See an endocrinologist early after diagnosis”).

Reference to emotional or psychosocial implications associated with the risk or diagnosis of complications or the progression of long-term complications of diabetes occurred in only three (4%) of the coded messages. The three context quotes included:

- “Many people report that they worry about the future and possible complications and that they feel guilt and anxiety when they go off track with their diabetes management.”
- “Finally, in consultation with his doctor and his wife Anna, he decided that removing his entire leg would give him the best chance of living a quality life.”
- “Depression affects diabetes control, the risk of complications, and their impact.”

**Conclusion**

This study investigated the language and framing of references to long-term diabetes complications presented in North American and Australasian online and print diabetes-specific media. Its findings indicate problems with the language, content, and framing of complications risk messages that may help explain misunderstandings regarding complications risk and related distress among people with diabetes seen in previous research (3–5, 20, 21).

Blindness, amputations, and kidney damage represent the more severe end of the spectrum for retinopathy, neuropathy, and nephropathy and were the
## TABLE 3. Categories of Risk Factors Linked to Diagnosis or Progression of Complications

| Categories of Risk Factors                                      | n*  | Sample Context Quotes (Loss/Gain Framing)                                                                 |
|-----------------------------------------------------------------|-----|-----------------------------------------------------------------------------------------------------------|
| Aspects of having diabetes                                      | 34  | *“Having diabetes is the leading cause of blindness in American adults.” (Loss)*                          |
| Having diabetes                                                 | 6   | *“Diabetes is the leading cause of blindness in working-age Australians.” (Loss)*                       |
| Having type 2 diabetes                                          | 3   | *People with type 2 diabetes are at high risk for heart disease.” (Loss)*                                |
| Having type 1 diabetes                                          | 3   | *About 30% of people with type 1 will develop kidney disease.” (Loss)*                                   |
| Duration of diabetes                                            | 3   | *The longer you have it [diabetes], the higher the risk of complications.“ (Loss)*                      |
| Undiagnosed/poorly managed                                     | 3   |                                                                                                           |
| Treatment                                                       | 2   | *“Early diagnosis and treatment of diabetic retinopathy can help prevent up to 98% of severe vision loss.” (Gain)* |
| Unspecified                                                     | 5   | *. . . insulin reduces the risk of diabetes-related complications” (Gain)*                                |
| Medications                                                     | 1   |                                                                                                           |
| Insulin                                                         | 1   |                                                                                                           |
| Behaviors                                                       | 4   | *Swapping . . . saturated fat daily with the same amount of unsaturated fat . . . reduced the heart disease risk by 15–25%.” (Gain)* |
| Dietary factors (e.g., fat or sugary drinks)                    | 1   | *Taking an eye test every 2 years can dramatically reduce the risk of vision loss, through early identification.” (Gain)* |
| Healthy lifestyle                                               | 1   |                                                                                                           |
| Screening activities                                            | 1   |                                                                                                           |
| Smoking                                                         | 1   |                                                                                                           |
| Physical parameters                                             | 3   | *Staying a healthy weight . . . will cut the risk of diabetic peripheral neuropathy by up to 60%.” (Gain)* |
| Blood pressure                                                  | 2   |                                                                                                           |
| Weight                                                          | 1   |                                                                                                           |
| Cholesterol                                                     | 1   |                                                                                                           |
| Glycemic factors                                                | 9   | *High blood glucose levels over a period of time lead to complications.” (Loss)*                         |
| Blood glucose levels, normal range, looking after blood glucose levels | 1   |                                                                                                           |
| Poor glycemic control                                          | 1   |                                                                                                           |
| Health professionals                                           | 1   | *Without proper care, diabetes can lead to complications including retinopathy, and potentially, blindness.” (Loss)* |
| Seeing general practitioner                                     | 1   | *Canadians with diabetes who see their family doctor or health care team at least three times a year are 33% less likely to have a limb amputation.” (Gain)* |
| Not following medical advice                                    | 1   |                                                                                                           |

