Reducing resistance to diabetes treatment using short narrative interventions

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Introduction

Adherence to pharmacological treatment and willingness to make behavioural changes are essential to chronic disease care. Non-adherence to treatment is a common problem and many patients have sub optimal care, thus reducing chances of improving a prognosis. Medication non-adherence has been shown to increase mortality and cause great economic loss each year.

Diabetes is a chronic illness, associated with various complications, including hypertension, hyperlipidaemia, nephropathy and retinopathy. The prevalence of type 2 diabetes varies widely worldwide and is continuously increasing due to population growth, ageing, industrialization and high rates of obesity and physical inactivity. Only in USA, the prevalence of diagnosed diabetes has risen 2-fold in the past 40 years and 75% during the past 25 years. Population-based study conducted by Maccabi Healthcare Services, the second largest Health Maintenance Organization in Israel, recorded a rise in the prevalence of diabetes between 1999 and 2001. A rise in mortality was also recorded from 1.73% in 2000 to 2.13% in 2001.

Diabetes treatment regimens are complicated, encompassing lifestyle changes and medication intake. Apart from oral medication, treatment typically includes dietary manipulation, physical exercise, home blood glucose testing and insulin injections. Many lifestyle changes have to be followed in order to improve prognosis and for prevention of complications in this illness, which is almost without symptoms in its early stages. Not surprisingly, it appears that few patients are willing to follow strict lifestyle changes for any length of time.

The need for a collaborative approach in diabetes care, relating to health care professionals and patients...
Reducing resistance to diabetes treatment

as equals, has been recognized. Consequently, much effort has been made to provide a patient-centred environment where patients chose to work towards self-selected behavioural and other goals. A Cochrane meta-analysis review of 21 studies assessed the effects of interventions on improving adherence to treatment recommendations (not to diet or exercise) in people diagnosed with type 2 diabetes. The conclusion of this study was that current efforts to improve adherence of people with type 2 diabetes to treatment recommendations do not have a significant effect. It is possible that existing intervention methods lack sufficient consideration of the specific individual reasons that would allow each patient to work towards a personalized goal. It is important to note that patient’s awareness of the benefits of a particular treatment does not automatically result in its utilization. While some aspects of diabetes treatment, such as oral medication, may be less difficult to follow, others, such as dietary manipulation and exercise, are more demanding and require significant behavioural change. Different biological and psychological factors influence resistance to treatment, as well as interactions within the family and health care system. Recognition of individual reasons underlying patients’ resistance is the key to enhancing chances for their recruitment to treatment.

We propose that a more personal approach, based on an understanding of the specific reasons for each patient’s resistance, is essential in order to choose appropriate treatment goals. For this purpose, we developed ‘The Resistance to Treatment Questionnaire’ (RTQ), a 40-item questionnaire, which can be administered in ~10 minutes. This tool was developed by using both qualitative and quantitative methods and four categories of reasons for resistance to treatment were established (Table 1). Our findings indicated that higher degree of resistance on the RTQ correlates with lower readiness to engage in treatment, lower frequency of adherence to the diabetes treatment recommendations, lower competency to adhere to the different treatment recommendations in different situations (lower self-efficacy) and with greater impact of statements describing possible reasons for not adhering to each of the treatment recommendations. Overall, the RTQ was validated in terms of reliability, construct validity and content validity.

In addition, correlations were found between high scores of resistance on the RTQ and different clinical values, such as higher body mass index and number of emergency room visits related to diabetes. RTQ is a tool that allows medical personnel to easily recognize patients’ reasons for resistance to treatment and to assess the intensity of their resistance. The questionnaire reveals patients’ motivational, social and psychological reasons for non-adherence, therefore providing physicians with an unbiased tool for treatment decisions.

Identifying the causes of resistance and their intensity with the RTQ is the first step in building a treatment strategy, and it has to be followed by an intervention, which aims to improve recruitment to treatment.

