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THE IMPORTANCE OF PERCEIVED AUTONOMY SUPPORT AND PREVIOUS BEHAVIOUR FOR AUTONOMOUS MOTIVATION IN PATIENTS WITH TYPE 1 DIABETES

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Abstract. ***Background*.** Initiating and maintaining health-related behaviour is the key factor in managing diabetes. Research literature suggests three types of behaviour which are most important in controlling blood sugar: blood sugar monitoring and medication use, diabetes diet, and physical activity. Studies demonstrated that only a small portion of patients comply with treatment guidelines. As it is hard to expect that a person is intrinsically motivated to engage in diabetes treatment regimen, some external assistance is welcome. ***The aim*** of the present study was to evaluate the predicting power of autonomy support for autonomous motivation for blood sugar monitoring, diabetes diet and physical activity, regarding respective previous behaviour patterns in a sample of patients with type 1 diabetes. ***Methods*.** The study included 107 patients. Autonomy support was measured by Modified Health Care Climate Questionnaire (HCCQ) for diabetes management. Autonomous motivation for diabetes management behaviour was measured by the Autonomous Motivation Scale from Treatment Self-Regulation Questionnaire (TSRQ). Previous behaviour was measured by using Summary of Diabetes Self-Care Activities (SDSCA). ***Results*.** Perceived autonomy support was a significant predictor of higher autonomous motivation for blood sugar control, diabetes diet and physical activity. ***Conclusions*.** The results confirmed the assumption that the compliance of patients' autonomous motivation for treatment was higher when they perceived understanding and support from their practitioners and made informed decisions.

Keywords: autonomy support, health-reated behaviour, sef-lf-regulation of behaviour.

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INTRODUCTION

Diabetes is a chronic illness characterized by hyperglycaemia resulting from defects in insulin secretion, insulin action, or both. This chronic illness is related to constant patient self-management in order to prevent complications. Type 1 diabetes is characterized by deficient insulin production resulted from β-cell destruction and requires daily administration of insulin. The cause of type 2 diabetes is a combination of resistance to insulin action and an inadequate compensatory insulin secretory response (American Diabetes Association, 2004, 2012). Blood sugar control is crucial for both types of diabetes. Initiating and maintaining health-related behaviour is the key factor for the success of this control. Research literature review suggests three types of behaviour which are most important for controlling blood sugar: blood sugar monitoring and medication use, diet, and physical activity (Brazeau, Rabasa-Lhoret, Strychar, & Mircescu, 2008; Cundiff, Raghuvanshi, 2012; Oftedal, Bru, & Karlsen, 2011; Sigal, Kenny, Wasserman, & Castaneda-Sceppa, 2004).

Diabetes diet includes eating five servings of fruits and vegetables per day, fish and chicken, it limits consuming red meat, eggs, cheese, alcohol, food rich of complex carbohydrates and sugar, and prevents overeating (Standards of Medical Care in Diabetes, 2014). Besides, it is recommended to be vigorously physically active no less than 150 minutes per week (American Diabetes Association, 2010). Research shows that a lack of regular blood sugar monitoring and medication use regimen may lead to complications and the risk of untimely deaths (Brazeau et al., 2008; Sigal et al., 2004). On the other hand, blood sugar monitoring and medication use, diet and physical activity are interrelated with each other in controlling blood sugar. Studies show that a combination of regular blood sugar monitoring and medication use regimen, diabetes diet and physical activity improves patients' physical health, is related to mental health and reduces the risk of complications due to the reduced level of blood sugar (Davison et al., 2014; Fernemark et al., 2013; Giannini, Giorgis, 2007; Centers for Disease Control and Prevention, 2011).

Though the guidelines for health-related behaviour are clearly defined and available, many patients fail to comply with the treatment regimen. Studies demonstrated that only 7 to 50 percent of patients

followed the dietary guidelines (Jenum, Claudi, & Cooper, 2008; Oftedal et al., 2011). Various studies indicated that about two thirds of patients with type 1 diabetes did not reach the optimal level of health-enhancing physical activity, neither did the general population (Nelson, Reiber, & Boyko, 2002; Plotnikoff, 2006; Resnick, Foster, Bardsley, & Ratner, 2006). What is more, compliance was not consistent across behaviours as patients reported that they were taking their medications 93 percent, and testing their blood glucose 69 percent of the supposed frequency (Daly et al., 2011).

