

# Use of Social Media as a Platform for Education and Support for People With Diabetes During a Global Pandemic

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## Abstract

**Background:** Patient education is a fundamental aspect of self-management of diabetes. The aim of this study was to understand whether a social media platform is a viable method to deliver education to people with diabetes and understand if people would engage and interact with it.

**Methods:** Education sessions were provided via 3 platforms in a variety of formats. “Tweeterials” and quizzes were delivered on the diabetes101 Twitter account, a virtual conference via Zoom and video presentations uploaded to YouTube. Audience engagement during and after the sessions were analyzed using social media metrics including impressions and engagement rate using Twitter analytics, Tweepstat, and YouTube Studio.

**Results:** A total of 22 “tweeterial” sessions and 5 quizzes with a total of 151 polls (both in tweeterial and quiz sessions) receiving a total of 21,269 votes took place. Overall, the 1-h tweeterial sessions gained 1,821,088 impressions with an engagement rate of 6.3%. The sessions received a total of 2,341 retweets, 2,467 replies and 10,060 likes. The quiz days included 113 polls receiving 16,069 votes. The conference covered 8 topics and was attended live by over 100 people on the day. The video presentations on YouTube have received a total of 2,916 views with a watch time of 281 h and 8,847 impressions.

**Conclusion:** Despite the limitations of social media, it can be harnessed to provide relevant reliable information and education about diabetes allowing people the time and space to learn at their own pace.

## Keywords

diabetes, education, peer support, self-management, social media

## Introduction

Diabetes is a long-term metabolic condition that is characterized by hyperglycaemia resulting from defects in insulin secretion (either absolute or relative) and/or insulin action.<sup>1</sup> Diabetes has a profound effect on the structure and function of many tissues and organs in the body which can lead to macrovascular disease, such as stroke, myocardial infarction, and peripheral vascular disease; and microvascular disease, such as retinopathy, nephropathy, and neuropathy.<sup>2</sup> To

reduce the risk of these long-term complications and to prevent acute complications ongoing diabetes self-management education and support are critical.<sup>1</sup> Studies have shown that diabetes education courses help people self-manage, resulting in reductions in HbA<sub>1c</sub> levels, hypoglycaemia, and restoring hypoglycaemia awareness, as well as reducing psychological distress and improving well-being.<sup>3–7</sup> Challenges to in-person diabetes self-management courses include the burden put on the patient to find the time to attend the classes as well as class capacity restraints.

Since the introduction and increased accessibility of technology, new methods of delivering diabetes education and self-management have been expanding via apps and online platforms. Prior to the COVID-19 pandemic, various virtual options for delivering diabetes education were under development.<sup>8,9</sup> The response to the COVID-19 pandemic has led to lockdowns and stay-at-home orders which have all disrupted healthcare, teaching, and working. To continue operating, schools, universities, and healthcare establishments have all adapted and moved to online teaching and assessments. Virtual consultations have become a mainstay of healthcare delivery. This has pushed forward at pace advancements with diabetes care and self-management education being delivered online.

There has been a thriving online diabetes community for many years on multiple social media platforms, engagement which has been shown to facilitate self-care resulting in improved health outcomes, such as improved glycemic management and increased health-related quality of life.<sup>10</sup> Social media is defined as media using tools often seen as second generation or web 2.0 software or website functionalities and most importantly as a platform for individuals to share perspectives, contents, insights, experiences, opinions, and other types of information.<sup>11</sup> Social media has become a cornerstone of everyday life. It offers a far-reaching communication tool which has the potential to support diabetes management by providing access to health information and real-time peer interaction for social and emotional support sharing the challenges of long-term condition management.<sup>12</sup> There are various categories of social media platform which include: collaborative projects (Wikipedia), blogs (WordPress and Wix), microblogs (Twitter and Weibo), content communities (YouTube, TikTok, Snapchat, and Instagram), and social network sites (Facebook and LinkedIn). Social media

has the potential to empower people to develop healthy lifestyles, make better and more informed medical decisions, to improve personal health management and psychosocial health, such as improved psychosocial management, sense of hope, connectedness, and relief.<sup>13-15</sup> However, there are some potential harms of using social media including reliability of information, loss of privacy, and addiction as well as barriers, such as language and digital illiteracy. The use of social media as a platform to provide education improves outcomes of people with diabetes has not yet been researched.<sup>16</sup>

The Diabetes 101 account offers education to people with diabetes via 2 social media platforms; Twitter and YouTube. And a website has also been developed with the intention of improving knowledge on diabetes and its management. The aim of the Diabetes 101 Twitter account was to provide high-quality factually correct diabetes information about COVID-19, the lockdown, and provide education through open social media channels and a website. On March 23, 2020, as the United Kingdom went into the first national “lockdown,” the @Diabetes101 Twitter account went online to integrate with the diabetes online community (DOC) and provided a coordinated response from a multidisciplinary group of diabetes professionals with established credibility and online communication skills. The team comprised of both adult and pediatric multidisciplinary specialities and included staff from both primary and secondary care. The team came from many different geographical locations within the United Kingdom. This was a voluntary venture with each team member working on the account in their own time alongside their ever-changing clinical roles in the midst of the pandemic. The objective of this study was to understand the usage and interactions with the Diabetes 101 accounts to gain insight into whether social media can be used to provide education to people with diabetes.