In the current study, we attempted to examine the possible use of narrative intervention. Narrative therapy was first developed in Australia and New Zealand during the 1970s and 1980s. This approach views people as the experts in their own lives and their problems as separate entities, and not as a personal attribute. By a construction of empathic story, narrative therapy empowers people to use their skills and abilities to make a positive life change. Through a narrative, it’s possible to express empathy with patients’ suffering and pain and to understand the inner logic of their problematic behaviour. Empathic narrative has to be based on specific criterion and guidelines in order to have a positive outcome and to enhance patient’s motivation. For example, the patient should identify the narrative as his own and appear as the hero of the narrative, which provides hope and offers acceptable and attractive goals, instead of pushing towards unyielding obstacles. Narrative approach is typically used within the field of clinical therapy but can be applicable also to the practice of medicine. This approach was found effective to deal with different aspects of resistance to treatment and therapeutic guidelines, which is common among diabetic patients. The empathic narrative allows the patient to internalize and accept the need for a change and it is also emphasizes the reason why change is needed. This step is crucial in overcoming the many obstacles

<table>
<thead>
<tr>
<th>Empathic narrative related to the strongest reason for resistance to treatment</th>
<th>Empathic narrative related to the second strongest reason for resistance to treatment</th>
<th>Empathic narrative related to the weakest reason for resistance to treatment</th>
<th>$F(2,101)$</th>
<th>$\eta^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance to treatment questionnaire</td>
<td>3.66a (1.18)</td>
<td>2.80b (1.10)</td>
<td>2.28c (1.10)</td>
<td>33.60**</td>
</tr>
</tbody>
</table>

**$P < 0.01$.**

Means indicated by different letters are significantly different at the $P < 0.05$ level.
on a way to the lifestyle change, required in a treatment of diabetes.

To increase the compatibility of this method for the treatment of diabetes and to allow its simple and effective application by health care professionals, we constructed short stories, which refer to the different reasons for resistance, identified by RTQ. Each story describes different reason for resistance to treatment and contains statements that characterize people whose resistance to treatment influenced by the specific reason mentioned. The following study was conducted among people diagnosed with diabetes in order to examine if the patients recognize these empathic narratives as corresponding to their motives of resistance, which will in turn allow each patient to choose an appropriate treatment strategy. The narrative is to be used after the administration of the RTQ in order to develop a treatment plan.

Methods

Study setting
This study was undertaken in Maccabi Healthcare Services, a preferred provider health care organization, serving >1.7 million members (25% of the Israeli population). Institutional review board approval was obtained.

Participants
A total of 123 patients (54 women) participated in this study. Mean age 57.3 (SD = 12). The diagnosis of type 1 or type 2 diabetes was made when they were 8–75 years old (mean = 45.2 years, SD = 12.5). The patients were recruited to participate in the study by 55 health care professionals (physicians, nurses and dieticians), actively involved in treating diabetes. They were informed that this study is a stage in the process of diagnosis and their participation may contribute to diabetes research. The participation was on a voluntary basis.

Tools
Four empathic narratives were constructed, referring to different factors influencing resistance to treatment, as were identified by the RTQ, which takes between 10 and 15 minutes to administer. Each narrative contains statements typical for patients whose resistance to treatment is influenced by a particular factor.

Narrative 1: factors related to treatment and caregivers
You have hard feelings towards your caregivers and a treatment programme for your diabetes.
You feel that the medical team is not sensitive enough to you, does not fully understand your problem and is not there when you need it the most.

When you receive from the caregivers a treatment programme, this programme is not always flexible, sometimes is boring, demanding and usually is not tailored to your personal and specific needs.

With these feelings towards the treatment, it’s not hard to understand why you have difficulties in adhering to it. You are simply thinking that it’s impossible to work with such a team or programme.

However, despite the above, it seems that you also understand that by holding to this line, your health condition might get even worse.

I think that we better look together for a way to improve your feelings towards the programme and the medical team, and by doing so we might even enhance your adherence to treatment.

Narrative 2: factors connected to emotional reasons
I have an impression that you are flooded by uneasy emotions. You are asking yourself: ‘Why did I get this disease?’ You are concerned that disease complications will get worse; you doubt the likelihood of the treatment to be successful; sometimes you just want to throw everything away and give up.

This emotional experience is such a burden that even being there prevents you from carrying out treatment recommendations for diabetes.

It’s impossible to engage in physical activity or diet when you are angry, anxious or afraid.

Despite the above, it seems that you understand that your emotions, which prevent your actions, can even more worsen your medical condition; therefore we should look together for a way that will help you to deal with your emotions and with your diabetes.

Narrative 3: Factors connected to specific problems or constraints
You feel that diabetes demands from you a lot of effort, energy, time and other costs.

The complex treatment requirements bump into your daily routine and you not always feel like eating a special meal in the middle of a busy day, exercise when you are exhausted at the end of a working day or remember to take a medicine when you have so much on your mind.