*Each complications reference may have included one or multiple risk factors.*
TABLE 4. Categories of Risk-Reduction Strategies Linked to Risk Messages in Diabetes-Related Media

| Categories of Risk-Reduction Strategies | n* | Sample Context Quote |
|----------------------------------------|----|----------------------|
| Patient health behaviors                | 39 | “annual eye exam”    |
| Screening (e.g., eyes, kidneys)         | 13 | “more high-fiber carbohydrates” |
| Eating                                  | 12 | “brisk walking”      |
| Exercise                                |  5 | “inspect feet”       |
| Foot care                               |  5 | “healthy weight”     |
| Control/lose weight                     |  3 | “don’t smoke”        |
| Not smoking                             |  1 |                      |

Control physiological parameters  
Blood glucose  
Blood pressure  
Cholesterol  
A1C  

Obtain more information or assistance  
Ask doctor or health professional  
Seek treatment  
Directed to website address  

Treatment  
Medications  
Insulin pump  

Healthy lifestyle  

*Each complications reference may have included one or multiple risk-reduction strategies.

This study found that loss-framing was more prevalent than gain-framing in communication about complications risk messages. Diabetes media’s use of loss-framing is at odds with health communication research showing that positively framed (gain) messages are more effective when applied to behaviors that prevent the onset of disease, such as managing the risk of diabetes complications (7,36). Strong links between health message framing, health decisions, and outcomes have been demonstrated in experimental studies in the
cancer prevention context (37,38). For example, gain-framed messages about cancer patients’ prognosis were associated with less psychological distress and a greater sense of hope in patients compared to individuals who heard negatively framed messages about prognosis (37). This study revealed that loss-framed risk messages dominate in diabetes media, potentially reducing the usefulness and efficacy of communication efforts to assist people with diabetes in self-management decisions to reduce complications risk.

Diabetes-specific media rarely mentioned the psychological impact of major long-term complications. This lack of acknowledgment of emotional distress is at odds with research clearly showing that people with diabetes identify fear of complications, especially those that threaten eyesight and mobility, as a major source of diabetes distress and anxiety (20,21). Readers of these publications exposed to repeated references to complications with little or no acknowledgment of the psychological impact of these complications may receive the message that feeling distressed about complications is unusual or abnormal, which may limit their willingness to disclose diabetes distress to health professionals and therefore hinder the provision of appropriate intervention.

The study findings have several implications for the not-for-profit national diabetes organizations that produce these publications and benefit from higher levels of credibility compared to mass media outlets. First, these findings translate to a greater responsibility to present sensitive and important complications risk information shaped by evidence-based communication research (39). Editorial policy needs to focus on the possible negative conclusions readers draw from complications-related content and to take steps to mitigate potentially damaging consequences.

The substantial effort of daily diabetes self-management is geared toward reducing complications risk and requires people with diabetes to be equipped to make informed decisions to effectively manage risk. Part of helping people with diabetes discern high-quality information may be via media literacy training to enhance skills in evaluating the information quality and reliability of sources, including all forms of media.

Second, individualized targets and personalized treatment plans (40,41) represent a strong trend in diabetes care. This raises the question of whether diabetes-specific media should be presenting messages on risk factors for complications and strategies for risk reduction when it is difficult to provide more than generalized information and advice. This study also has implications for the clinical practice of diabetes health professionals, who need to be aware that their patients may have been exposed to distorted and skewed messages about the risk of diabetes complications in media outlets targeting people with diabetes.

The study represented diabetes media from four English-speaking Western nations; however, the total sample was too small to reliably assess differences in risk message communication across the four countries represented. Including online and print publications from other cultures with different health systems and primary languages in future research would help in assessing the generalizability of the findings.

A particular strength of this study is the theoretical basis for the coding framework, providing a strong foundation for interpretation and organization of existing data, as well as a guide for future research.

Although there has been an overall shift upward in the proportion of Americans who report using social media to obtain news content, people continue to obtain much of their information about health-related issues from traditional print and online news media sources (42). Taken together, these findings indicate overall poor quality of risk communication in media publications targeting individuals with type 1 or type 2 diabetes and their families that may be unintentionally increasing diabetes distress and interfering with self-management efforts and better health outcomes. The data have important implications for the editorial policy decisions of diabetes media providers, the clinical practice of diabetes health professionals, and efforts to equip people with diabetes to critically evaluate media content. Further research is needed, using experimental and other study designs, to clarify how people with diabetes interpret these media messages and implications for their diabetes distress levels, self-care decisions, and behaviors.