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**Table 1.** List of Additional Infographics Created by Members of the Diabetes 101 Team.

Additional resources	Web address
Understanding hazard ratios	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/Hazard-Ratios.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/Hazard-Ratios.pdf</a>
Understanding confidence intervals	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/how-to-understand-confidence-intervals-1.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/how-to-understand-confidence-intervals-1.pdf</a>
Managing worry about COVID-19 and type-1 diabetes	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/Managing%2520worry%2520about%2520covid-19%2520and%2520type%2520%2520diabetes.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/Managing%2520worry%2520about%2520covid-19%2520and%2520type%2520%2520diabetes.pdf</a>
Managing worry about COVID-19 and a health condition	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/Managing%2520worry%2520about%2520covid-19%2520and%2520a%2520health%2520condition_76SxGAuToS7VOzXDKIT5.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/Managing%2520worry%2520about%2520covid-19%2520and%2520a%2520health%2520condition_76SxGAuToS7VOzXDKIT5.pdf</a>
20 ways to relax without deep breathing	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/20-ways-to-relax-without-deep-breathing.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/20-ways-to-relax-without-deep-breathing.pdf</a>
How to get to sleep	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/how-to-go-to-sleep.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/how-to-go-to-sleep.pdf</a>
Self-isolating when you have diabetes	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/self-isolating-when-you-have-diabetes.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/self-isolating-when-you-have-diabetes.pdf</a>
Diabetes eye screening—COVID-19 restart England	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/Prioritisation%2520of%2520screening%2520v5.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/Prioritisation%2520of%2520screening%2520v5.pdf</a>
Diabetes eye screening—COVID-19 restart Wales	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/Prioritisation%2520screening%2520-%2520wales%2520v3.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/Prioritisation%2520screening%2520-%2520wales%2520v3.pdf</a>
Diabetes retinopathy screening	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/eyehealth%2520week%2520-%2520screening.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/eyehealth%2520week%2520-%2520screening.pdf</a>
Treatments for diabetes-related retinopathy	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/Eyehealth%2520week%2520-%2520treatment.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/Eyehealth%2520week%2520-%2520treatment.pdf</a>
Diabetes retinopathy—rapid reduction in HbA1c	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/eyehealth%2520week%2520-%2520reduction.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/eyehealth%2520week%2520-%2520reduction.pdf</a>
Signs and symptoms of eye conditions	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/eyehealth%2520week%2520-%2520signs%2520and%2520symptoms.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/eyehealth%2520week%2520-%2520signs%2520and%2520symptoms.pdf</a>
Diabetes and glaucoma	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/Diabetes%2520%2526%2520glaucoma.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/Diabetes%2520%2526%2520glaucoma.pdf</a>
What are hypos	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/what-are-hypos.1.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/what-are-hypos.1.pdf</a>
Why do hypos happen	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/why-hypos-happen.2.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/why-hypos-happen.2.pdf</a>
Common hypo symptoms	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/hypo-symptoms-pdf.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/hypo-symptoms-pdf.pdf</a>
Adult hypo treatment examples	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/hypo-treatments.4.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/hypo-treatments.4.pdf</a>
Hypo highway code	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/hypo-highway-code.5.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/hypo-highway-code.5.pdf</a>
Help avoiding hypos	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/avoiding-hypos.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/avoiding-hypos.pdf</a>
Insulin safety	<a href="https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/Insulin-safety-2020-V2.pdf">https://cdn.website-editor.net/d844c7f6da5948c083e6aa912e898d43/files/uploaded/Insulin-safety-2020-V2.pdf</a>

## Methods

During the first 4 weeks of lockdown, the team offered a structured timetable of activities, such as games, activities, and support. After seeing the popularity of the activities and the account following growth, it was decided to extend the accounts purpose to offer education in the form of “tweetorials” initially once or twice weekly. There were diabetes themed quizzes which were carried out on each of the 3 Bank Holidays that occurred throughout lockdown, including Christmas. Parallel to the education sessions, infographic support resources were produced to provide information and develop skills (Table 1).

The account was publicized on Twitter via the team members’ personal accounts as well as the DSN forum account and Facebook group. In addition, team members cascaded the information down through their teams and networks as well as third-sector diabetes organizations. The account was publicized by NHS England’s diabetes team and the clinical

lead Prof Partha Kar. The team recognized that not everyone uses Twitter and to increase accessibility created the YouTube channel and website to ensure non Twitter users could access the information.

