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Do Words Matter? Health Care Providers' Use of the Term Prediabetes

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Abstract

Communication of risk is not solely the transfer of information; it is an interaction and exchange of ideas between concerned individuals. Health care provider communication about type 2 diabetes risk status may influence individual participation in behaviours that prevent or delay the disease, which is concerning from a public health perspective. The term prediabetes is used to convey risk status and little is known about how health care providers view or use the term. In this article, we describe health care provider use and perceptions of the term prediabetes drawing on data from a survey conducted between August and November 2011 of 15 health care providers practicing in Southeast Wyoming and Northern Colorado USA. We used a grounded theory research design to guide data collection and analysis and in the interviews invited providers to describe their use and perception of the term prediabetes. We found that providers use of the term 'prediabetes' depended on their view of the term's meaning (such as, whether patients were likely to understand or be confused by it) and impact (in terms of motivating patients to mitigate risk). We found there were differences in providers' perceptions of the negative and positive associations of the term and this influenced whether or not they used it. These findings are not surprising given the lack of consensus over definitions and diagnosis criteria for prediabetes. Given this this lack of agreement, there are difficulties about the use of the term prediabetes and its use should take place within effective risk communication. Health care providers must consider essential aspects of risk communication in order to enable individuals at risk of type 2 diabetes to mitigate the risk and by doing so reduce incidence and prevalence rates of the disease.

Keywords

Risk; Risk communication; Medical terminology; Prediabetes; Diabetes; Health care providers

Introduction

In this article, we explore the use of the term prediabetes as a means to communicate risk through our analysis of qualitative interviews with health care providers. Risk

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communication theory can facilitate the understanding of health care provider perspectives of the term. Effective means of communication that promote risk management behaviour is important for addressing the global health concern of type 2 diabetes.

Risk, Diabetes and Prediabetes

Prediabetes

The term ‘prediabetes’ was first used as a medical term by the Expert Committee on the Diagnosis and Classification of Diabetes Mellitus (1997) to describe individuals who had impaired fasting glucose levels but levels not high enough to meet criteria for diabetes. Yudkin and Montori (2014) have argued that the term is a way to indicate a clinical state, not a diagnosis, essentially identifying a patient at risk of developing diabetes and therefore a helpful preventative measure for dealing with the increasing prevalence of type 2 diabetes by enabling clinicians to identify and treat individuals before they develop diabetes. However, various expert bodies (American Diabetes Association, 2016; National Institute for Health and Care Excellence, 2012; World Health Organization, 2006) have expressed concern about the use of the term especially regarding the inconsistent ways in which it is defined. As Hollander and Spellman (2012) discussed, the varying definitions of prediabetes may have a negative impact on the identification and treatment of at-risk individuals as well as the health care system.

Health care provider communication about risk status is important as a way for preventing or delaying the onset of type 2 diabetes. The ways in which health care providers communicate about type 2 diabetes risk status is significant because such communication can influence individuals’ behaviours in ways that prevent or delay the disease, such as diet changes (Bundesman & Kaplowitz, 2011), and this can improve subsequent health outcomes (Dutton, Phillips, Kukkamalla, Cherrington, & Safford, 2015; Kelly, 2004; Lambert et al., 2005). Understanding health care provider perspectives of the term prediabetes may lead to improvements in effective risk communication.

Risk Communication

Risk communication is generally described as an exchange of information (among individuals or groups) that focuses on knowledge, perceptions, attitudes, and behaviours related to risk (see Edwards, 2009). The goal of effective risk communication is to provide information about risks in order enable individual to make informed choices and decisions about their health and treatment. In preventive medicine, risk communication is considered important for engaging individuals in their medical care and therefore methods of communicating risk information are frequently studied (see Asimakopoulou, Fox, Spimpolo, Marsh, & Skinner, 2008; Blanchemanche, Marette, Roosen, & Verger, 2010; Welschen et al., 2012). This concern with risk communication is evident in diabetes care and there have been studies of the impact of message framing (Park, Simmons, Prevost, & Griffin, 2010) and terminology (Tarasova, Caballero, Turner, & Inzucchi, 2014) on diabetes risk communication.

