Theories of health change behaviour

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Introduction

To understand the processes and causes of change in health related behaviours still represents a challenging process for health professionals (Orleans, 2000). People’s decisions to engage in such behaviours are affected by factors such as attitudes and beliefs and psychosocial variables (i. e. demographic, psychological or cognitive) which impact the decision-making process of planning behaviours. Thus, it is important to understand the interrelationship between these factors and their influences of adopting and maintaining healthy behaviours. Researchers have attempted to understand and predict health behaviour through the lenses of models and theories of behaviour change. Within the framework of a theory, the researchers get to understand what variables are most important and how to measure them, to formulate research questions based on the understanding of the variables, to test hypotheses regarding behaviour change, and lastly to guiding behaviour change interventions through planning, actions, and maintenance of preventative behaviours (Noar & Zimmerman, 2005). Theory-based predictors (i. e. cognitive factors) would provide an organized framework that helps understand and predict health behaviour in a systematic manner (Glanz & Maddock, 2000).

Theories based on processes of cognitions and thoughts are part of the collection of social cognitive models (SCMs) and focuses on influences of social-cognitive characteristics on decision-making processes. The present essay distinguishes two of SCMs, highly used in understanding the adoption and maintenance of healthy behaviours: the Theory of Reasoned Action (TRA; Ajzen and Fishbein 1980) and the Common Sense Model of Self-

Regulation (CSM-SR; Leventhal, Diefenbach, and Leventhal (1992)). Both theories suggest that the motivation to change behaviour is driven by social-cognitive beliefs/representations of the health threat and the willingness to avoid adverse outcome. Research applying both theories has a rich history describing their uses in a wide range of behaviours including health (TRA: Cooke and French (2008); CSM-SR: Hagger and Orbell (2003)). Further, both models are based on a set of theoretical constructs and have been used to successfully explain and change behaviours. Nevertheless, very little research has concerned empirical comparison of the two (Hunter, Grunfeld, & Ramirez, 2003; Orbell, Hagger, Brown, & Tidy, 2006) and there is still no consensus that one model is more accurate than the other.

Aim

This essay's aim was to review two theories of health change behaviour – the Theory of Reasoned Action and the Common Sense Model of Self-Regulation – with special emphasis on the similarities and differences and the data needed to critically compare and contrast them. Lastly, the aim was to determine which aspects of the frameworks were most successful at predicting and explaining behaviour.

What is health behaviour?

It is the goal of many researchers to understand the causes, determinants and processes of health behaviour change (Doll & Hill, 1964). The most common study looking into the causes of death is the Alameda County Study conducted by Belloc and Breslow in 1972 which identified seven aspects of lifestyle which predicted mortality: smoking, alcohol consumption, sedentary

lifestyle, sleeping more or less than 8 hours per night, being either underweight or overweight, skipping breakfast, and eating snacks (Belloc & Breslow, 1972). A later British study, the EPIC-Norfolk prospective population study associated similar behaviours with lower risk of mortality (Khaw et al., 2008).

Kasl and Cobb attempted the first definition of health behaviour as “ any activity undertaken by a person believing himself to be healthy for the purpose of preventing disease or detecting it at an asymptomatic stage” (Kasl & Cobb, 1966). Although this definition includes only preventive health behaviours there are other types of behaviours. Ogden (2007) described illness behaviour as a behavioural action aimed to seek treatment and sick behaviour as a behavioural action aimed to get well (p. 13). There are factors such as individual differences, which influence the change of health behaviours and contributed to the prediction of health behaviours (Baum & Posluszny, 1999; Sherman & Fazio, 1983). The cognitive factors received the most attention because are considered to cause changes in behaviour and because they are modifiable factors in comparison to, for example, personality.

