Validation of Audiovisual Educational Tool that discusses psychological insulin barriers for type 2 diabetic patients

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Abstract

The purpose of the study was to validate an audio-visual tool created for the evaluation of its usefulness in breaking the insulin barrier, by making a video which is simple, accessible and informative at the same time. The video explains the nature of type two diabetes, the progression of the disease and the options for treatment and their side effects. The video also addresses the patients' concerns regarding insulin therapy and helps to overcome the barriers towards starting insulin therapy. The subjects included 178 staff personnel who met the inclusion and exclusion criteria. The personnel consisted of family medicine physicians and residents, medical interns, nurses, medical students and other medical staff (including clinical pharmacist, dietitian, and medical educator). The participants were asked to fill out a validated questionnaire which contained questions about the relevance, clarity, completeness, reassurance, efficiency and accuracy of the information in the video. The study showed a positive response by healthcare personnel toward the audio-visual material which aimed to break insulin barriers in diabetic patients. This material can be used by the diabetic multidisciplinary team as an educational tool as it will leave the patient with a better understanding of insulin which will lead to better control of diabetes and increase compliance.

Key words: validation, video, education, insulin resistance, type 2 diabetic

Introduction

Diabetes is one of the most common diseases worldwide; in 2013 it was estimated that 382 million people had diabetes, which is approximately 8.4% of the adult population. This number is expected to increase up to 55% by 2035, andincludes all types of diabetes but type two is the highest in particular(1). Due to the nature of the disease in type two diabetes, which is the progressive diminishing of the function of beta cells, oral hypoglycemics alone are not enough(2). Insulin plays a major role in managing type 2 diabetic patients. According to the UKPDS 50% of the newly diagnosed cases will require insulin in the next 6 years(3). Despite the well-established results of insulin in the management of diabetes, insulin is still considered as a last resort(4). This delay in the initiation of insulin therapy is related to a phenomenon that is found in about 28% of type two diabetic patients,(5) which is known as (PIR) "psychological insulin resistance". This Insulin resistance is considered as a major obstacle for diabetic patients to adhere to their insulin therapy, which raises a concern of avoiding insulin in uncontrolled diabetic patients. The PIR is caused by many reasons such as fear of needle injections, worries about hypoglycemic episodes, patients' feelings of guilt and failure, sense of loss of control over patients' own life, and reduced quality of life. Because these barriers are not entirelyvalid, it is believed that these barriers are based on wrong information received by patients(6–10).

Self-management plays an important role in diabetes management, therefore patient's self-management education is also an important aspect of the management . Usually the primary care team is responsible for educating diabetic patients, but the level of skills and resources between primary care team members could create a variation in the quality and quantity of education given to the patients(11). A meta-analysis of heart failure management found that education reduces mortality and may improve quality of life for patients(12).

The use of video could be an effective educational tool to change attitudes toward insulin barriers in diabetic patients. A meta-analysis found that video education encourages self-care behavior devotion,(12) while another meta-analysis showed a significant increase in overall knowledge of their target group(11). .Another study which was conducted in Brazil, indicated that the educational video helped to improve cognitive knowledge among nursing students(13). To add to the potential of the video as an educational tool, a video cannot only be used in a primary care facility but can also be posted easily on different social media platforms. In 2018, 88% of 18- to 29-year-old Americans indicated their use of any social media platform, with 78% use among age group of 30 to 49, 64% use among age group of 50 to 64 and 37% use among those who are 65 and older(14). Furthermore, 26% of internet users use social media platform to search about their health issues (15).

Locally, in Makkah city in Saudi Arabia a study showed that half of the patients think that treatment with insulin should be stopped when they are symptom free, also almost half of the patients (45.5%) believe that oral medications are better at controlling diabetes in comparison with insulin. This shows that insulin-related misconceptions are relatively frequent.These misconceptions might be due to deficiencies in the educational programs at hospitals. Therefore, this necessitates the need for developing appropriate interventions to improve the outcome of diabetes care. One of these interventions is to create a valid video to help diabetic patients who need insulin therapy to overcome its barriers(16) This study aims to create a valid video to help diabetic patients who need insulin therapy, to overcome their barriers, by combating each of these barriers in a short, simple message with respect to the patients' culture and language.

Material and Methods

The study took place from February 2017 to end of June 2017. It was conducted on personnel because we wanted to know if the video was good enough to educate the patients. This study used a cross-sectional method. The subject included 178 staff personnel who consisted of family medicine physicians and residents, medical interns, nurses, medical students and other medical staff (clinical pharmacist, dietitian, medical educator), who were recruited after screening to check the inclusion and exclusion criteria. The target population of the study was: personnel of Saudi National Guards and King Saud bin Abdulaziz University for Health Sciences in the city of Riyadh, medical related personnel and other personnel who watched the video, with the exclusion of personnel who do not know the basics of diabetes and diabetes management and personnel who could not speak Arabic.