The primary goal of diabetes education is to provide knowledge and skill training (Centers for Disease Control and Prevention, 2014), but authors state that it is naive to assume that compliance is a matter of adequate information. Information is necessary but not sufficient for behaviour change (Becker, 1990; Coates, 1988). A big amount of research suggests that psychosocial determinants of health-behaviour are of the utmost importance. Various theoretical models are incorporated to explain motivational factors of engagement in health-related behaviour such as Theory of Planned Behaviour, Social-Cognitive Theory, and Health Belief Model. Recently, Self-Determination Theory (SDT) has become widely used.

SELF-DETERMINATION THEORY

SDT bases its prepositions on philosophical assumptions that a person is naturally proactive, has the inherent drive for growth and development, and can master his or her own inner and external forces instead of being a product of social learning (Deci & Vansteenkiste, 2004). However, social environment is still important as it can foster or thwart natural growth (Ryan & Deci, 2000). SDT stands out from other theories explaining the quality of motivation instead of its quantity (Ajzen, 2011; Duda & Nicholls, 1992; Ryan & Deci, 2000). The theory distinguishes between two main types of motivation – controlled vs. autonomous, and two types of behaviour regulation – not self-determined vs. self-determined. In case of controlled motivation, behaviour is initiated in order to avoid external pressure, shame, guilt for not behaving in the expected way or seeking for the external reward, for example, praise or prize. Behaving

in that way, people often feel tension, control or commitment (Deci & Ryan, 2000; Deci & Ryan, 2008; Edmunds, Ntoumanis, & Duda, 2007). Controlled motivation is related to perceived incompetence (Williams, McGregor, King, Nelson, & Glasgow, 2005). On the contrary, in case of autonomous motivation or self-determined behaviour regulation, people voluntarily engage into the behaviour due to the internal interest and satisfaction or because they highly value the behaviour. They initiate and maintain behaviour without the feeling of external (demand) or internal (guilt, shame) pressure (Deci & Ryan, 2000; Deci & Ryan, 2008; Edmunds et al., 2007; Ryan & Connell, 1989). Autonomy is closely related to the sense of competence, which describes self-efficacy and self-confidence to control one's own behaviour (Williams et al., 2005). SDT states that when a person is more autonomously engaged in the therapeutic process, he or she is more likely to integrate healthy behaviour patterns. This kind of self-determined engagement is related to internalized responsibility for the behaviour (Ryan & Deci, 2008).

SDT also states that autonomy is one of the three basic innate human needs along with the competence and relatedness. Autonomy refers to the sense of freedom in decision making, i.e. volitional behaviour in accordance with integrated self (Deci & Ryan, 2000). Competence is described as a perceived ability to execute the behaviour change (Resnicow & McMaster, 2012). People feel competent when they think they can and have enough resources to do something. Finally, relatedness assumes sense of close connections with significant others (Silva et al., 2008).

Satisfaction of these innate needs contributes to proactivity and well-being. On the other hand, the frustration of these same needs, especially from significant caregivers, leaves one prone to passivity and ill-being (Vansteenkiste & Ryan, 2013). The breakdown in behaviour change may arise because a patient lacks satisfaction of one or several of these needs. Resistance is considered not only a problem of a patient but also of a practitioner, i.e. the way the patient is being spoken to (Rollnick, Mason, & Butler, 1999).

As it is hard to expect that a person engages in diabetes treatment regimen with pleasure, which is, as a rule, time consuming, boring, excluding some pleasant habits and requiring strict daily routine, some

external assistance is welcome. Authors state that friendly social context is required for successful health behaviour initiation and maintenance (Deci & Ryan, 2002).

SDT emphasizes health specialist's behaviour which supports patients' autonomy, competence and relatedness. Satisfaction of these needs is crucial in facilitating behaviour change (Ryan & Deci, 2008). The autonomy support includes providing meaningful rationale for health behaviour, offering several options for behaviour change, assistance in health goals setting and behaviour planning, using neutral language as "may" or "could", emphasizing, encouragement, understanding participants' motivation for behaviours, showing interest in participants' well-being and progress (Fenner, Straker, Davis, & Hagger, 2013; Foote, 2005).