The characteristics of social cognitive factors (e. g. knowledge, attitudes, and beliefs) are involved in the process of decision-making and behaviour control (Fiske & Taylor, 1991). SCMs focuse on psychological and social factors and how they influence behaviour change, with a focus on the self-regulation processes and how these relate to behaviour (Conner & Norman, 2005). These models are used to ensure a positive change in individual’s behaviour (e. g., changing food intake or increased physical activity) through

intervention (Anderson-Bill, Winett, & Wojcik, 2011). A very known model used to examine individual's reactions to illness threats is Leventhal's (1992) the common sense model of self-regulation (CSM-SR). Another theory focused on motivation to perform health-enhancing behaviours by examining aspects of the cognitions to predict health outcomes is the theory of reasoned action (TRA) designed by Fishbein & Ajzen (1975). The models mentioned and many other provide a basis for interventions designed to change health-related behaviours through the emphasis of the rationality of human behaviour. Thus, the prediction of behaviour is considered to be the outcome of the intended behaviour based on a rational decision–making process.

Overview of commonly used models

1. Theory of Reason Action (TRA)

TRA has been used to predicting the likelihood of performing a specific health-related behaviour based on the compatibility and behavioural intention (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980). The model uses cognitive processes of attitudes toward the behaviour (i. e., feeling positive or negative toward the action) and social normative perceptions (i. e., beliefs of significant others about the individual performing the behaviour) to predict intention of a behavioural action through a rational decision-making process. The theory has been used in a wide range of fields such as information technology (Mishra, Akman, & Mishra, 2014), software piracy (Aleassa, Pearson, & McClurg, 2010), cyberbullying (Doane, Pearson, & Kelley, 2014), hazing (Richardson, Wang, & Hall, 2012), domestic violence

(Sulak, Saxon, & Fearon, 2014), but also in health related behaviour such as substance-abuse (Roberto, Shafer, & Marmo, 2014), physical activity (Plotnikoff, Costigan, Karunamuni, & Lubans, 2013), diet (Middlestadt, 2012), smoking (Lorenzo-Blanco, Bares, & Delva, 2012), HIV prevention behaviours (Jemmott, 2012).

Description of the model

The design of TRA looks at behavioural intentions of an individual in social context, while investigates the relationships between attitudes, intentions and behaviour. Attitudes toward the behaviour are considered to be a comprehensive gathering of evaluations of the behaviour. As a determinant of intentions, attitudes influence people's perception, thinking and behaviour. Fishbein and Ajzen (1975) have proposed that attitudes should be measured at the same specific level as the behaviour. Thus, a high level of specificity in behaviour with regard to action, target, context, and time, will result in a high prediction of outcome behaviour. Individual's attitudes can be explained through the set of beliefs about an outcome of the behaviour and the evaluations (favourable or unfavourable) of the expected outcome. The relationship between salient beliefs and attitudes is based on the Fishbein's (1967) model of summative attitudes, which assumes they influence individual's attitude. The research of Van den Putte (1991) andArmitage and Conner (2001)proved a strong link between attitudes and salient behavioural beliefs.

Subjective norms are the second determinant of behavioural intention (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). This factor is the representation of

the individual’s perception of the social pressures from significant others (i. e. family, friends, work colleagues, etc.) about whether he/she should perform a specific behaviour. This is quantified as the product of the normative beliefs (i. e., individual’s perceived behavioural expectations of important others regarding the performance of the behaviour) and individual’s motivation to comply. Once more, the research of Van den Putte (1991) andArmitage and Conner (2001)identified strong correlations between subjective norms and normative beliefs.

Empirical support

The TRA has been applied to the prediction of a wide range of different behaviours, including health-related behaviours, with varying degrees of success. There are a number of narrative reviews (Albarracin, Johnson, Fishbein, & Muellerleile, 2001; Blue, 1995; Cooke & French, 2008; Godin, Belanger-Gravel, Eccles, & Grimshaw, 2008; Hagger, Chatzisarantis, & Biddle, 2002; Hausenblas & Carron, 1997; Sheeran & Taylor, 1999) as well as a quantitative reviews of the TRA focusing on general and specific behaviours (physical activity: (Blue, 1995; Hagger et al., 2002; Hausenblas & Carron, 1997); screening program (Cooke & French, 2008), healthcare professionals (Godin et al., 2008), condom use: (Albarracin et al., 2001; Sheeran & Taylor, 1999); and). and general reviews: (Sheppard, Jon, & Warshaw, 1988); van den Putte (1991)). The model has been tested bySheppard et al. (1988), who reported multiple correlations between intentions and behaviour, and attitudes and subjective norms and intentions to be 0. 53 and respectively 0. 66 (k= 87, and k= 87). Similar results were

found by van den Putte (1991). These early studies results constituted the basis of the predictive validity of the TRA framework.