It’s clear now, why was it so difficult to you to adhere to the treatment recommendations. It’s so obvious and it seems that under these circumstances you didn’t have much choice.

However, despite the above, it seems that you also understand that if you continue to disregard the treatment requirements, your health condition might get worse. Therefore, we should look together for a way that will assist you to overcome the diabetes, alongside the constraints.

Narrative 4: Factors connected to despair and failure
The many attempts you have made, with regard to coping with diabetes, the huge amount of time and
resources that you have invested in a treatment of the disease, has left you with an uneasy feeling of disappointment and even despair. You may ask yourself—why bother? You are concerned that all the effort you have made and will make are in vain, sometimes you even lose trust in yourself, in medications or in caregivers. These emotions are true and reasonable, considering the major effort you are investing, and the enormous difficulty involved in treating the diabetes. However, despite the above, it seems that you also understand that it is a long journey, and from time to time there will be disappointment and failure along the way. However it is important not to give up as this may worsen your health condition. Therefore, I suggest that we sit down and think about the way to cope with your feelings and the continuation of the journey.

Empathic Narratives Evaluation Questionnaire (ENEQ) was designed for this study. It contained three items, assessing the correlation of a specific empathic narrative with the participants’ attitude and their reasons for resistance to treatment.

To what extent the story you’ve heard is indicative of your attitude?

To what extent the story you’ve heard is indicative of your real reasons for resistance to treatment?

To what extent the story you’ve heard exhausts the major reason that causes you to not attend your treatment?

Patients were asked to rate their agreement with each item on a Likert scale ranging from 1 (not indicative) to 5 (strongly indicative).

**Intervention**

After each patient completed the RTQ, three empathic narratives were read: two narratives were matched for the two major categories of resistance for each patient (two sequential categories which received the highest scores according to the RTQ) and one narrative related to a category of resistance that received the lowest score. The narratives were read randomly by the health care professionals and ENEQ was administered. We hypothesized that empathic narrative related to higher rated category of resistance will be perceived as the most corresponding to the real reasons for resistance to treatment of the patient.

**Analysis**

To assess testimonial validity of the empathic narratives, we examined the correlation between the scores of empathic narratives in the ENEQ and the reasons for resistance to treatment, as they were identified by RTQ. To this end, two different methods used were as follows: the first method is used for the assessment of differences between the scores of empathic narratives related to factors that influence resistance to treatment to a highest degree and the scores of empathic narrative related to a factor that has a minimal impact on patient’s resistance to treatment, by use of multivariate analysis of variance with repeated-measures analysis. Since the narratives were read randomly, the order was entered as a between subject factor and the second method is used for the assessment of testimonial validity of the empathic narratives was calculation of correlations between the scores of empathic narratives and the reasons for resistance to treatment. The correspondence between the scores of compatibility of the empathic narratives to participant’s attitude and his reasons for resistance to treatment indicated by ENEQ and the scores to different factors of resistance indicated by RTQ was measured by Pearson’s correlations (Table 2).

**Results**

Means and standards deviations of rankings of the empathic narratives and results of analysis of variance are presented in Table 1. Empathic narratives describing reasons for resistance, which were ranked higher on the RTQ, were indicated as more corresponding to patients’ attitudes and their causes of resistance to treatment than empathic narratives related to reasons for resistance, which had lower scores on the RTQ. Contrast analysis reveals significant difference between the scores of the empathic narrative related to factors related to treatment and caregivers.

<table>
<thead>
<tr>
<th>No.</th>
<th>Factors of resistance to treatment in patient questionnaire</th>
<th>Narrative stories related to different factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Factors related to treatment and caregivers</td>
<td>0.46** 0.10 0.12 0.09</td>
</tr>
<tr>
<td>2</td>
<td>Factors connected to emotional reasons</td>
<td>0.17 0.35* 0.28** 0.22</td>
</tr>
<tr>
<td>3</td>
<td>Factors connected to specific problems or constraints</td>
<td>0.26* 0.21 0.17 0.28*</td>
</tr>
<tr>
<td>4</td>
<td>Factors connected to despair and failure</td>
<td>0.25* -0.01 0.08 0.41**</td>
</tr>
</tbody>
</table>

*P < 0.05; **P < 0.01. Bold type shows a significant correlation between the narrative and the specific resistance factor on the RTQ.
to the strongest reason for resistance to treatment and of the empathic narrative related to the second strongest reason for resistance to treatment, with regard to the intensity of resistance to treatment $F(1,102) = 38.08$, $P < 0.001$, $\eta^2 = 0.27$. Significant difference was found also between the scores of the empathic narrative related to the second strongest reason for resistance to treatment and the empathic narrative related to the weakest reason for resistance to treatment $F(1,102) = 13.53$, $P < 0.001$, $\eta^2 = 0.12$.