However, despite the commitment of health care providers and individuals collectively to improve risk communication, there is little evidence to show that such communication does enable those at risk to adopt healthier life styles and behaviour. There appear to be a variety of factors which undermine risk communication including;

- *the uncertainty* that a specific behaviour change will result in a positive health outcome due to the complexity of and/or conflicting types of information (Blanchemanche et al., 2010) as well as past/present health knowledge (Polak, 2016);
- *variations in the methods* for presenting complex material about risk related to an uncertain outcome and assessing understanding of risk information (Welschen et al., 2010);
- *assumptions about the rationality of patients*. While it is reasonable to assume that patients are rational actors, their rationality may differ from that of the service providers as it is shaped by the social context of their everyday lives (Alaszewski, 2005). Thus, a standard risk message needs to be tailored to individuals' cultural background, socioeconomic status, and other psychosocial factors.

Communication about Type 2 Diabetes Risk

Risk communication about diabetes has been affected by the use of the term prediabetes. The American Diabetes Association (2016) recommends that the term is used to identify individuals who are at risk of developing diabetes, that is individuals with impaired fasting glucose and/or impaired glucose tolerance (American Diabetes Association, 2016). However important health organisations such as the UK's National Institute for Health and Care Excellence (NICE), the American Diabetes Association (ADA), and the World Health Organization (WHO) have expressed concerns about the varying definitions of prediabetes (American Diabetes Association, 2016; NICE, 2012; WHO, 2006). There is currently no globally agreed definition or diagnostic criteria for prediabetes. The clinical implications of the vague and varying criteria are unclear and it has been suggested that the utilisation of the term prediabetes, with its loosely defined criteria, has the potential for financial and societal costs (Yudkin & Montori, 2014). Specifically, the lack of precise criteria to identify and appropriately treat at-risk individuals can create confusion about individuals' health status. The term prediabetes implies an inevitable progression to type 2 diabetes, though progression rates vary based on differences in the definition of prediabetes (Morris et al., 2013). Individuals who perceive that they will inevitably progress from prediabetes to diabetes may adopt a fatalist attitude and not be motivated to engage in preventive behaviours. Consequently, individuals who may have otherwise responded well to interventions will further increase the burden on the health care system. Therefore, it remains important to investigate providers' perspectives on using the term prediabetes.

Health care provider communication about type 2 diabetes risk could be understood through the relational theory of risk, which describes the interpretive nature of risk (Boholm & Corvellec, 2011). Specifically, elements of the relational theory of risk include the risk object (something identified as a threat that needs to be dealt with; in this case type 2

diabetes), objects at risk (something deserving attention and care; in this case the patient at risk of developing diabetes), and relationship of risk (the relationship between the risk object and the object at risk that is evident to the risk manager; in this case the health care provider). The relationship of risk element of this theory is particularly relevant to health care provider use of the term prediabetes because it describes a semantic relationship where the observer, the health care provider, forms a relationship between objects through his or her own viewpoints, assumptions, interests, and concerns and subsequently acts upon this relationship. The relational theory of risk is important to understanding the cognitive framing of risk (see Fuentes & Fuentes, 2015; Leijonhufvud, 2016; Wardman & Mythen, 2016) and may contribute to an understanding of risk communication in the health care setting.

There has been limited research on health care provider perspectives on the use of the term and category prediabetes with individuals, and individual perspectives regarding the term are mixed. In their study, Troughton et al. (2008) found that individuals categorised as prediabetic were uncertain what this meant, and the implications for them in the future in terms of the development of diabetes and how they should manage their health. Hindhede (2014) found that for some individuals categorised as prediabetic, the term was motivating and provided an incentive for behaviour change, however others individuals accepted that the categorisation was a warning but it did not prompt them to change their behaviour. While there is some evidence on how patients view prediabetes, there is less on the provider perspective and we aim to explore their perspective in this article by drawing on data from a study of health care provider understanding and use of the term.

Methods

In this article we draw on data from a study that examined type 2 diabetes prevention education in the health care setting (Charmaz, 2010). When we applied for ethical approval for the project through the University of Wyoming, the committee members who reviewed our proposal were concerned that the term prediabetes was not a generally accepted diagnostic category. The committee members stipulated that we should remove the term from our proposal and from interviews but did agree that we could include a question in our interview schedule for health care providers that asked these providers to talk about how they understood and used the term prediabetes.