In their reviews, Hausenblas and Carron (1997)found a medium effect size for the relationship of intention and behaviours of 0. 47, in 31 studies with a sample size of 10, 621. In addition, Albarracin et al. (2001)andHagger et al. (2002)found the same higher correlation between intention and behaviour (r= 0. 5). In the most recent review to date, Cooke and French (2008)computed a lower value of r= 0. 42 in 19 tests of the relationship between intention and behaviour, which is slightly larger than the meta-analytic reports byGodin et al. (2008)(r= 0. 31, k= 15, N= 2, 112). In conclusion, research provides evidence that there is a considerable consistency between TRA variables and their intention to predict behaviour change.

2. Common Sense Model of Self-Regulation (CSM-SR)

Description of the model

The CSM-SR integrates environmental factors and individual beliefs about illness around individual’s common-sense representations of health (Leventhal et al., 1992). The framework outline is based on parallel-processing pathways (Leventhal, 1970). The model is based on two constructs of a) cognitive or objective perpetual pathway with its coping mechanisms and appraisal process; and b) affective or subjective pathway which represents the emotional response to the illness representation with its own coping mechanisms and appraisal processes. The cognitive pathway is based on individual’s beliefs or representations of illness threat and

comprises five dimensions: identity, timeline, cause, consequences, and cure/control. Moss-Morris et al. (2002)explored the extent to which individuals can evaluate the coherence of illness representations, or how much individuals comprehend their condition. The pathway uses individual's beliefs to shape the selection of appropriate coping strategies (i. e. approach or avoidance), which in turn are appraised in a repetitive process over time. The self-regulation process implies selection and monitoring of behaviour aimed at controlling threat conditions and the illness representations are formed through symptoms perception and social messages from exposure to a wide range of social and cultural factors.

A similar process takes place with the subjective or emotional pathway in parallel and in association with the cognitive process just described. The representation of illness triggers the activation of emotional responses regarding health-related behaviours. For example, fear is activated when a woman discovers an unusual lump thinking it might be cancer resulting in states of worry and distress. The efforts of controlling the emotional responses are appraised in terms of their success and lead to refinements of the representation of new coping strategies.

Empirical support

Up to date research provides empirical support for the interrelationship between the constructs of identity, timeline, cause, consequences, cure/control, emotions, and coherence and health outcomes (coping: (Heijmans & de Ridder, 1998; Moss-Morris, Petrie, & Weinman, 1996; Scharloo et al., 2000) and adherence to professional recommendations

(Albert et al., 2014; Nicklas, Dunbar, & Wild, 2010)). A series of meta-analyses have now been supported the validity of the CSM-SR framework, including narrative reviews (Hoving, van der Meer, Volkova, & Frings-Dresen, 2010; Kucukarslan, 2012; Lobban, Barrowclough, & Jones, 2003; Munro, Lewin, Swart, & Volmink, 2007) and those focused on specific chronic conditions (diabetes: (Hudson, Bundy, Coventry, & Dickens, 2014; Mc Sharry, Moss-Morris, & Kendrick, 2011); acute myocardial infarction: (French, Cooper, & Weinman, 2006); and mixed chronic diseases: (Hagger & Orbell, 2003)). French et al. (2006)in a review of eight studies which predicted attendance at cardiac rehabilitation interventions following acute myocardial infarction reported the constructs of identity (r= 0. 13) consequences (r= 0. 08), and cure/control (r= 0. 11) to be positively significantly associated with attendance behaviour. In addition, Mc Sharry et al. (2011)located nine cross-sectional studies and four RCTs examining the relationship between illness constructs and the HbA_{1c}, and found a similar result for identity (r= 0. 14) but higher effect size estimates for consequences (r= 0. 14). Other significant associations were found for timeline cyclical (r= 0. 26), concern (r= 0. 21), and emotions (r= 0. 18). The most recent meta-analysis conducted byHudson et al. (2014)included nine cross-sectional studies and found that individuals with high levels of constructs of timeline cyclical (r= 0. 25, depression; r= 0. 31, anxiety), consequences (r= 0. 41, depression; r= 0. 44, anxiety), and seriousness beliefs (r= 0. 38, depression) and lower perceptions of personal control (r=-0. 27, depression; r=-0. 20, anxiety) are more likely to have poorer emotional health. Lastly, Hagger and Orbell (2003)review (N= 45) addressed the validity of the model and the average correlations of illness representation dimensions were significantly positive