## Tweetorials

The tweetorial sessions were mainly delivered on weekday evenings as it was thought more people could attend the sessions after finishing work, apart from the diabetes and eye health session, which took place in the morning. The full list of topics covered is shown in Table 2. The sessions involved uploading PowerPoint slides as images either jpg or png files to Twitter with a tweet description explaining the slide. The slides were preloaded to the Diabetes 101 account using either Hootsuite or Tweetdeck and scheduled for release depending on the number of slides to be used; they were scheduled for release either 1 or 2 per tweet and at intervals ranging from 2 to 5 min apart. The person/people running the

**Table 2.** Tweetorial Topics.

Education topics	Date of education
Diabetes and eye health	April 2, 2020
Q&A	April 7, 2020
BP and cholesterol	April 9, 2020
B/H quiz	April 13, 2020
Virtual consultations	April 14, 2020
Diabetes and foot health	April 14, 2020
Relaxation	April 16, 2020
Sports and exercise	April 23, 2020
Flash/CGM CYP	April 30, 2020
Type-2 meds	May 7, 2020
B/H food quiz	May 8, 2020
Diabetic kidney disease	May 14, 2020
Compassion	May 21, 2020
B/H Quiz E3	May 25, 2020
Injection technique	May 15, 2020
Hypo awareness week	May 13, 2020
Science of hypos	May 14, 2020
Lockdown foot care	May 5, 2020
GiRFT report	May 17, 2020
Keeping teeth healthy as you grow	May 19, 2020
Christmas quiz	May 22, 2020
Adult oral health and diabetes	May 24, 2020
Sexual dysfunction and diabetes	May 26, 2020
Lipids and statins	December 1, 2020
Alcohol and diabetes	December 4, 2020
Dietitian quiz	January 29, 2021
Adult diabetes annual review	February 2, 2021

Abbreviations: BP, blood pressure; GiRFT, getting it right the first time; CGM, continuous glucose monitoring; CYP, children and young people.

education session would then reply to the tweet giving more information or context. People on Twitter were encouraged to interact with the session by asking questions which the team would answer. All sessions lasted no more than 1 h. Some sessions included polls to help with engagement and to reinforce the education and learning. The polls encouraged interaction allowing people with diabetes to share their own experiences.

### Quizzes

The quizzes mainly ran on bank holidays or weekends except for the dietitian's quiz which ran during their take over week January 25 to 29, 2021. The quizzes included a mixture of polls and picture-based questions and were focused on anything diabetes related. Each member of the Diabetes 101 team came up with 2 to 4 questions which were collated in WhatsApp. These were then added to the Twitter account as drafts (which is the only way to save tweet polls without tweeting them) in advance of the day. One team member then took charge of the account to tweet the questions out at a predetermined rate depending on the number of questions, for example, 30 questions/60 min = 1 poll every 2 min. Again,

**Table 3.** Diabetes 101 Downloaded Content.

Topics covered
1. COVID-19 Facts and Fiction
2. The eyes have it
3. The download on drugs
4. Psych up your life
5. Get fit do not quit
6. The 101 on carb counting
7. New age diabetes
8. Staying safe in hospital

the quizzes were limited to 1 h each. The answers along with an explanation were written in Microsoft word and were tweeted as image (JPG or PNG) files after the 1-h session had ended. All polls on Twitter are open for a 24-h period after they have been tweeted.

### Live Virtual Conference for People With Diabetes

On July 25, 2020, the Diabetes 101 team held a live virtual conference (Diabetes 101 downloaded) for people with diabetes on the platform Zoom. The conference was organized by the team with 8 sessions (Table 3) which was chaired by 2 Diabetes Specialist Nurses (DSNs). The conference was advertised in advance on Twitter, Facebook, and Instagram with the timetable for the day available along with the link for the Zoom session to avoid the need for registration. Those people who joined the Zoom sessions were encouraged to ask questions in the chat box which were asked by the chairs on the day and answered by the speakers.

### YouTube Videos

The whole live conference was recorded and then edited into individual session videos which were then uploaded to the Diabetes 101 YouTube channel. All questions that were asked on the day were emailed to the individual speakers and a separate Q&A video was then uploaded to YouTube and to the website which was launched on November 1, 2021.

**Website.** All content created by Diabetes 101 team members were posted to Twitter. However, after some time, it can become difficult to locate specific items on Twitter as more content is posted. Therefore, following feedback from followers about accessibility of the material, the decision was made to create a Diabetes 101 website to keep all material in one place where it was accessible to people who may not be on Twitter.

### Data Analysis

Data were analyzed for the 12-month period of March 23, 2020 until the March 23, 2021. For tweetorial sessions,

**Table 4.** Description of the Different Social Media Metrics.

	Metric	Description
Twitter and YouTube	Impressions	The number of times the content is displayed in a user's timeline no matter whether it was clicked on or read.
	Engagement	The number of times a post is directly interacted with in the form of a like, reply, retweet, or a click.
	Engagement rate	Engagement number divided by impressions and expressed as a percentage.
YouTube	Reach	Is the total number of people who have seen the content.