The audio-visual material used in the study was developed by the researchers(17) and was ethically approved. The contents of the audio-visual material were developed based on the American Diabetes Association "ADA" Standards of Medical Care in Diabetes 2017(18) and reviewed by a family medicine expert. Translation of the "ADA" content to Arabic was done by using back translation method. In the development of the audio-visual material the following aspects were considered: evidence based updated materials, short duration to avoid boredom, simple language, the use of local accent and the use of a character which presents the culture of Saudi Arabia. The audio-visual material was piloted by 20 individuals from the public and health care providers. The audio-visual material aimed to break the insulin barriers found in type 2 diabetic patients by explaining the pathophysiology of type 2 diabetes in brief, types of type 2 diabetes management with special focus on insulin and introducing a new way of delivering insulin, which is the insulin pen.

The study used a validated questionnaire(19). The questionnaire was revised to match the objective of the study. “Permission was taken from the developer of the validated questionnaire”. The questionnaire consisted of nine questions and contained both close and open-ended questions. There were six close-ended questions which contained questions about the relevance, clarity, completeness, reassurance, efficiency and accuracy of the information about type two diabetes. The remaining three questions were open-ended questions asking for the participants’ feedback. For example, what they liked the most about the video, what they did not like and the things they wanted to add to the video.

The participants were approached by the researchers themselves in their locations. For example, physicians were approached in the department ground round, while residents were approached in the journal club. The data collection started by presenting the audio-visual material for the participants on a big screen, after which the questionnaire was distributed and they were asked to fill it in immediately. Participants provided informed consent to publish their responses in this study.

Firstly the audio-visual material was developed commencing 15th of June 2016, and was completed on 13th of September 2016; the piloting was done on October 2016 and after the piloting the audio-visual material was modified according to the feedback.

For the analysis of the qualitative data, SPSS (64 bit) 20 was used and for the quantitative data, descriptive statistics were used. The qualitative data was collected by qualitative content analysis.

Results

The study included 178 personnel who included 34 (19.1%) family physicians, 39 (21.9%) family residents, 10 (5.6%) interns, 10 (5.6%) nurses, 70 (39.3%) medical students and 15 (8.4%) other staff (including clinical pharmacist, dietitian, medical educator).

The quantitative data collected from close-ended questions are shown in Table 1. Figure 1 shows that 94.9% “q2” of the participants thought of the content of the audio-visual material as clear/understandable from a patient point of view, 94.4% “q1” saw the content as relevant to the diabetic patient population. 86.5% “q6” saw the content as accurate. 72.5% “q5” felt that the audio-visual material would leave the patient with less or no questions for the staff. 71.3% “q3” though that the audio-visual material provided most or all the information that the patient needs about Insulin therapy. 66.3% “q4” believe that the audio-visual material would leave the patient feeling confident about starting insulin therapy. A reliability test was done for the 6 quantitative questions using Cronbach’s Alpha test, which gave 0.68 α, Item-Total Statistics as shown in Table 2.

The survey also contained three open-ended questions. The first question asked for the positive points about the video, the second and third questions asked for the negative points about the video and for more comments from the participants. The qualitative data from the first question consisted of 92 comments. 23 of the comments mentioned the animation and graphics as their most liked aspect of the video, 21 comments mentioned the use of easy language and 30 comments mentioned simplicity, clearance and short duration of the video.
The qualitative data from the second and third questions consisted of 61 comments. 28 comments pointed out the need for more information about insulin types, how to use the pen and hypoglycemia symptoms. 4 comments mentioned the use of Arabic language as a negative point and suggested adding English subtitles.