Participants

Since we saw our research as exploring a relatively new area, we decided to adopt a pragmatic approach to sampling and we used a convenience sample to recruit providers for our study. We searched online databases and local phone books in the Southeastern Wyoming and Northern Colorado area identifying health care providers who were likely to have direct contact with patients at risk for developing type 2 diabetes (such as medical doctor, nurse practitioner, physician assistant, nurse educator) and to non-specialised health care facilities that might provide services for such patients such as primary care and wellness clinics. We sent letters to these providers and services explaining the project and inviting them to participate. We sent letters to a total of 394 health care providers in Cheyenne (93),

Ft. Collins (231) and Laramie (70). We received 23 response cards indicating that the providers were interested in participating and 15 providers agreed to take part in our study.

We interviewed 15 (9 female, 6 male) health care providers from Southeast Wyoming (11) and Northern Colorado (5). The sample consisted of 5 medical doctors, 4 nurse practitioners, 1 physician assistant, 2 nurse educators, 1 registered nurse, 1 doctor of chiropractic, and 1 registered dietician. The participants varied in terms of age and ethnicity. Participants ranged in age from 32 to 63 years ($M = 47$, $SD = 14.9$). Fourteen participants described themselves as White or European American, and 1 participant identified as Latino or Hispanic American. Though not completely representative, the racial and ethnic background of the providers reflected the racial and ethnic population of the region (80% White, 12% Latino or Hispanic, 2% Asian, 2% Black, 2%).

They also varied in clinical experience and involvement with prediabetic patients. The reported number of years in practice ranged from 4 to 38 years ($M = 17$, $SD = 10.2$). Hours worked per week ranged from 4 to 80 ($M = 37$, $SD = 18.4$). Number of patients seen per week ranged from 8 to 130 ($M = 62$, $SD = 36.6$). Participants estimated number of patients seen per week at-risk of developing type 2 diabetes as percentage (10–60%) or number (range = 2–50, $M = 19$, $SD = 14.9$). Participants described their current practice settings as clinic, doctor's office, family practice, group practice, primary care, private practice, county health department, and reproductive health clinic.

Data Collection

When individuals replied positively to our invitation, we checked that they met the inclusion criteria, that is they were 18 years of age or older, licensed to practice in their discipline and had direct contact with patients at risk for developing type 2 diabetes and were willing to engage in an audio-recorded semi-structured face-to-face interview lasting 30 to 60 minutes. We then arranged to meet them for an interview and two members of the investigative team independently conducted all interviews between August and November 2011. Prior to the interview, participants read and signed the consent form and were given a small compensation for their participation (breakfast, lunch, or coffee). Each participant was assigned an ID number and chose a pseudonym that was used throughout the interview and no names were mentioned throughout the interview to ensure confidentiality. An interview guide was used during all interviews in order to ensure consistent inquiries and interview format.

Participants were asked to provide information about their qualifications, number of years in practice, type of health care setting, hours worked per week, number of patients seen per week and number of patients seen per week who are at-risk of developing type 2 diabetes. During the interview they were asked 'Do you use the term prediabetes? Why or why not?' and we asked follow-up questions to clarify and explore their responses. The data in this article is based on responses to this question and its follow-ups.

The two interviewers continually reviewed interview content and notes and met regularly to discuss data saturation points. The interviews were audio recorded, transcribed verbatim, and verified for accuracy. All members of the research team were trained in social and

behavioural research, including the purpose of the institutional review board, history and ethical principles, informed consent, and privacy and confidentiality. Each signed informed consent form was kept separately from the associated data obtained, kept in a locked filing cabinet, in a locked office space.