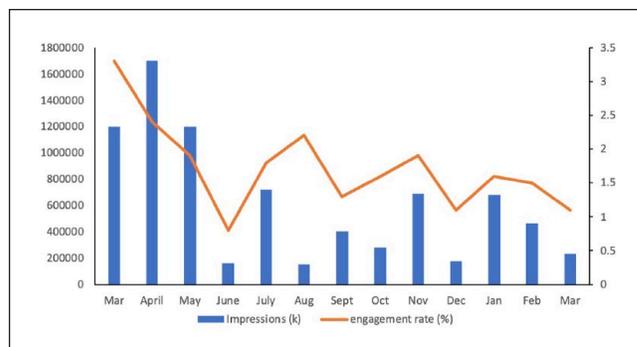
Twitter analytics and Tweepmap<sup>17</sup> were used to access data. For the presentation videos on YouTube, YouTube analytics was used. Daily statistics were downloaded from Twitter analytics in CSV files and transferred to Microsoft Excel. Information on the number of impressions, engagement, retweets, replies, and likes per tweet were downloaded. For YouTube, the number of impressions, reach, unique views, and view time were downloaded. Impressions are the number of times the content is displayed in a user's timeline no matter whether it was clicked on or read. Engagement is the number of times a post is directly interacted with in the form of a like, reply, retweet, or a click. Engagement rate is the number of people who have interacted with a post/content over the number of times it has shown in a user's timeline. Therefore, engagement rate is engagement number divided by impressions and expressed as a percentage. Reach is the total number of people who have seen the content. Table 4 provides details of the social media metrics.<sup>18</sup>

**Results**

The diabetes101 Twitter account went live on March 23, 2020, and after 1 year of activity had 6,214 followers and 8,057,400 impressions with an average engagement rate of 1.7% and reach of 2.5 million (Figure 1). Over the 12-month period, the account had 7,562 retweets, 34,963 likes, and made 8,764 replies. The account's followers were from 73 countries but were predominantly from the United Kingdom (84.5%) (Figure 2) most were female (63%), were aged 24 to 64 years (81.9%), and over a third were from a healthcare background 37.7% (Figure 3). People interacted with the account in a variety of ways including asking questions relating to COVID-19 and lockdowns, answering each other's questions and calls for support. During the initial wave and first lockdown especially, people were unable to reach their clinical teams immediately and so @\_diabetes101 allowed them to receive accredited and trusted information quickly.

**Tweetorials and Polls**

The user's experience and use of the Diabetes 101 social media was obtained. The account ran a total of 22 tweetorial sessions and 5 quizzes with a total of 151 polls which



**Figure 1.** Number of impressions and engagement rate per month for the Diabetes 101 account.

received a total of 21,269 votes. An example tweet from the compassion tweetorial with the engagement from followers is shown in Figure 4. People engaged with the account during the tweetorial sessions by asking questions through replies to the information tweeted and responding to questions asked by other followers. They also answered multiple choice polls as well as replying to the polls with further information regarding their response.

Overall, 1-h tweetorial sessions gained 1,821,088 impressions with an engagement rate of 6.3%. The sessions received a total of 2,341 retweets, 2,467 replies, and 10,060 likes. The impressions and engagement rate per session are shown in Figure 5. Of the 22 tweetorials (excluding the 5 quizzes), the science of hypoglycaemia (96,944) and the Getting it right the first time (GiRFT) report (96,369) obtained the most impressions, with the highest engagement rate seen for injection technique and hypoglycaemia awareness at 11.5% and 11.3% respectively.

The account ran a total of 5 quiz days with 113 polls receiving 16,069 votes. The third bank holiday quiz created the most impressions 104,531, with the first quiz having the most engagement 9.4%. The third quiz included the most polls at 34, generating 5,079 votes and the first quiz ran 29 poll questions which generated the most votes 6,118.

**Live Virtual Conference for People With Diabetes**

Diabetes 101 Downloaded conference for people with diabetes ran on July 25, 2020 on Zoom. Over 100 people attended the conference on the Zoom platform. These videos were then added to the Diabetes 101 YouTube channel and now have a total of 2,916 views with a watch time of 281 min and impressions 8,847 (Figure 6).

**YouTube Videos**

The YouTube channel content has now expanded and contains videos to combat vaccine hesitancy in people with diabetes in multiple languages as well as a day in the life of