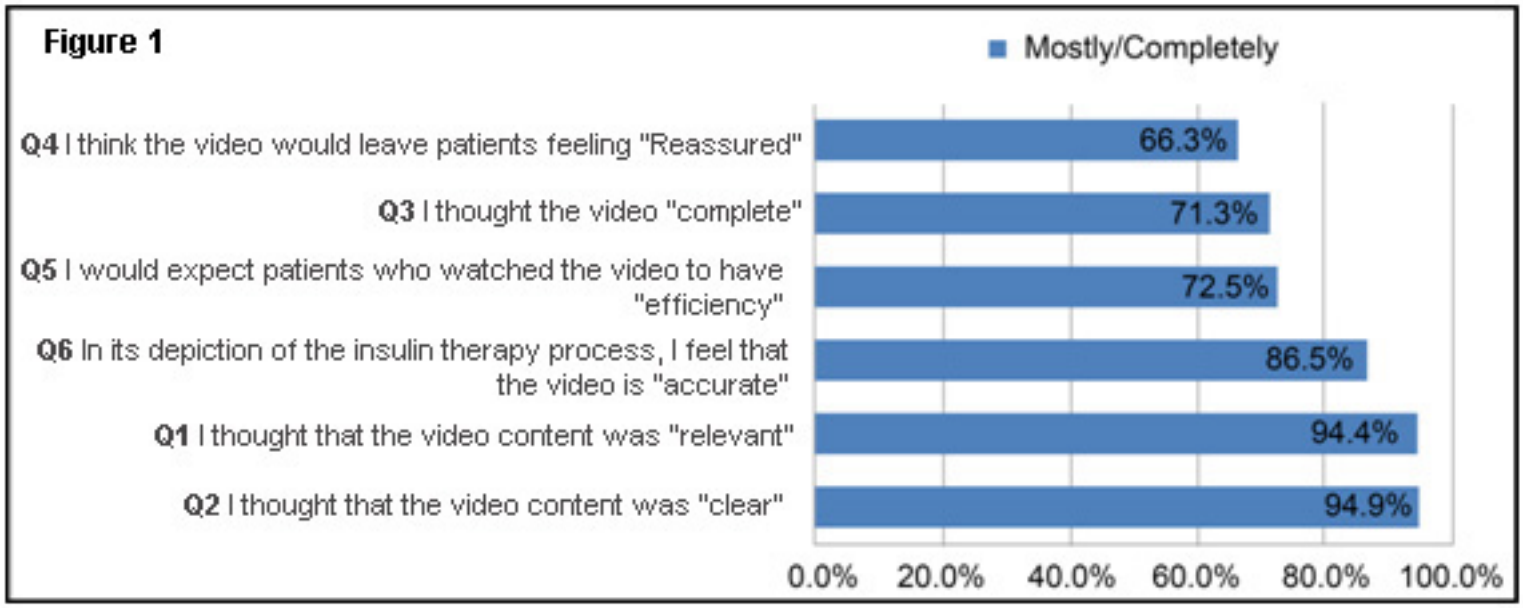
Table 1: Close-ended questions

Questions	Responses	N	%
Q1- I thought the video content was "from a patient prospective":____ relevant to diabetic patient population	Not at all	0	0.0%
	Somewhat	10	5.6%
	Mostly	64	36.0%
	Completely	104	58.4%
Q2- I thought the video content was, "from a patient perspective":____ understandable	Not at all	0	0.0%
	Somewhat	9	5.1%
	Mostly	81	45.5%
	Completely	88	49.4%
Q3- I thought the video:__ the information patients need about Insulin therapy	Provided none of	0	0.0%
	Provided some of	42	23.6%
	Provided most of	85	47.8%
	Provided all of the	42	23.6%
	Provided too much	9	5.1%
Q4- I think the video would leave patients feeling:__ confident about having insulin therapy	Not at all	3	1.7%
	Somewhat	57	32.0%
	Mostly	89	50.0%
	Completely	29	16.3%
Q5- I would expect patients who watched the video (compared to those who did not watch it) to have:__ questions for staff	More	28	15.7%
	About the same	21	11.8%
	Fewer	121	68.0%
	No	8	4.5%
Q6- In its depiction of the insulin therapy process, I feel that the video was:__ accurate	Was not at all	1	0.6%
	Was somewhat	23	12.9%
	Was mostly	101	56.7%
	Was completely	53	29.8%

Table 2: Item-Total Statistics

Questions	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
I thought the video content was	15.12	5.612	0.31	0.669
I thought the video content was, from a patient perspective	15.21	5.284	0.451	0.63
I thought the video	15.55	4.554	0.47	0.618
I think the video would leave patients feeling	15.84	4.743	0.511	0.603
I would expect patients who watched the video (compared to those who did not watch it) to have	16.04	4.976	0.346	0.666
In its depiction of the insulin therapy process, I feel that the video	15.49	5.246	0.397	0.644

Figure 1. Participants who answered mostly/completely



Discussion

The study examined medical professionals and students' ideas toward audio-visual material aimed to break the insulin barriers in diabetic patients and showed a positive response to the audio-visual material especially to the aspects of material clarity, relevance to diabetic patient and accuracy. The participants gave positive feedback on the use of animation and graphics and the easy language that was used in the audio-visual material. Negative feedback was also given which focused on the need for more insulin information.

The result comes in line with other studies that tested audio-visual material on both patients and healthcare providers(19) or only patients(11,12). This suggests that audio-visual material could be a useful tool for delivering information and raising awareness among patients. Looking at the low cost of the production of such materials, and the easy access for audio-visual material by patients through smart phones and social media which makes it more appealing to the patient, this can open new doors in patient education and reduce medical cost if used(12). The use of these materials to target not only patients but also possibly patients and the whole community through social media, which has a rising use among the population,(14) may help change some of the negative ideas or stigma that follows certain diseases and makes the community more supportive toward patients. A drawback of such materials is that its effectiveness may vary depending on multiple factors such as quality of production, accuracy of information, language used and keeping it short and entertaining while informative. Further research is needed to study the impact of audio-visual materials on the attitude of patients and the community.