for identity-consequences (r= 0. 37, p <0. 05), identity-timeline (r= 0. 16, p <0. 05) and timeline-consequences (r= 0. 43, p <0. 05) relationships and significant negative for cure/control-consequences (r= 0. 18, p <0. 05), identity-cure/control (r= 0. 11, p <0. 05) and timeline-cure/control (r= 0. 34, p <0. 05) relationships, thus supporting the construct validity of CSM-RS framework.

Comparison and contrasting of the models

Research focused on comparing and contrasting theories of health-related behaviour change assesses the utility of those theories to advancing understanding of behaviour change processes. The two theoretical models outlined above show a number of similarities and differences. Several observations can be made in comparing the similarities of the models. First, CSM-SR and TRA are both social cognitive models concerned with how cognitive determinants are influencing each other in the regulation of behaviour and how these are applied to the understanding of health behaviours. Second, some constructs are common to both models, for example both CSM-SR and TRA are interested in how social-cognitive representations of health threat can motivate an individual to comply with his/her recommended treatment to avoid an adverse health outcome. Third, the models are used to analyse the influence of perceived factors external to individual on clinical-related behaviour. Moreover, both models explain behaviour change in terms of modifiable variables and support the importance of symptom attribution (Waller, 2006). Forth, CSM-SR and TRA are based on dynamic causal processes. In the CSM-SR, the individual regulates the interactions representations, coping mechanism and appraisal

in an attempt to maintain coherence among them. In the TRA framework, changes in attitudes are influenced by changes in behavioural beliefs which ultimately produces changes in behaviour (Sutton, 2001). Lastly, both theories are used in developing intervention strategies, for example, related to help-seeking behaviour, by targeting modifiable variables (Waller, 2006).

In contrasting the TRA and CSM-SR theoretical basis, the CSM-SR proposes that for a better understanding of individual's behavioural adherence, the researcher needs to make reference to individual's attitudes toward the threatening condition. In contrast, TRA proposes that the motivation needs to be understood through individual's attitude toward the action of going to the appointment/ treatment (Orbell et al., 2006). The CSM-SR emphasizes the importance of assessment of the likelihood of adherence through the evaluation of illness beliefs constructs (i. e. identity, timeline, cause, consequences, and cure/control), while in the TRA model only a single attitude is used to evaluate outcomes. Another distinctive contrast between the two models lies within the constructs of the framework. While the CSM-SR takes account of the impact of emotional variables, the TRA is almost entirely rational and does not account for emotional factors. Another aspect is that CSM-SR does not take account of the social influences that might shape illness beliefs or decision-making process, which is assessed by the TRA framework through subjective norms factor.

The models also differ in the way they are applied in research literature. The cognitive and emotional constructs of CSM-RS were designed specifically for understanding illness perception and adherence. (Leventhal et al., 1992). By contrast, TRA was designed to predict volitional behaviours, thus it can be

applied to various behaviours, for example information technology (Mishra et al., 2014), software piracy (Aleassa et al., 2010), cyberbullying (Doane et al., 2014), hazing (Richardson et al., 2012), and domestic violence (Sulak et al., 2014).

Looking at the differences in measuring the components of the models, CSM-SR uses a well-validated set of constructs developed by Weinman and colleagues (Weinman, Petrie, Moss-morris, & Horne, 1996). In contrast, the TRA models do not have a method *per sei* to measure its constructs. Thus, Ajzen & Fishbein (1980) provides an extensive details of the constructs for research to develop theory own measures.

In conclusion, the TRA and CSM-SR are both social cognitive model and their design is based on interpretation of cognitive factors in relation to behaviour change and each of them have their own weaknesses and strengths. Their contribution is significant and productive in the research literature because researchers can explore and test the theories to increases the understanding of health-related behaviours and help in the development of behaviour change interventions.