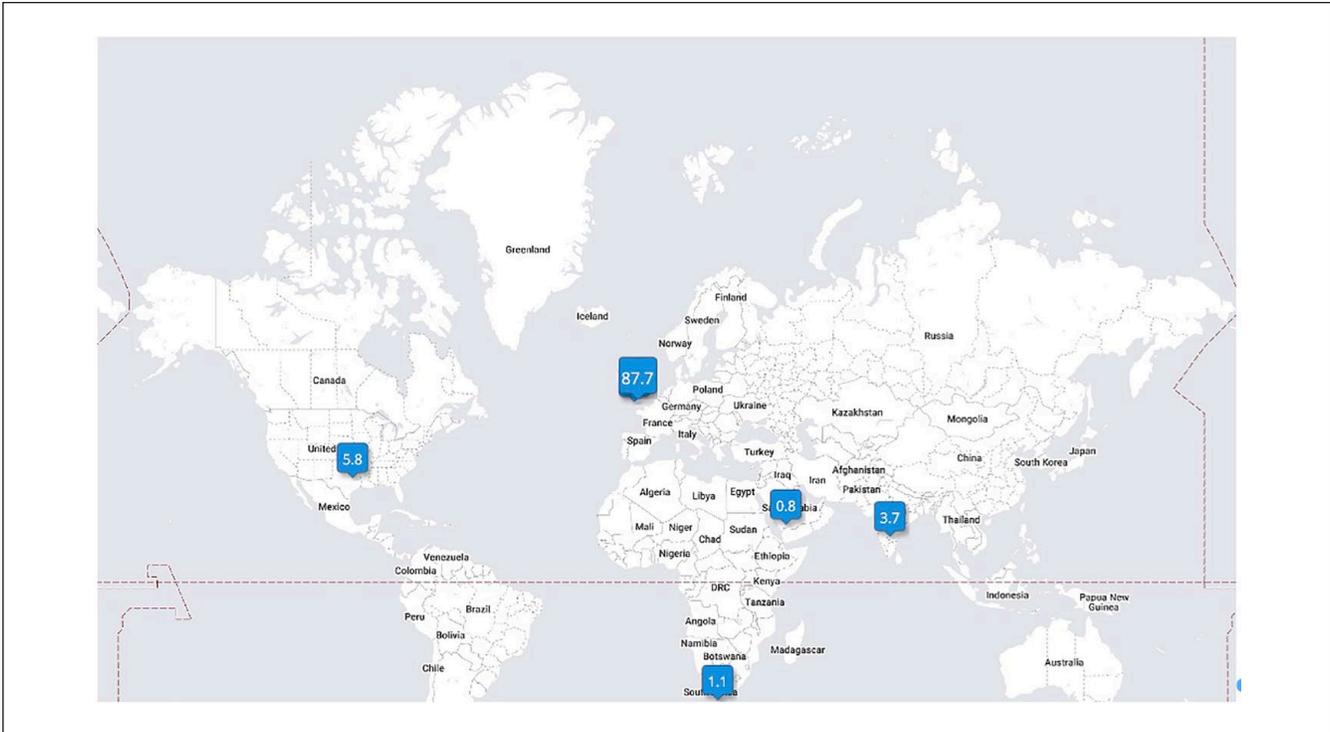


Figure 2. Map of followers by region.

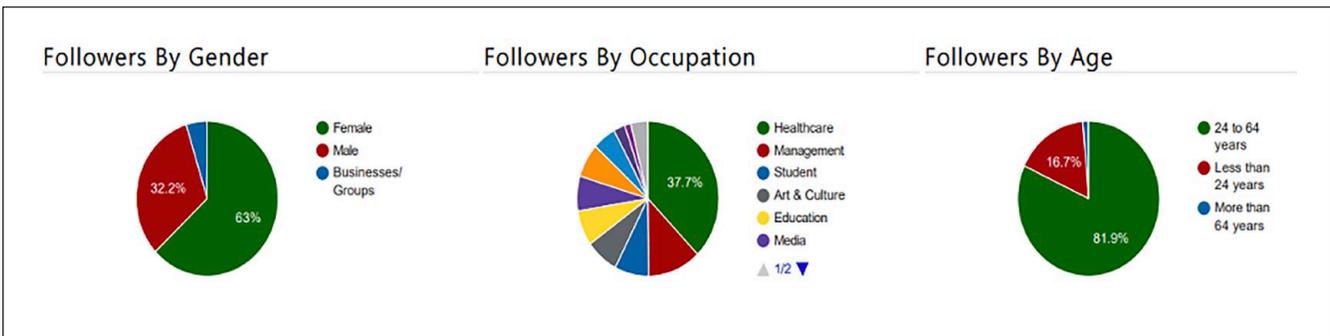


Figure 3. Demographics of Twitter followers.

team Diabetes 101 video series. The day in a life video series were to combat the feeling from people with diabetes that they had been abandoned by the diabetes teams during the pandemic. They show that in fact the teams are still there and very busy. This was felt to be important due to the media attention about routine care being stopped. In addition, diabetes team members across the country had been redeployed to support inpatient wards leaving teams short staffed which led to nonurgent enquiries seeing a delay in replies.

Overall, the Diabetes 101 YouTube channel has 33,864 impressions and 5,482 views 313 h watch time over 49 videos over 3 playlists. Visitors to the YouTube channel were from 6 countries (United Kingdom, India, the United States, Malaysia, Turkey, and Bahrain) with the majority (67.4%)

from the United Kingdom. Most (61.9%) of viewers are aged 35 to 44 years and female 60.7%. Around 35.8% of the viewers found the channel from external sources with Facebook (40.6%), Twitter (24.3%), diabetes101 website (8.4%), and WhatsApp (5.7%) being the most used ways.