The study carries strengths in aspects like the high response rate, involvement of different professions in the healthcare team and testing the first audio-visual material that targets breaking insulin barriers. Limitations of the study is that it is a targeted population from one institution; the audio-visual material was for Arabic speakers only and did not involve diabetic patients.

Conclusion

The study shows a positive response by healthcare personnel toward audio-visual material aimed to break insulin barriers in diabetic patients. This material can be used by the diabetic multidisciplinary team as an educational tool as it will leave the patient with a better understanding of insulin and with fewer questions for the team.

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References

1. I.D. Federation, IDF Diabetes Atlas, 6th ed., International Diabetes Federation, Brussels, Belgium, 2013.
2. Wong S, Lee J, Ko Y, Chong MF, Lam CK, Tang WE. Perceptions of insulin therapy amongst Asian patients with diabetes in Singapore. Diabet Med. 2011;28:206–211.
3. Wright A, Burden AC, Paisey RB, Cull CA, Holman RR; U.K. Prospective Diabetes Study Group. Sulfonylurea inadequacy: efficacy of addition of insulin over 6 years in patients with type 2 diabetes in the UK Prospective Diabetes Study (UKPDS 57). Diabetes Care 2002;25:330–336.
4. Intensive blood-glucose control with sulphonylureas or insulin compared with conventional treatment and risk of complications in patients with type 2 diabetes (UKPDS 33), Lancet 1998;352(9131):(1998) 837–853.
5. Polonsky WH, Fisher L, Guzman S, Villa-Caballero L, Edelman SV. Psychological insulin resistance in patients with type 2 diabetes: the scope of the problem. Diabetes Care 2005;28:2543–2545.
6. Korytkowski M. When oral agents fail: practical barriers to starting insulin. Int J Obes Relat Metab Disord. 2002;26 Suppl 3:S18–S24.
7. Davis SN, Renda SM. Psychological insulin resistance: overcoming barriers to starting insulin therapy. Diabetes Educ. 2006;32 Suppl 4:146S–52S.
8. Bogatean MP and Hâncu N. People with type 2 diabetes facing the reality of starting insulin therapy: factors involved in psychological insulin resistance. Pract Diab Int, 2004;21:247–252.
9. Peragallo-Dittko V. Removing barriers to insulin therapy. Diabetes Educ. 2007;33 Suppl 3:60S-65S.
10. Funnell M. Overcoming barriers to the initiation of insulin therapy. Clin Diabet. 2007;25:36–38.
11. Dyson PA, Beatty S, Matthews DR. An assessment of lifestyle video education for people newly diagnosed with type 2 diabetes. J Hum Nutr Diet. 2010;23:353–359.
12. Roccaforte R, Demers C, Baldassarre F, Teo KK, Yusuf S. Corrigendum to "Effectiveness of comprehensive disease management programmes in improving clinical outcomes in heart failure patients. A meta-analysis" [Eur J Heart Fail 7 (2005) 1133-1144]. Eur J Heart Fail. 2006;8(2):223–224.
13. Stina APN, Zamarioli CM, Carvalho ECD. Effect of educational video on the student's knowledge about oral hygiene of patients undergoing chemotherapy. Esc. Anna Nery. 2015;19:220–225.
14. Smith A, Anderson M. Social Media Use in 2018 [Internet]. Pew Research Center: Internet, Science & Tech. 2018 [cited Apr 14, 2018]. Available from: http://www.pewinternet.org/2018/03/01/social-media-use-in-2018/
15. Joseph A, Rebecca A, James J, Steven E, Peter D, Anne W. Patients' Use of the Internet for Medical Information. Rhode Island, USA. J Gen Intern Med. 2002;17:180–185.
16. Bataisa A, Schantter P. Prevalence of unwillingness to use insulin therapy and its associated attitudes amongst patients with Type 2 diabetes in Saudi Arabia. 2016 Primary Care Diabetes Europe; 2016;10:415–424.
17. Alsaif, M.F
https://www.youtube.com/watch?v=Ye9SRh59pjg
18. American Diabetes Association. Promoting Health and Reducing Disparities in Populations. Diabetes Care 2017;40(Suppl. 1):S6–S10
19. Morley L, Mcandrew A, Tse K, Rakaric P, Cummings B, Cashell A. Patient and Staff Assessment of an Audiovisual Education Tool for Head and Neck Radiation Therapy. J Cancer Educ. 2013;28:474–480.