There were attempts to measure the importance of autonomy support in diabetes care already (Austin, Senecal, Guay, & Nouwen, 2011; Williams, Lynch, & Glasgow, 2007; Williams, Niemiec, Patrick, Ryan, & Deci, 2009; Williams, McGregor Zeldman, Freedman, & Deci, 2004; Williams, Freedman, & Deci, 1998). Autonomous motivation for diabetes related health behaviour (diet, exercise, blood sugar testing) from baseline to 6 months was higher when patients with type 2 diabetes perceived more autonomy support from their practitioners (Williams et al., 2004). Empirical research reveals that perceived autonomy support from practitioners is also related to psychological need satisfaction and better mental health (Williams et al., 2005; Williams et al., 2004), glycaemic improvements (Siminerio, Ruppert, & Gabbay, 2013; Williams et al., 2009), life skills improvement (Zoffmann & Lauritzen, 2006) in patients with diabetes. A study by Williams et al. (2009) showed that perceived autonomy support from practitioners related to higher autonomous motivation for medication use. In turn, autonomous motivation was further related to lower blood sugar levels in the model where perceived competence and medication adherence were the mediators (Williams et al., 2009). Austin, Senecal, Guay and Nouwen (2011) examined the role of perceived autonomy support not only from practitioners but also from parents, investigating adolescent patients' with type 1 diabetes, behaviour regulation. They found that autonomy support from both parents and practitioners enhanced adolescent's autonomy for diabetes diet. Autonomy support from practitioners related to perceived competence and

autonomous motivation, which were the mediators in association with dietary self-care. Autonomy support from parents was related directly to both autonomous motivation for diet and dietary self-care (Austin et al., 2011).

THE PRESENT RESEARCH

Previous research examined the motivational chain where autonomous motivation was a mediating variable between the autonomy support and behaviour. However, some authors noticed that autonomous motivation was not only the consequence of autonomy support but the previous behaviour experience really made an impact on further behaviour motivation (Lepper et al., 1973). Behaviour related to treatment in case of diabetes suggests repetitive performance. Especially, this is related to blood sugar monitoring and medication use. When there is evidence of repeated performance of the behaviour, frequency of previous behaviour is an indicator of habit strength, and it can be used as an independent predictor of later performance. A measure of previous behaviour includes all psychosocial determinants which caused performance (or non-performance) of the behaviour in the past (Bamberg, Ajzen, & Schmidt, 2003). However, neither of the studies controlled the impact of previous behaviour on autonomous motivation in the case of diabetes. We therefore consider previous behaviour as a background for further motivation. In case of chronic illness as diabetes, neither blood sugar monitoring nor diet behaviour *a priori* are self-motivated as they are related to various restrictions on biological, psychological and social levels. Research in healthy population showed that previous behaviour played a significant role in forming further motivation for the behaviour (Mclahan & Hagger, 2011). Therefore, perceived autonomy support provided from practitioners supposed to facilitate the process of internalization of autonomous behaviour self-regulation.

The aim of the present research was to evaluate the predicting power of autonomy support for autonomous behaviour of self-regulation for blood sugar testing, diet and physical activity, regarding respective previous behaviour patterns in a sample of patients with type 1 diabetes.

METHODS

Participants

This cross-sectional study included 107 patients with type 1 diabetes. Among them, 36 (35.5 percent) were men and 69 (64.5 percent) women. Other clinical, psychosocial and behavioural sample characteristics are presented in Table 1.

Instruments

Autonomy support was measured by **Modified Health Care Climate Questionnaire (HCCQ) for Diabetes Management**. The six items scale is made from original 15-item HCCQ scale (Williams & Deci, 1996), adapted to patients with diabetes (Williams, Rodin, Ryan, Grolnick, & Deci, 1998), and assesses the degree of perception of supportiveness from their practitioners. In the present study, two additional scales were added to measure health climate regarding diabetes diet and physical activity to the scale originally made to evaluate the general health care climate. Each of the six items of the original scale was changed to reflect the particular behaviour. For example, the item "My care providers gave me important choices and options about handling my diabetes" was changed to "My care providers gave me important choices and options about handling my diabetes diet" or "My care providers gave me important choices and options about handling my physical activity". Responses were made on 7-point Likert-type scale ranging from 1 – "strongly disagree" to 7 – "strongly agree". The internal consistency of the subscales in present study was Cronbach's α = .92 (for diabetes in general), .96 (for physical activity) and .95 (for diabetes diet).