### Discussion

The Diabetes 101 account provided a novel, reliable, and up-to-date method of disseminating information and education to people with diabetes during the COVID-19 pandemic via Twitter and YouTube. The aim of these education sessions was to improve the understanding of people with diabetes on the multiple factors that can impact their management, raise

awareness, and to discuss difficult and often emotive topics in sensitive way using the principles of Language Matters<sup>19</sup> to help start the conversations that could be continued with their diabetes teams. The 22 education sessions and 5 quizzes created 1.8 million impressions with an engagement rate of 6.3%, 113 polls and 16,069 votes over a 1-year period. Social media management tools and platforms report Twitter engagement rates of 0.02% to 0.5% as “good,”<sup>20,21</sup> indicating that the overall engagement rate for this account was extremely high, and in line with the highest level of engagement for Tweets reported by a high-profile health journal.<sup>22</sup> The Diabetes 101 Downloaded conference on YouTube created over 8.8 thousand impressions, 2.9 thousand views, and over 281 h watched—this indicates that a high level of information was conveyed by the account that may not have previously been accessible to people with diabetes.

Social media is receiving growing attention in research. A scoping review of health researchers use of social media showed that most of studies were using social media for recruitment purposes (25%) different ways to use social media (15.5%) and only 13% using social media for content analysis.<sup>23</sup> They identified only 3 studies using social media for patient education and care, and 1 study for information health management. One such study was from a breast cancer Facebook group which examined the engagement rate with posts;<sup>24</sup> however, engagement rates between Twitter

and Facebook are not directly comparable as Facebook engagement rates are normally considered to be higher than Twitter. Another study examined the use of social media for breast cancer patient education.<sup>25</sup> Whilst this study demonstrated that education provided on Twitter reduced women’s anxiety about breast cancer screening, it did not report on social media metrics to show the engagement rate or reach of the posts. To our knowledge, this is the first study that has developed a Twitter social media account to provide education for people with diabetes by a multidisciplinary team of HCPs to use Twitter metrics to understand its reach.

The COVID-19 pandemic has resulted in disruption to conventional teaching and as a result a rise in online education. The exponential growth of social media has also been shown to improve communication and engagement, not only between students and educators, but also among students thereby providing the benefit of peer support.<sup>26</sup> For education to be effective there needs to be more than one way to communicate, it requires a feedback loop.<sup>27</sup> The technology-enabled self-management (TES) feedback loop allows the person with diabetes to use education to adjust their self-management, the health care team reviews the data and tailor any further education. Education delivered on social media platforms cannot be tailored to the individual however, evidence shows that this type of asynchronous feedback is more



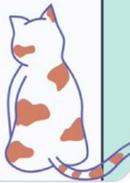
**Team Diabetes 101**  
@diabetes101

...

**So everyone has these types of thoughts but for people with diabetes these thoughts might be more common. Here are a few reasons why...Any of them ring true for you?**

**Why do people with diabetes have more self-critical thoughts?**

- Checking BG is a constant reminder of how "well" you are doing
- Expectations from others about how you "should" manage your diabetes
- Judgements based on numbers all the time (e.g. HbA1c)
- Trying to control something that is often unpredictable & uncontrollable
- Comparing self to others
- Feeling different to others
- It is knacker (and it's tough to be kind when you're tired)



6:40 PM · May 21, 2020 · Hootsuite Inc.

(continued)

Figure 4. (continued)