Funding
This material is the result of work supported with funding from Medical Psychology Services and the Faculty of Arts, Business and Law at the University of the Sunshine Coast in Maroochydore, Australia.

Prior Publication
Portions of the Australian results were presented as an abstract and poster presentation at the annual scientific meeting of the Australian Diabetes Society in Gold Coast, Queensland, Australia, in August 2016.

Duality of Interest
No potential conflicts of interest relevant to this article were reported.

Author Contributions.
L.J.B. designed the study, collected and analyzed the data, interpreted the results, and wrote the manuscript. E.J.F.-C. collected and analyzed the data and reviewed and edited the manuscript. L.J.B. is the guarantor of this work and, as such, had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

References
1. Marrero DG, Ard J, Delamater A, et al. Twenty-first century behavioral medicine: a context for empowering clinicians and patients with diabetes: a consensus report. Diabetes Care 2013;36:463–470
2. Coylewright M, Montori V, Ting H. Patient-centered shared decision-making: a public imperative. Am J Med 2012;125:545–547
3. Meltzer D, Egleston B. How patients with diabetes perceive their risk for major complications. Eff Clin Pract 2000;3:7–15
4. Saver BG, Mazor KM, Hargraves JL, Hayes M. Inaccurate risk perceptions and
individualized risk estimates by patients with type 2 diabetes. J Am Board Fam Med 2014;27:510–519
5. Asimakopoulou K, Skinner T, Spimpolo J, Marsh S, Fox C. Unrealistic pessimism about risk of coronary heart disease and stroke in patients with type 2 diabetes. Patient Educ Couns 2008;71:95–101
6. Rothman AJ, Stark E, Salovey P. Using message framing to promote healthy behavior: a guide to best practices. In Best Practices in the Behavioral Management of Chronic Diseases. Vol. 1. Trafton J, Gordon W, Eds. Los Altos, Calif., Institute for Disease Management, 2006, p. 31–48
7. Gallagher K, Udepagraff J. Health message framing effects on attitudes, intentions and behavior: a meta-analytic review. Ann Behav Med 2012;43:101–116
8. Dunn S, Patterson P, Butow P, Smarrt H, McCarthy W, Tattersall M. Cancer by another name: a randomized trial of the effects of euphemism and uncertainty in communicating with cancer patients. J Clin Oncol 1993;11:989–996
9. Botticelli M, Koh H. Changing the language of addiction. JAMA 2016;316:1361–1362
10. Ott J, Aunt S, Nouri K, Promberger R. An everyday phrase may harm your patients: the influence of negative words on pain during venous blood sampling. Clin J Pain 2012;28:324–328
11. Dickinson JK, Guzman SJ, Maryniuk MD, et al. The use of language in diabetes care and education. Diabetes Care 2017;40:1790–1799
12. Diabetes Australia. Position statement: a new language for diabetes: improving communications with and about people with diabetes. Available from static.diabetesaustralia.com.au/files/assets/diabetesaustralia/45346eb-511d-4500-9cd1-8a13068d5260.pdf. Accessed 14 December 2017
13. Dickinson JK. The experience of diabetes-related language in diabetes care. Diabetes Spectr 2018;31:58–64
14. van den Berg P, Neumark-Sztainer D, Hannan P, Haines JL. Is dieting advice from magazines helpful or harmful? Five-year analyses with weight-control behaviors and psychological outcomes in adolescents. Pediatrics 2007;119:e30–e37
15. Locharie AS, Wysocki T Burnett J, Buckloh L, Antal H. Youth and parent education about diabetes complications: health professional survey. Pediatr Diabetes 2009;10:59–66
16. Buckloh L, Wysocki T, Antal H, Locharie AS, Bejarano CM. Learning about long-term complications of pediatric type 1 diabetes: parents’ preferences. Child Health Care 2016;45:399–413
17. American Diabetes Association. 2018 media kit. Available from main.diabetes.org/dffg/pdfs/2018-media-kit.pdf. Accessed 11 January 2018
18. Diabetes Australia. Circle Magazine. Available from www.diabetesaustralia.com.au/circle-magazine. Accessed 11 January 2018