Data Analysis

The coding team consisted of one faculty member, one graduate student in psychology, and three undergraduate students in nursing. The faculty member received feedback and guidance from a senior faculty member in the department at each stage of the coding process. The constructivist grounded theory approach was applied to the coding process (Saldana, 2009). This approach was selected because it seeks to understand the implicit meanings and experiential views of research participants and to construct theory through researcher portrayal of participant-constructed reality. We identified key categories through an inductive process of initial and focused coding. During initial coding, all members of the coding team independently read each interview transcript and assigned conceptual labels to segments of the interview text. We coded data in terms of psychosocial factors (how participants described their perceptions and feelings) and process (how participants described their actions). During focused coding, adequacy of segment labels was discussed by the entire coding team and commonly coded segments were identified. Next, the coding team made selective and conceptual decisions about larger segments of data by creating categories, comparing categories with associated data, comparing data to associated categories, and refining categories. After we identified key categories, we verified the analysis by returning to coded segments of interview text and evaluating the accuracy of associated key categories. We used the constructivist approach to explore implicit meanings and processes as well as conceptual relationships between key categories. We identified key core themes during the theorising process.

Limitations of data sources

The data that we used in this article have some intrinsic limitations. Specifically, our participants' perceptions are unique due to: their specific location in the United States; their professional background, for example nursing, medicine, chiropractic; and their practice settings such as primary care, family practice, wellness settings. In addition, our participants were interested in sharing their clinical experiences with type 2 diabetes risk. The study results may only reflect the perceptions of health care providers with an interest in 'prediabetes'. In this study, the health care providers did not specifically define prediabetes or discuss their knowledge of type 2 diabetes risk therefore differences regarding the meaning of prediabetes may have existed among participants. Furthermore we did not ask about their conversations with patients regarding the term prediabetes or assessment of patient knowledge of the term prediabetes. We did not ask participants to describe specific risk criteria associated with the term prediabetes or the sources they referred to for the risk criteria. As a result we are unable in this paper to examine the relationship between health provider risk communication and patients' risk perception.

Findings

All the health care providers started their response to our question by discussing their use of the term prediabetes; 8 said they used it, 7 did not. There did not seem to be differences between the health care disciplines as to the use and non-use of the term. However the differences did reflect providers' perception of the term. Those providers that said they used it described it as an important way of enabling patients to understand about type 2 diabetes risk and for expressing the seriousness of risk. Participants who did not use the term said they did not see it as providing clear information about type 2 diabetes risk and contributed to patient confusion and misunderstanding of their risk status. Through our analysis, we developed an interpretive theory based on two aspects of providers talk about prediabetes: *their portrayal of the meaning of risk* and *the assessment of the impact of its use on patient behaviour*.

Providers who used the term prediabetes when communicating risk to patients

The health care providers who used the term, talked about how the term was effective for *portraying meaning of risk* to patients. They described reasons for using the term related to communication of risk status. They discussed the term as a way in which they could help patients understand the importance of understanding risk and the meaning of risk-status as well as convey the message that type 2 diabetes did not usually have a sudden on-set but more commonly was a progressive disease. A few providers discussed the term as important for conveying the continuum of type 2 diabetes; using the term in relation to specific blood sugar cutoff levels. In general, these providers described using the term prediabetes as a warning sign or early-indicator for their patients and to convey to them that type 2 diabetes might develop if they did not change their behaviour change within a specified time frame. As Dr Joe said:

You're headed on the path to being a diabetic. So that they know that they are... headed down that slippery slope. However you can get them to visualize that. And using the word prediabetic...sometimes, I'll use that. I know there's the term metabolic syndrome...that doesn't carry any sort of impact, I think, with patients. It's kind of vague.

(Dr. Joe, Medical Doctor)

Some participants talked about another reason for using the term which was associated with patient recognition and understanding of the word prediabetes. They said it was a way for patients to recognise their health status. These providers described the word as a 'specific key word', 'label', and 'risk category' that they believed most individuals understood. One provider discussed using the term because 'metabolic syndrome doesn't have an impact'. Providers who described using the word prediabetes for this reason appeared to rely on the widely-accepted definition of the preposition, 'pre', which means, 'before', 'previous to' or a 'precursor for'.

These providers suggested if patients were better able to recognise that their current situation could lead onto diabetes and that they were at a stage in disease progression, then the

patients could successfully intervene and prevent the onset of type 2 diabetes. Kat, a registered nurse noted:

It's a buzz word now...we all work on buzz words. I think people understand specific key words. If I say, 'you're at risk for diabetes', I don't think it connects as well as 'you're prediabetes.' I think to people that means, [patients say] oh I have it, but it hasn't reared its ugly head yet, versus, (I'm) at risk.