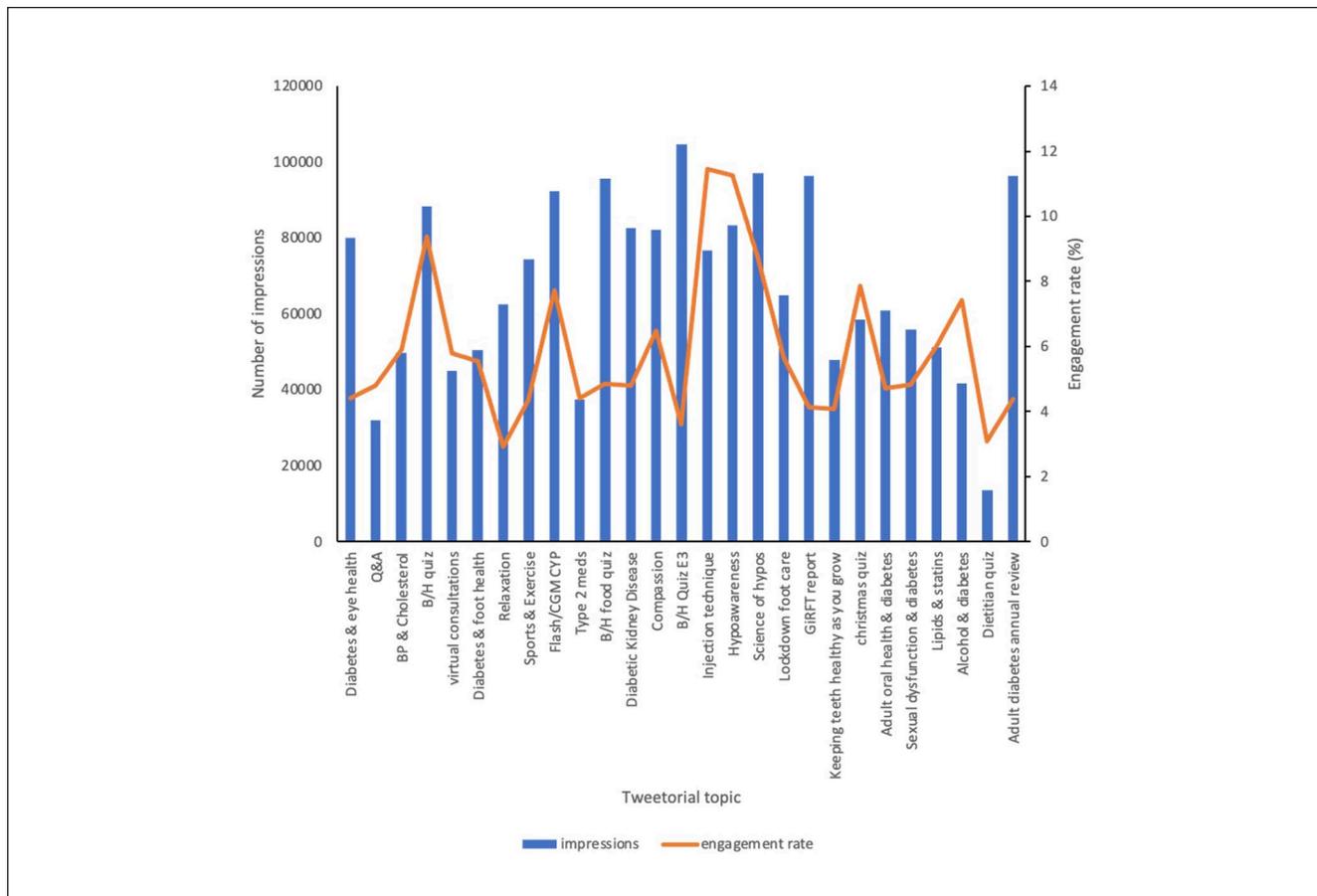


Figure 4. An example tweet of the compassion tweetorial with replies and interactions from people with diabetes.

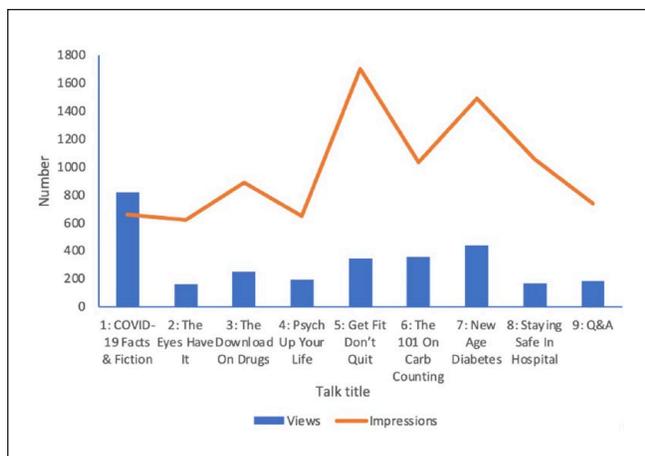
beneficial as it allows people to consider the information and knowledge in a less stressful environment compared to traditional face-to-face HCP communications as well as providing the time to process, learn, and respond.<sup>28,29</sup> Studies have also demonstrated that education delivered via the internet is effective at improving glycemic management, knowledge, eating habits, and increased attendance at clinic appointments.<sup>29</sup> Therefore, education provided on social media can fit into the TES loop (Figure 7).

There are limitations of using social media to provide education. Those people who access social media are generally younger and therefore the older population and those with limited health literacy and numeracy would be excluded

from this education provision. There are also groups who would be digitally excluded from this type of education who are more likely to be from ethnic minority or deprived backgrounds. There are also many social media platforms which are used by different age groups and to provide education across all of them would be considerably time consuming to the point of compromising practicability. In addition, the pitfalls of social media should also be considered such as the potential for cyber bullying and the potential detrimental effect on the patient–healthcare professional relationship.<sup>30</sup> There is also still some considerable resistance amongst healthcare professionals to interact with patients through social media due to ethical issues or other concerns. Each of



**Figure 5.** Number of impressions & engagement rate during the 1-h tweetorial sessions. Abbreviations: BP, Blood Pressure: GiRFT, Getting it Right the First Time: CGM, continuous glucose monitoring: CYP, children and young people.