19. Beeney LJ. What media says about diabetes control and complications. Australian Diabetes Educator 2016;19:33–37
20. Huang E, Brown S, Ewigman B, Foley E, Meltzer D. Patient perceptions of quality of life with diabetes-related complications and treatments. Diabetes Care 2007;30:2478–2483
21. Beeney L, Bakry A, Dunn S. Patient psychological and information needs when the diagnosis is diabetes. Patient Educ Couns 1996;29:109–116
22. Buckloh LM, Locharie AS, Antal H, et al. Diabetes complications in youth. Diabetes Care 2008;31:1516–1520
23. Beeney LJ. US media portrayals of type 1 and type 2 diabetes: a celebrity effect of Mary Tyler Moore? [Abstract 90-LB] Poster presented at the American Diabetes Association’s 77th Scientific Sessions, San Diego, Calif., 2017
24. Kitzinger J. Framing and frame analysis. In Media Studies: Key Issues and Debates. Devereux E, Ed. London, Sage, 2007, p. 134–161
25. Tversky A, Kahneman D. The framing of decisions and the psychology of choice. Science 1981;211:453–458
26. Canadian Diabetes Association. Media kit 2015. Available from www.diabetes.ca/getmedia/06d4f75b-a563-47fe-be26-f8e79fd9784b/diabetes-dialogue-2015-media-kit.pdf.aspx. Accessed 11 January 2018
27. Diabetes New Zealand Diabetes Wellness magazine. Available from https://issuu.com/diabetesnewzealand
28. Sim J, Wright CC. The Kappa statistic in reliability studies: use, interpretation, and sample size requirements. Phys Ther 2005;85:257–268
29. Brunton S. I have never liked the term “complication.” Clin Diabetes 2017;35:76–77
30. Hamburg B (Ed). Behavioral and Psychosocial Issues in Diabetes. Proceedings of the National Conference Madison, Wisconsin, May 26–25, 1979, Washington, D.C., U.S. Department of Health and Human Services, 1980
31. Brown GC, Brown MM, Sharma S, Brown H, Gozum M, Denton P. Quality of life associated with diabetes mellitus in an adult population. J Diabetes Complications 2000;14:18–24
32. Fisher L, Mullan J, Areaan P, Glasgow R, Hessler D, Masharani U. Diabetes distress but not clinical depression or depressive symptoms is associated with glycemic control in both cross-sectional and longitudinal analyses. Diabetes Care 2010;33:23–28
33. Choie CS, Nerlekar R, Raju A, et al. The effects of positive or negative words when assessing postoperative pain. Anaesth Intensive Care 2011;39:101–106
34. van Boekestijn LM, Brouwers E, van Weeghel J, Garretsen H. Stigma among health professionals towards patients with substance use disorders and its consequences for healthcare delivery: systematic review. Drug Alcohol Depend 2013;131:23–25
35. Patel A, Chester P, Kennedy E, Matthews D. An analysis of major UK newspaper articles pertaining to ‘diabetes’ and ‘cure’ over 1 year. Diabet Med 2009;26:451–453
36. Rothman AJ, Bartels RD, Wlaschin J, Salovey P. The strategic use of gain- and loss-framed messages to promote healthy behavior: how theory can inform practice. J Comm 2006;56:5202–5220
37. Porensky E, Carpenter B. Breaking bad news: effects of forecasting diagnosis and framing prognosis. Patient Educ and Couns 2016;99:68–76
38. Gallagher KM, Udepagraff J, Rothman AJ, Sims L. Perceived susceptibility to breast cancer moderates the effect of gain- and loss-framed messages on use of screening mammography. Health Psychol 2011;30:145–152
39. Jensen J. Addressing health literacy in the design of health messages. In Health Communication Message Design: Theory and Practice. Cho H, Ed. Thousand Oaks, Calif., Sage, 2011, p. 171–190
40. American Diabetes Association. Standards of Medical Care in Diabetes—2018. Diabetes Care 2018;41(Suppl. 1):S1–S159
41. Powell P, Corathers S, Raymond J, Streisand R. New approaches to providing individualized diabetes care in the 21st century. Curr Diabetes Rev 2015;11:222–230
42. Shearer E, Gottfried J. News use across social media platforms, 2017. Available from assets.pewresearch.org/wp-content/uploads/sites/13/2017/09/13163032/PJ_17.08.23_socialMediaUpdate_FINAL.pdf. Accessed 10 February 2018