(Kat, Registered Nurse)

and Mark, a nurse educator commented 'I think often times once people hear a disease, that's a label versus a risk category'.

The health care providers who use the term prediabetes also described the importance of *changing patient behaviour*. Specifically, they discussed how the term might contribute to patient motivation for reducing type 2 diabetes risk factors by signalling the significance, severity and seriousness of their current situation. One provider stated that '[the phrase] "at risk" is too gentle, "prediabetes" is [stating the patient should] make changes now'. Health care providers discussed the term as helping individuals understand that they were 'headed down the wrong path' and should 'make some changes now'. Providers who used the term prediabetes in order to motivate their patients to change their behaviours appeared to assume that fear could be used as a way of motivating patients to change their behaviours. These providers said they want to make sure that patients are aware of the seriousness of their situation so as to encourage them to make lifestyle and behavioral changes, such as diet and exercise, as quickly as possible. Mary, a nurse practitioner, observed:

I'll use it [prediabetes]. Maybe it's a good one to help motivate people... I think it scares people... Some people need to be scared, that's not nice to say, but some people need to have a little bit of fear put in them... Some people respond by really kicking themselves in the butt and doing everything they need to do.

(Mary, Nurse Practitioner)

While, Dr. H., a medical doctor commented:

It might have a bit stronger response if you said 'You have prediabetes,' so [patients say] 'He's diagnosed me with something, he's not just saying for your general health. You need to be more active and lose weight.' It's probably a good idea to give it a little sense of urgency that this isn't just a passing recommendation.

(Dr. H., Medical Doctor)

The providers who use the term prediabetes talked about it as an effective way to communicate risk status because it signalled to patients that there a progression from prediabetes to type 2 diabetes and that they had an opportunity to prevent this progression by changing their health behaviour such, diet and physical activity and changing their key health indicators such as blood sugar values and weight.

Providers who did not use the term prediabetes when communicating risk to patients

Health care providers who did not use the term talked about it being inadequate for *portraying meaning of risk* for developing type 2 diabetes. They said the term lacked clarity

about risk status. They often stated the term was confusing for patients and that most individuals did not understand the different types of diabetes. They talked about the term being meaningless to their patients and lacking the capacity to influence, encourage or motivate necessary lifestyle or behavioural modifications. They said that rather than using the term prediabetes to let their patients know that they had an increased risk of developing diabetes they preferred to say that they were ‘concerned diabetes could happen [to the patient] in the future’, ‘it is not a problem [for the patient] yet but will be someday’, worried the patients could develop ‘insulin resistance’, or be ‘at risk’, or ‘you have high risk’. As one nurse practitioner observed:

I don't think people know what that means... because the whole diabetes term is confusing enough. [patients say] Well what do you mean pre-diabetes? What kind of diabetes? The kind they take shots or the type...?

(Participant, Nurse Practitioner).

Providers also described the term as inadequate for clarifying the progression toward the diagnosis of type 2 diabetes. They talked about patients' lack of knowledge about the implication of being at risk of type 2 diabetes and felt that the term prediabetes did not convey a clear message about the patient's risk status. Mark, a nurse practitioner, said:

I think people don't know [about their risk status]. [When you tell them they are prediabetic they say] 'Does that mean, ok, I need to change right now? Does that mean I'm at-risk or on my way? Can I do anything about it or am I just on that path and it's just going to happen regardless of what I do?'

(Mark, Nurse Educator).

The health care providers who said they did not use the term also said it was not helping in changing *patient behaviour*. Some health care providers described the term as ‘scary’ for patients but did not think the word itself was effective for motivating change. They talked about how the term prediabetes might be a factor contributing to patient dismissing, ignoring, or downplaying the importance of addressing risk. They described the way patients could minimise the seriousness of their situation saying prediabetes was not a disease yet. Providers suggested that using the term prediabetes did not promote behavioural change because their patients were often unwilling to forgo current pleasures for possible future health benefits. These providers indicated that their patients did not fully understand the extent to which diabetes could impact on their physical, psychological, emotional, and functional well-being, and therefore, their patients did not accept the need to immediate behavioural and lifestyle changes. As Mary a nurse practitioner observed:

Some people, more often than not, when they've come back in the follow up and I ask about exercise and eating, [patients say] 'Well I haven't had time for any of that,' because they don't feel anything [symptoms]. Because until you get the actual diagnosis and that's enough to scare ya.