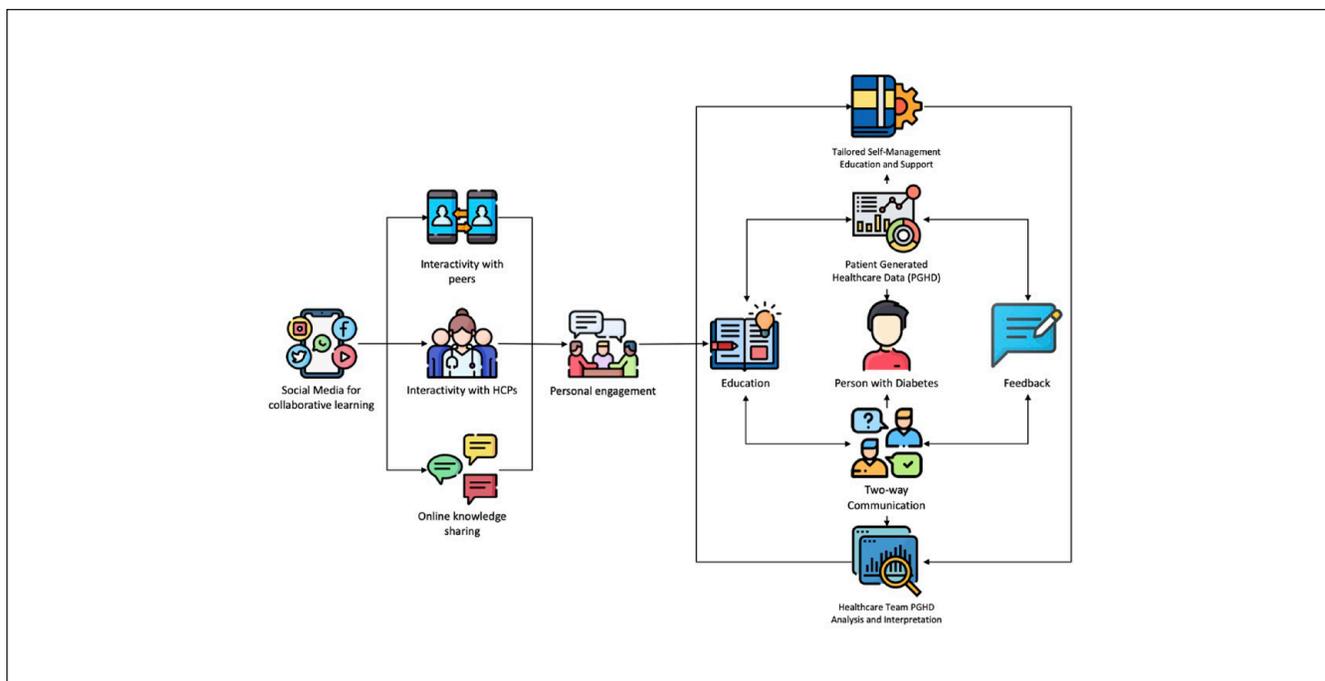


**Figure 6.** Number of views and impressions for the Diabetes 101 downloaded conference videos on YouTube.

the healthcare groups organization’s have developed their own codes of conduct for social media which members are expected to follow.<sup>31-33</sup> We must also consider the harms that

while all education session were designed to be delivered in as sensitive a way as possible, the content posted has the potential to be distressing to those within the DOC who are experiencing psychological distress, for example, sessions on eye health may trigger anxiety around diabetes complications, or people sharing diabetes successes could trigger a sense of failure. Finally, while there are age restrictions on social media platforms, it is not difficult to enter a false year of birth thereby creating a risk that younger children could access social media and inappropriate content.

Feedback on the education sessions has and will lead to further developments. This includes the creation of the website to store all resources in one place [www.diabetes101.co.uk](http://www.diabetes101.co.uk). This allows people to find and follow the tweetorial sessions and access the YouTube videos and infographics more easily. In addition, the feedback from the diabetes and eye health sessions has highlighted a need for resources to be developed to explain how diabetes can affect eyes and what people can do to stop it in understandable compassionate language. However, further research is required to understand the impact education provided on social media has on outcomes for people with diabetes. Research is also required to



**Figure 7.** How social media fits to improve the Technology-Enabled self-management (TES) Feedback Loop. Abbreviations: HCPs, healthcare professionals.

understand whether the @\_diabetes101 platform built on Twitter would translate to other platforms such as Facebook and Instagram to reach a wider audience. In addition, whether education provided via social media can be harnessed for other long-term conditions is yet to be understood and whether an already established community is required on the social media platforms for this to be successful.

## Conclusion

Overall, social media can be harnessed to provide relevant reliable information and education about long-term conditions in an accessible way which allows people the time and space to learn at their own pace. However, running a social media account takes time and effort to ensure content is relevant and up to date. Any education sessions need advertising in advance to maximize the engagement rate. More research is needed to assess the long-term impact education provided in this way has on health outcomes.

## Abbreviations

BERTIE, Bournemouth Type 1 Diabetes Education; DAFNE, Dose Adjustment for Normal Eating; DOC, diabetes online community; DSNs, Diabetes Specialist Nurses; DTN, Diabetes Technology Network; GiRFT, Getting it Right First Time; TES, Technology Enabled Self-Management Feedback Loop.

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