Autonomous motivation for diabetes management behaviour was measured by autonomous motivation scale from **Treatment Self-Regulation Questionnaire (TSRQ)** adapted for diabetes by Williams et al. (2004). Only autonomous motivation scale was used in this study. There are seven items addressing autonomous motivation for monitoring blood sugar, six items addressing autonomous motivation for following diet recommendations and six items addressing autonomous motivation for exercise. Participants were asked to indicate how much on the

Likert-type scale from 1 to 7 they agreed with the reasons to take their diabetes medication (insulin and/or pills) as recommended and test their blood sugar regularly; the reasons to follow their diabetes diet regularly; and the reasons to exercise regularly. The example of the autonomous motivation was as follows: "I believe these are the most important aspects to remain healthy." The higher the score of each of the scale, the higher is the autonomous motivation. Internal consistency indicated by Cronbach's α on the autonomy subscales across three types of behaviour was .71, .84 and .88 respectively. All of them showed good internal consistency.

Previous behaviour was measured by using **Summary of Diabetes Self-Care Activities (SDSCA)** measure (Toobert, Hampson, & Glasgow, 2000). The subscales that assess diabetes self-management behaviours for diet, exercise and blood sugar testing were used. Patients reported the number of days in the prior week they were engaged in each type of behaviour. The data reported as mean days of each activity in the prior week are presented in Table 1. Blood sugar testing was measured by two items indicating regularity of testing and adherence to recommendations. The subscale of physical activity consisted also of two items reflecting domestic and organized physical activity. Diet behaviour was measured by two items summarizing healthy eating patterns.

The study also included data on age, gender and years of illness.

Procedure

Questionnaires were delivered in local associations of people with diabetes in several Lithuanian cities and online, placing an invitation to participate in the study in Facebook profile of the association of people with diabetes. The research was approved by Kaunas Regional Bioethics Committee (Nº BE-9-18).

Statistical analysis

SPSS for Windows 19.0 software (SPSS Inc., Chicago, USA) was used for statistical data analysis. Descriptive statistics were performed, tests of normality were run and indicators of skewness and kurtosis showed that data on each scale approached the normal distribution. Three-step regression models were computed to indicate predicting variables for

motivation for blood sugar testing, diet and physical activity. Age, gender and years of illness were included into the equations at the first step, and the past behaviour – at the second step as the control variables. Results were considered statistically significant when a probability value p was less than 0.05 or equal.

RESULTS

Preliminary data analysis presented in Table 1 shows that patients with type 1 diabetes have higher mean of glycaemia index (HbA1c) than recommended (< 7 percent) by American Diabetes Association (ADA, 2011). More than half of patients have complications and perceive their health as moderate. Two thirds of the patients confirm that they only moderately succeed in controlling their disease.

Table 1. *Sample characteristics*

Variable	Data (Mean ± SD or %)
HbA1c, %	8.25 ± 1.93
Gender	
Men	35.5
Women	64.5
Age, years	35.25 ± 14.79
Complications	
Have	59.4
Do not have	40.6
Self-rated health	
Very bad/bad	20.6
Moderate	54.2
Good/very good	25.2
Self-rated diabetes control	
Very bad/bad	17.0
Moderate	59.4
Good/very good	23.6
Blood sugar control behaviour	
Regular blood sugar testing (days per week)	5.61 ± 1.84
Diabetes diet (days per week)	4.80 ± 1.90
Physical activity (days per week)	3.34 ± 2.05

Self-reported blood sugar control behaviour results show that blood sugar monitoring is performed regularly 5.61 days per week, balanced diet – approximately five days per week. Vigorous physical activity is performed only 3.34 days per week.

Table 2. *Multiple hierarchical regression analyses predicting autonomous motivation for blood sugar monitoring from sociodemographic, clinical variables, previous behaviour and autonomy support*

Variable	*Adj* R^2	*ß*	*t*	*p*
Step 1 *F(3) = 1.580, p = .199*	.047			
Age		.234	2.044	.044
Gender		–.035	–.341	.734
Years of illness		–.125	–1.082	.282
Step 2 *F(4) = 5.042, p = .001*	.175			
Age		.171	1.576	.118
Gender		–.064	–.662	.509
Years of illness		–.130	–1.206	.231
Previous blood sugar monitoring		.365	3.841	.001
Step 3 *F(5) = 6.054, p = .001*	.244			
Age		.199	1.897	.061
Gender		–.029	–.312	.755
Years of illness		–.164	–1.571	.119
Previous blood sugar monitoring		.353	3.853	.001
Perceived autonomy support (for BST)		.265	2.917	.004

Note: BST – Blood sugar testing

Results in Table 2 indicate that autonomous motivation for blood sugar monitoring could be predicted by the age of the patients. The older the patients, the higher is their autonomous motivation. However, the effect of age disappeared when previous blood sugar monitoring entered the equation. It added 12.8 percent to the variance explained.