These findings infer correlation between the extent to which the empathic narrative reflects participant’s attitude and the causes of resistance to treatment, and his behaviour, as indicated by RTQ.

As can be seen from Table 2, generally, the highest correlations were found between each of the empathic stories and the factor for resistance to treatment which it refers to. These findings confirm that there is a correlation between the score of the empathic narrative, as reflecting participant’s attitude, and the reasons for his resistance to treatment and his pattern of behaviour as indicated by RTQ. However, the relationship of the empathic narrative related to factors connected to problems and constraints, with this factor in RTQ, was not statistically significant ($P = 0.06$). Moreover, this narrative was significantly related to resistance to treatment as a consequence of factors connected to emotional reasons. Problems and constraints are personal and unique; therefore, a standard story cannot describe all the possible problems and constraints that may affect treatment adherence of each patient.

**Discussion**

Understanding the diversity of the individual reasons for resistance to treatment is important and fundamental in order to improve adherence with treatment guidelines. Our previous study presented the RTQ, a practical and easily administered tool for assessment of resistance to treatment of people with diabetes.

The goal of this research was to provide health care providers with a tool that will enable them addressing psychosocial problems underlying patients’ resistance, considering the existing barriers and constraints. This study objective was to extend our previous findings and to examine the narrative-based intervention method, following administration of the RTQ and therefore based on a specific category of resistance that underlies patient’s non-adherence with treatment.

Empathic narratives constructed for this study were found by the participants to correspond to their causes of resistance. Our findings support the testimonial validity of the empathic narratives: narratives describing aspects of resistance to treatment that received higher scores in the RTQ were rated as more correspondent to a patient’s attitude and his reasons for resistance to treatment than narratives related to lower rated factors of resistance. Additionally, high compatibility was found, mostly, between each empathic narrative and the factor of resistance to treatment with which it was connected. These findings, originated from different analysis methods, strengthen each other and suggest correspondence between empathic narrative score, as indicative of respondent’s attitude and his reasons for resistance to treatment, and resistance to treatment pattern identified by the RTQ.

A cross-sectional study among diabetic patients and health care providers in 13 countries in Asia, Australia, Europe and North America reveals that according to reports of both patients and health care providers, a majority of patients suffer from diabetes-related psychological problems. Nevertheless, caregivers usually do not have adequate resources to deal with patients’ psychological problems and to provide them with adequate psychological support. Although addressing these problems may improve clinical outcome, caregivers often lack critical resources for doing so, particularly skill, time and adequate referral sources. Lack of time is commonly known constraint that may prevent physicians from following clinical practice guidelines. Therefore, there is a need for brief and efficient technique to define appropriate patient treatment goals that can be easily administered by health care providers. We do not know if our findings are applicable to other cultures as this was beyond the scope of our study.

There is an increasing use of non-physician health care team members such as nurses and dieticians in the treatment of diabetes. They tend to have more time available with the patient and are in an ideal position to use the RTQ and narratives in order to define appropriate patient goals and develop collaborative care. In our health care organization, our nurses and dieticians participated in training seminars in order to learn how to use these tools. These ongoing seminars were found to improve the confidence and ability of the team to use the narratives.

Empathic narratives used herein meet the recommendations of short-term and successful therapy for improving motivation and adherence to treatment, such as the use of simple language, naming the resistance, providing support and strengthening the positive aspect of the situation. Through these attributes, they contribute to a partnership between the patient and the caregiver and promote the therapeutic alliance, thus enhancing chances for recruitment to treatment, enhancing adherence and improving outcome. The current study presents a working tool, which in addition to the RTQ provides health care professionals with a possibility of both recognizing and reducing the patient’s reasons for resistance. Further research is needed in order to examine the applicability of this tool and its’ impact on adherence to treatment and clinical outcome.
Declaration

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Ethical approval: none.
Conflicts of interest: none.

References

1. McDonald HP, Garg AX, Haynes RB. Interventions to enhance patient adherence to medication prescriptions: scientific review. *JAMA* 2002; **288**: 2868–79.