(Mary, Nurse practitioner)

While John a medical doctor commented:

It's almost saying 'You don't have the illness yet. You don't need to do anything. You're prediabetic.' When you're diabetic, then we can do something. And so it gives you a feeling that you're not in trouble yet. You're prediabetic.

The providers who did not use prediabetes in their interaction with patients talked about the ways in which the term did not effectively convey information about the patient's risk status because it did not help patients understand the differences between different types of diabetes or the seriousness of risk and therefore was ineffective in encouraging patients to change their behaviour and adopt healthier lifestyles.

Prediabetes as a diagnostic category

The participants in our study were divided about whether prediabetes was a useful diagnostic category. Approximately half of the participants (7) discussed whether prediabetes would be a useful diagnostic category or not. However the division over its utility *was not* the same as the division between those providers who said they used the term and those who said they did not. Among providers who used the term (4), two stated a diagnostic code might be helpful, one stated it would not be helpful, and one stated there no need for a diagnosis because of the diagnostic code for metabolic syndrome implying the code was redundant. Among providers who did not use the term (3), one stated a diagnostic code might be helpful, one stated it would not be helpful, and one described mixed feelings about a diagnosis. While the benefits were discussed in terms of patient care, there was another factor, insurance payment/reimbursement for preventive services. For example Dr. Joe, a medical doctor, made the link between having a diagnostic category and obtaining reimbursement:

It might be helpful just from the standpoint of it's then a diagnosis that the patient sees on the bill you give to them.

(Dr. Joe, medical doctor)

Some providers stressed the benefits for patients of having a prediabetes diagnostic category as this would enable them to access services before their diabetes developed as Kat a nurse practitioner observed:

We should be doing preventive medicine and that would allow us to receive reimbursement for preventive medicine instead of waiting until doomsday...it would save a lot of money.

(Kat, registered nurse)

Some providers felt that the prediagnostic category was irrelevant as they could use other diagnostic categories to claim payments for the services which they provided to prediabetic patients. For example, Nurse Ratched talked about the ways that prediabetes could be incorporated in the metabolic syndrome category:

That's what metabolic syndrome is...so you can code for metabolic syndrome... there is no pre-diagnostic code for prediabetic but there is a code for metabolic syndrome.

(Nurse Ratched R.N.)

Some providers talked about the cost-implications of having a diagnostic category such as prediabetic and the possible undesirable impact on insurance coverage and cost. One provider stated ‘The only reason we code that kind of stuff [diagnosis] is for financial purposes...but it could cause a problem especially if somebody needs to get insurance and hasn’t had insurance...insurance companies might see it as a red flag.’ Some providers were concerned about the stigma associated with patients having a disease label even though they do not have a disease. Mark, a nurse educator, said:

I have mixed feelings about you know diagnosis and codes...because it can label people...I know that it can help families get services or help people get Medicaid coverage.

(Mark, Nurse Educator)

Discussion

In this article we have shown that the health care providers in our study talked about their perceptions of the term prediabetes in terms of the meaning and impact of the term. We found that providers were clear about whether they used the term and they justified its use in terms of its positive or negative qualities but providers varied in the manner they interpreted the term as well as how they felt their patients responded to the term. Given the lack of consensus among important health organisations about the definition, status and defining characteristics of prediabetes, it is not surprising that providers differed both in their use of the term and their definition.

Relational theory of risk (Boholm & Corvellec, 2011) does help us understand providers’ talk about prediabetes. Their concerns about and use of prediabetes were shaped by their understanding of the relationship between type 2 diabetes risk (risk object) and the patient’s health (object at risk). In addition, providers use of the term was related to their perception of how effectively and accurately it represented the relationship of risk for patients, the relationship between type 2 diabetes risk and the patient, and the benefits of such representation in terms of positive changes in patient behaviours.