In the final step, more adherent previous behaviour and higher perceived autonomy support were significant predictors for higher autonomous motivation for blood sugar monitoring. Altogether, previous blood sugar monitoring and perceived autonomy support explained almost a quarter of autonomous motivation variance. Perceived autonomy support added 6.9 percent.

Table 3. *Multiple hierarchical regression analyses predicting autonomous motivation for diabetes diet from sociodemographic, clinical, previous behaviour variables and autonomy support*

Variable	*Adj* R^2	*ß*	*t*	*p*
Step 1 *F(3) = 1.623, p = .189*	.050			
Age		.256	2.078	.041
Gender		.030	.284	.777
Years of illness		–.069	–.554	.581
Step 2 *F(4) = 5.463, p = .001*	.194			
Age		.325	2.814	.006
Gender		–.001	–.012	.991
Years of illness		–.139	–1.193	.236
Previous diabetes diet		.387	4.022	.001
Step 3 *F(4) = 7.948, p = .001*	.306			
Age		.374	3.449	.001
Gender		.051	.555	.580
Years of illness		–.210	–1.905	.060
Previous diabetes diet		.273	2.891	.005
Perceived autonomy support (for diet)		.363	3.823	.001

Results in Table 3 show that older age, higher adherence to previous diabetes diet patterns and perceived autonomy support are significant predictors of higher autonomous motivation in diet behaviour. The regression weight of age was the strongest, followed by the perceived

autonomy support and previous diet patterns. Adherence to diabetes diet added 14.4 percent and perceived autonomy support added additionally 11.2 percent to the total variance of 30.6 percent in the final step.

Table 4. *Multiple hierarchical regression analyses predicting autonomous motivation for physical activity from sociodemographic, clinical variables, previous behaviour and autonomy support*

Variable	*Adj* R^2	*ß*	*t*	*p*
Step 1 *F(3) = .065, p = .979*	.002			
Age		–.025	–.210	.834
Gender		–.014	–.138	.891
Years of illness		–.024	–.206	.837
Step 2 *F(4) = .706, p = .590*	.029			
Age		.009	.073	.942
Gender		.008	.074	.941
Years of illness		–.052	–.437	.663
Previous physical activity		.168	1.621	.108
Step 3 *F(4) = 2.403, p = .043*	.113			
Age		.024	.207	.836
Gender		.065	.635	.527
Years of illness		–.069	–.609	.544
Previous physical activity		.077	.746	.458
Perceived autonomy support (for PA)		.312	2.992	.004

Note: PA – physical activity

Only perceived autonomy support for physical activity behaviour emerged as a significant predictor of autonomous motivation for being physically active. It added 8.4 percent to the equation. None of the sociodemographic, clinical variables or previous behaviour was significant predicting motivation for physical activity in patients with type 1 diabetes.

DISCUSSION

The main purpose of this study was to evaluate the impact of perceived autonomy support from practitioners on autonomous motivation of their patients with type 1 diabetes. Past behaviour was considered important determinant for autonomous motivation across three types of blood sugar control behaviours. The outcome variable – autonomous motivation – reflects the engagement in behaviours based on interest and personal values (Kasser, Ryan, 1996).

The results confirm the assumption derived from the literature that patients' autonomous motivation for blood sugar monitoring, diabetes diet and physical activity are higher when they feel understood and supported by their practitioners and can make informed decisions. Many other studies in patients with both types of diabetes mostly confirm that autonomy support from practitioners enhances autonomous motivation, which is the mediator between perceived autonomy support and diabetes related health behaviour (blood sugar testing, medication use, diabetes diet and physical activity), its change and/or outcomes (Mieziene, Sinkariova, & Jankauskiene, 2014). Quasi-experimental study with adolescents also indicated that supportive environment increased patients' competence and autonomy over a three-month period. During this period, patients with diabetes also enhanced their sense of relatedness (Hill & Sibthorp, 2006). Therefore, it could be concluded that compliance with diabetes treatment regimen depends not only on the recommendations themselves but also on the way they are provided by practitioners. Autonomy support also proved to be an independent predictor for various kinds of health behaviour: fruits and vegetables consumption (Shaikh, Vinokur, Yaroch, Williams, & Resnicow, 2011), tobacco abstinence (Williams et al., 2009), weight loss behaviour (Powers, Koestner, & Gorin, 2008), physical activity (Fortier, Sweet, O'Sullivan, & Williams, 2007) in various populations.

However, one cross-lagged longitudinal study failed to support the results of our study and the studies mentioned above. Julien, Senecal and Guay (2009) found that autonomy support at baseline was related neither to autonomous motivation, controlled motivation for diet behaviour nor amotivation after one year in type 2 diabetes adults, though correlational analysis confirmed these relationships in the expected

directions. However, authors also included construct of active planning into the analysis. It became significant for predicting autonomous motivation. This leads to the implication that active planning could possibly diminish the effects of autonomy support on autonomous motivation as active planning also assumes self-determined actions and is a more proximal predictor of autonomous motivation than autonomy support (Julien et al., 2009). In fact, further research should examine active planning as a mediator between autonomy support and motivation-behaviour chain. Interventional studies have shown that behaviour change is successful only when reinforcement is perceived, and the effect vanishes when reinforcement is removed (Bock, Marcus, Pinto, & Forsyth, 2001). Therefore, the SDT authors state that effective long-term behaviour change requires a shift from controlled to autonomous motivation for behaviour on the basis of personally held interests, values and goals (Ryan & Deci, 2002). For those who lack autonomous motivation, support from the external sources is especially required. Delamater (2006) suggests that seeking to improve patients' diabetes self-management behaviours, health care providers should organize patient-friendly environment, keep in touch with interim telephone contacts, talk collaboratively with patients about treatment rationales and goals, gradually implement and tailor the regimen and use self-monitoring (Delamater, 2006).

Our study also showed that previous adherence to the behaviour is important for further autonomous motivation too. The current study revealed that previous blood sugar testing and diet behaviour added a significant part to the total variance of autonomous motivation for each type of behaviour. The more adherent to the regimen is the previous behaviour, the more autonomously patients are motivated to comply with the treatment recommendations regarding diabetes diet and blood sugar testing. This suggests that experience of the behaviour which is not really enjoyable or pleasant but necessary for functioning or surviving in case of chronic illness plays a significant role in maintaining autonomous motivation. It could be further suggested that autonomous motivation will lead to the more adherent treatment regimen as many studies demonstrated confirmation of motivation – behaviour relationship (Austin et al., 2011; Shigaki et al., 2010). There is also scientific evidence that established patterns of behaviour are related to the

future behaviour. In the study by Molfenter, Bhattacharya and Gustafson (2012), patients with a long-term medication regimen demonstrated long-term, stable behaviour, with past behaviour being a strong predictor of future behaviour. However, in their study, autonomous motivation was not included as a mediator variable (Molfenter et al., 2012).

Results of this and the above mentioned studies suggest reciprocal relation of behaviour and autonomous motivation. The more autonomously regulated is the person's behaviour, the more compliant it is with treatment recommendations. On the other hand, treatment compliance leads to integration of even more autonomous behaviour regulation.

However, past physical activity behaviour did not play any role on self-determined motivation to engage in this type of behaviour. This may implicate that physical activity is not considered by diabetic patients as very important for their health maintenance. Results also differ from those in other studies. In the population of non-diabetic adolescents, past physical activity accounted for a significant part (39 percent in males and 37 percent in females) of variance of autonomous motivation for exercise (Markland & Ingledew, 2007). The study of McLahan and Hagger (2011) also showed that past behaviour had direct relationship to autonomous motivation to exercise among university students and staff in UK. Authors suggest that despite the importance of autonomous motivation for exercising, the influence of autonomous motivation is not independent of previous behaviour (McLahan & Hagger, 2011).