Providers’ perceptions of the term prediabetes influenced their use of the term. Health care provider assumptions and concerns about prediabetes and the subsequent use of the term with patients, may be based upon specific risk criteria and advice from signification health organisations such as the American Diabetes Association or the World Health Organization. There is no consensus among researchers and health care professionals about risk criteria (Hollander & Spellman, 2012) and health care provider decisions about risk categorisation may vary. In addition, the prevalence of prediabetes has been found to vary by the indicator used to measure risk (for example hemoglobin A1c, fasting plasma glucose, oral glucose tolerance test; ADA, 2016) and the characteristics of the patient (such as age, sex, ethnicity) (James et al., 2011). We have shown in this article that providers’ use of the term prediabetes was determined by their own interpretation of the term, as well as how well they perceive the term to convey knowledge and seriousness of risk to their patients. This means that the ways in which providers used the term to denote and communicate the risk of diabetes to patients,

varied. The providers in our study did not consistently use the term prediabetes to communicate risk to their patients.

Health care providers need to consider whether the terminology they are using successfully provides appropriate information for individuals to make informed decisions about their health. Broadly speaking, medical words and phrases, as they relate to individuals' long-term health status, should be more fully discussed in order to convey seriousness. Otherwise, terminologies and conditions will not be designated as 'risk objects'. Furthermore in order to be considered an object at risk, the object (that is the individuals' health) must be endowed with a certain amount of value (Bonholm & Corvellec, 2011). Therefore, value clarification may be an important step in motivating individuals to change their behaviour. Providers may consider discussing the extent to which their patients value their health and to strive to live in accordance with these health-related values.

The term prediabetes is intended to communicate that the patient is at risk and if they do not take action there is a strong likelihood that they will progress to type 2 diabetes. The prefix 'pre' in this context signifies 'before, preceding, or prior to diabetes' and in medical terminology implies a state that precedes and leads onto the actual disease. Yet, patients with prediabetes do not necessarily develop diabetes (see Hollander & Spellman, 2012; Morris et al., 2013). The discussion of whether providers recognise that type 2 diabetes can be prevented entirely, is beyond the scope of this article. However, from the way the providers talked about prediabetes, it is clear they saw it as a situation in which there was potential for interventions that would mitigate the risk of diabetes. However they attached more attention to the way that the term prediabetes was interpreted by their patients. Those providers who said they used the term thought of it as a way of engaging patients and bolstering their motivation by giving them an accurate picture of their health status and/or by creating a sense of anxiety and urgency and stimulating lifestyle changes. Those providers who did not use the term felt that it was ambiguous and confusing, and would not encourage patients to adopt healthier lifestyles.

Thus the providers in our study talked about the ways in which their use of the term prediabetes was influenced by their view of its impact. They described the term as a communication tool for affecting patient risk perception. Participants who used the term said it influenced patient motivation while participants who do not use the term said it was not useful for encouraging behaviour change. Patient perception of risk has been found to influence diabetes self-care behaviours such as diet, exercise, and medication adherence (Shreck, Gonzalez, Cohen, & Walker, 2014). However, it is not evident that the term prediabetes is essential to risk perception. It has been found that individuals see the term 'prediabetes' and 'at high risk for diabetes' as interchangeable (Tarasova et al., 2014). Health care provider awareness of patient knowledge of medical terminology is important for our understanding patient perception of risk. Specific terminology, such as prediabetes, may initiate patient awareness of risk but may not contribute to full understanding of risk reduction strategies and therefore may not consistently and effectively influence behaviour. Providers should not assume the term prediabetes is universally understood to signify diabetes as a 'risk object', especially if individuals are unaware of the short- and long-term social, psychological, and physiological consequences of the disease. The designation of risk

objects is also shaped by cultural and contextual factors. Individuals who consider type 2 diabetes as a normal hereditary disease, easily managed by medication, and with limited impact on well-being may experience an attenuated perception of diabetes as a 'risk object'. For the object to be considered 'risky', the object at risk must be considered valuable. Individuals who do not value their own health to a certain extent may not be as willing to change their behaviour. Values-based counselling can help increase motivation among individuals at-risk of developing type 2 diabetes.