We also found that in the final step of hierarchical regression analysis, age remained a significant predictor of autonomous motivation for diabetes diet but not for physical activity and blood sugar monitoring. Older patients with type 1 diabetes are more autonomously motivated to comply with diet recommendations. Other studies examined the effect of age on behaviour directly and found that older patients were more likely to comply with diet recommendations, exercise and self-monitoring of blood glucose. But age was not related to medication use in Chinese Americans (Xu, Pan, & Liu, 2010). In contrast, Bogner and Vries (2009) revealed that older age was a predictor of high medication adherence among African Americans. Baquedano, Santos, Martins and Zanetti (2010) added evidence that older age was a predictor of better diabetes self-care in general among Mexicans (Baquedano et al., 2010). Autonomous motivation was not the target of these studies. Another study,

where autonomous motivation was also included into analysis, found that age was related only to exercise behaviour with older individuals being less likely to exercise (Shigaki et al., 2010). Thus, the relationship between age and self-care behaviour is inconsistent across studies and requires further examination.

Results of the current study are important for practitioners to keep in mind when providing treatment recommendations. Qualitative study in Belgium revealed that practitioners' efforts did not always result into adherence of patients' with diabetes. This frustrates practitioners and leads to a paternalistic attitude, which may induce anxiety in their patients (Wens, Vermeire, Van Royen, Sabbe, & Denekens, 2005). Hence, again, this leads to the importance of the way the recommendations are provided and how the self-regulation of the patients' behaviour is supported.

CONCLUSIONS

The more patients perceive autonomy support from practitioners, the more autonomous is their motivation to engage in diabetes self-care behaviour: regular blood sugar testing, physical activity and diabetes diet.

Previous adherence to the self-care behaviour is related to higher autonomous motivation for regular blood sugar testing and diabetes diet but not related to physical activity.

Providing treatment recommendations, practitioners should consider both behavioural experience and autonomy support which impacts motivation for self-determined behaviour regulation.

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SUVOKTOS AUTONOMIJOS PARAMOS IR ELGESIO PATIRTIES SVARBA SERGANČIŲJŲ PIRMOJO TIPO DIABETU AUTONOMINEI MOTYVACIJAI

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Santrauka. ***Problema.*** Sergantiesiems cukriniu diabetu labai svarbus sveikatai palankus elgesys, padedantis kontroliuoti ligą. Mokslininkai teigia, kad yra trys pagrindiniai sveikatai palankaus elgesio būdai, padedantys kontroliuoti cukraus kiekį kraujyje: cukraus kiekio kraujyje tikrinimas ir medikamentų vartojimas, subalansuota mityba ir fizinis aktyvumas. Moksliniai tyrimai rodo, kad tik maža dalis sergančiųjų laikosi šių gydymo rekomendacijų. Esant žemai sergančiųjų vidinei motyvacijai laikytis gydymo rekomendacijų gali pagelbėti sveikatos priežiūros specialistai. ***Tyrimo tikslas.*** Siekta įvertinti 1-ojo tipo cukriniu diabetu sergančiųjų subjektyviai suvokiamos autonomijos paramos poveikį autonominei motyvacijai tikrintis cukraus kiekį kraujyje, subalansuotai maitintis ir būti fiziškai aktyviems. ***Metodai.*** Tyrime dalyvavo 107 asmenys, sergantys 1-ojo tipo cukriniu diabetu. Sergančiųjų subjektyviai suvokiamai sveikatos priežiūros specialistų autonomijos paramai nustatyti naudotas Modifikuotas sveikatos priežiūros klimato klausimynas. Siekiant nustatyti tiriamųjų autonominę motyvaciją kontroliuoti savo ligą, naudota Elgesio savireguliacijos klausimyno autonominės motyvacijos skalė. Sveikatai palankiam elgesiui vertinti naudotas Trumpas cukrinio diabeto kontrolės klausimynas. ***Rezultatai.*** Sergančiųjų subjektyviai suvokiama autonomijos parama reikšmingai susijusi su didesne sergančiųjų autonomine motyvacija kontroliuoti cukraus kiekį kraujyje, subalansuotai maitintis ir būti fiziškai aktyviems. ***Išvados.*** Tyrimo rezultatai patvirtino prielaidą, kad sergančiųjų cukriniu diabetu autonominė motyvacija rinktis sveikatai palankų elgesį yra didesnė tada, kai sveikatos priežiūros specialistai suteikia paramą laikytis gydymo rekomendacijų.

Pagrindiniai žodžiai: autonomijos parama, su sveikata susijęs elgesys, elgesio savireguliacija.

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