The term prediabetes may impact on patient understanding of type 2 diabetes risk but may also impact on patient psychosocial factors and identity which may subsequently influence health behaviour. It has been found that individuals in the category of prediabetes experience uncertainty regarding the meaning, management, and consequences of the condition (Troughton et al., 2008). Lack of clear expectations can impact confidence for engaging in health-related behaviour (such as self-efficacy) (Bandura, 1998). In addition, prediabetes categorisation has been found to initiate patient identification with being a 'high risk person' who has a 'medical condition' (Hindhede, 2014). Though, it has also been found that at-risk individuals are not concerned that they might have an illness (Strauss, Rosedale, & Kaur, 2015). The term and category of prediabetes is intended to establish and communicate risk and progression to type 2 diabetes. Yet, such categorisation does not necessarily facilitate health behaviour change.

Effective risk communication is fundamental to the prevention of type 2 diabetes. Health care providers must support an interactive exchange of ideas (Calman, Bennett, & Coles, 1999) and consider the individual and contextual factors associated with the message recipient (Alaszewski, 2005). The use of specific terminology to communicate risk, such as prediabetes, may assume inherent conveyance of information and disregard analytic information processing by the receiver of the information. Therefore, it is imperative that healthcare providers ensure their patients fully understand the meaning of prediabetes, if and when they use it and the implications of the clinical state.

The provision of health-related knowledge and education is an important aspect of the health care provider role. Effective communication between the health care provider and patient is essential to improving diabetes-related health outcomes. For example, good patient-provider communication is related to adherence to recommendations (Heisler et al., 2002) and positive diabetes-related outcomes (Aikens et al., 2005). If the term prediabetes is used to communicate risk status, the health care provider should be clear about the meaning of prediabetes by explaining risk criteria and potential for progression to type 2 diabetes. In addition, rather than assume that patients will be motivated to reduce risk by the term prediabetes, health care providers should provide guidance and support for specific evidence-based risk reducing activities (such as diet and physical activity changes).

Health care providers view the patient-provider relationship as important to type 2 diabetes risk reduction (Thomas, Moring, Harvey, Hobbs, & Lindt, 2016). The patient-provider relationship and the specific activities to achieve an effective relationship, can affect patient adherence to self-care recommendations (Levesque, Li, & Pahal, 2012; Nam, Chesla, Stotts, Kroon, & Janson, 2011). For individuals diagnosed with type 2 diabetes, the patient-provider

relationship has been found to be directly related to adherence to self-care recommendations and positive attitudes about diabetes management (Maddigan, Majumdar, & Johnson, 2005). Self-care is particularly important to type 2 diabetes prevention because follow-up with risk reduction recommendations occurs about once per year (American Diabetes Association, 2016). The term and category of prediabetes may have a negative effect on the patient-provider relationship and patient self-care if the health care provider does not provide information and support to at-risk individuals. Overall, it is suggested that until the definition of prediabetes is well-established and recognised within the medical community, the terminology may not be important in and of itself, necessarily. Instead, the context and content of the delivery of the risk message, relationship with the patient, and motivational enhancement strategies are suggested to be pivotal to increase preventive efforts on behalf of the patient.

Conclusion

In the United States, it is expected that over 50 million people will meet the criteria for type 2 diabetes by the year 2050 (Boyle, Thompson, Gregg, Barker, & Williamson, 2010). Increased prevalence of type 2 diabetes will further burden the healthcare system and increase costs (Ogden, Carroll, Kit, & Flegal, 2012). Therefore, it is important to utilise effective communication of risk and support implementation of behavioural strategies to attenuate risk. The results of our study emphasise the interpretive nature of the term prediabetes. Variance among health care provider perceptions in our study also suggests differential interpretation of the prediabetes category. Based on this study and previous research, health organisations might consider developing a consensus regarding risk criteria as well as when and how the term prediabetes should be used. Future studies should examine the conditions under which providers decide to use the term 'prediabetes' versus the term 'at-risk of developing diabetes', and assess the perceptions and behaviour of at-risk individuals as related to either term. Our findings indicate the importance of understanding the potential impact of the term prediabetes on individuals. Health care providers might assess patient knowledge about the meaning of the term prediabetes, the progression of the condition, and appropriateness of the term. In addition, research should continue to examine health perceptions, behaviours, and outcomes associated with patient prediabetes categorisation. In general, the meaning and impact of specific terminology for use in risk communication should be understood and acknowledged. Health care providers must take an active role in risk communication by assessing patient health-related knowledge and values.

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