Article:
Conner, M (2014) Extending not retiring the theory of planned behaviour: a commentary on Sniehotta, Presseau and Araújo-Soares. Health Psychology Review, 9 (2). pp. 141-145. ISSN 1743-7199

https://doi.org/10.1080/17437199.2014.899060

Extending not Retiring the Theory of Planned Behaviour

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Sniehotta, Presseau, and Araujo-Soares (2014) argue that the Theory of Planned Behaviour (TPB; Ajzen, 1991) has outlived its' usefulness in the health psychology domain and should be retired so that (presumably younger) theories can take its place. Unfortunately the main arguments they advance in support of this view are either misplaced or lacking in strong evidence. Rather than retiring the TPB there is good reason to capitalize on the contributions it has made, and continues to make, and to consider ways in which it can be usefully be extended in the health domain.

Meta-analytic reviews of prospective correlational tests of the TPB in relation to health behaviours (e.g., McEachan, Conner, Taylor, & Lawton, 2011) are interpreted by Sniehotta et al. (2014) as showing the lack of power of the TPB. Yet the amounts of explained variance in such reviews are high both for intentions and behaviour. Attitudes and perceived behavioural control each have large effect sizes in predicting intentions, while intentions and perceived behavioural control each have medium to large effect sizes in predicting prospectively measured behaviour. Importantly these effects generally remain when controlling for past behaviour, meaning that these variables are successfully predicting change in health behaviours. This suggests the TPB identifies some key predictors of health behaviours. These same meta-analytic data also indicate that across studies intentions mediate the effects of attitudes and norms (whether measured directly or as beliefs) on behaviour. Importantly these data also show considerable variation in the effectiveness of the TPB across different types of health behaviours (an issue returned to later).

However, as Sniehotta et al. (2014) point out, there would be less interest in the TPB in health psychology and elsewhere if it were only a correlational model and not a causal model. As a causal model it should inform how we go about changing behaviour. The evidence base of experimental tests of the TPB is much more limited when compared to the number of correlational tests. In addition the evidence here is much more mixed, although better quality experimental studies have found support for the TPB (e.g., Brubaker & Fowler, 1990). One approach to using the TPB to change behaviour has been to use correlational

studies to identify the key determinants of intentions and action for that behaviour in that population and then to target these key determinants with interventions to produce behaviour change. This is quite a time consuming approach and relatively few individual studies have taken this tack. In part this may be attributable to the relatively limited approach to changing components of the TPB that are directly advocated by the theory (i.e., targeting individual beliefs; see Fishbein & Ajzen, 2010). An alternative approach that extends the TPB has been to review the studies that use a variety of behaviour change techniques and examine the impacts they have on components of the TPB and on behaviour. Webb and Sheeran (2006) took this approach in examining studies that changed intentions and then examined the effects on behaviour. Although the effect sizes for the impacts of changing intentions on changing behaviour were smaller than those observed in correlational studies they were nevertheless substantial and supported the value of targeting intentions as a means to change behaviour. This work also helped identify the most effective behaviour change techniques for changing intentions across studies. Similar work has been conducted on interventions that change attitudes, norms, and perceived behavioural control by Sheeran and colleagues across different behaviours (Maki, Montanaro, Caldwell, Bryan, Rothman, & Sheeran, 2013) and Prestwich and colleagues within single behaviours (Prestwich et al., 2014). This work can help identify useful ways to change components of the TPB and lead to better experimental tests of the TPB hopefully using strong designs (e.g., interventions matched or mismatched to changing components found to predict behaviour) to examine impacts on behaviour. One interesting theoretical and practical question will be the extent to which the different components specified by the TPB can be independently manipulated.

Sniehotta et al. (2014) also point to the growing number of studies extending the TPB either by adding new variables or examining moderation effects. One of the great strengths of the TPB has been its ability to predict a great range of behaviours across different populations using only four variables. Although additional variables may contribute to explaining further variance in particular behavioural domains they may show only limited

utility when applied across a broad range of behaviours (see Head & Noar, 2014 for a discussion of this issue). Sniehotta et al. (2014) place little value in such extended TPB models but extol the virtues of new models that appear to contain many of the same variables. This would appear to place too little value on the contribution the TPB has made and the large body of research that such extensions can draw upon. It is also the case that Ajzen and Fishbein (2010) have been open to such extensions of the TPB (see Head & Noar, 2014 for a discussion of the Reasoned Action Approach within which the TPB fits). One extension of the TPB that appears to have relatively broad application is that of splitting components of the TPB (Ajzen & Fishbein, 2005; Conner & Sparks, 2005): with attitudes split into affective/experiential and cognitive/instrumental components; norms split into injunctive and descriptive components; and perceived behavioural control split into confidence/self-efficacy and control components. A number of tests of this extended TPB have shown it to have good predictive power across a range of health behaviours (for meta analysis see McEachan, Conner, Taylor, & Lawton, submitted). This meta analysis also suggests the limited predictive power of perceived control compared to perceived confidence (for meta analysis see McEachan, Conner, Taylor, & Lawton, submitted) and direct effects of affective attitudes on behaviour that are not mediated by intentions (see also Lawton, Conner & McEachan, 2009). A range of other variables (see Conner & Armitage, 1998 for a review) have more mixed evidence to support them as additions to the TPB across a range of behaviours, although anticipated affective reactions has stronger support (Sandberg & Conner, 2008) even when controlling for affective attitudes (Conner, McEachan, Taylor, O'Hara, & Lawton, submitted).

A further area of potential expansion for an extended TPB is in relation to interaction or moderation effects. A number of interactions consistent with the TPB have been suggested and tested (e.g., intention stability as a moderator of the intention-behaviour relationship: Conner & Godin, 2007; interactions between attitudes and norms: Conner & McMillan, 1999). Other studies have examined interactions between TPB variables and

variables assumed to be external to the model such as personality factors (e.g., Conner & Abraham, 2001; Conner, Grogan, Fry, Gough, & Higgins, 2009) and demographic factors (e.g., Conner, McEachan, Jackson, McMillan, Woolridge, & Lawton, 2013). Sometimes these moderation effects can give us potentially useful insights into why behaviour change based on standard interventions may be less successful in some groups (e.g., work showing intentions may be less predictive of health behaviour change in lower socioeconomic status groups; Conner et al., 2013). However, the extent to which all these different extensions to the TPB have widespread value across a broad range of behaviours and populations remains to be assessed.

One of the assumptions of the TPB is that the power of different components to predict intentions and action will vary as a function of the behaviour and population under consideration (see McEachan et al., 2011 for examples of such variations across behaviours and populations). There is also variation in the overall predictive power of the TPB (i.e., amount of variance explained in intentions and behaviour), with considerable focus on the so called 'intention-behaviour gap' in recent years. It is worth noting that we should not necessarily be expecting perfect correspondence, partly because we do not measure our predictor variables perfectly, partly because of the factors that can intervene between forming an intention and acting (see Fishbein & Ajzen, 2010 for a useful discussion of these issues), and also partly because a broad range of other variables (e.g., the weather) likely explain unique additional, but small, amounts of variance in behaviour. The key issue is whether there are other determinants of intentions or behaviour with large effect sizes that are not currently considered by the TPB or other models. An important consideration in assessing such variables is the balance between the amount of variance they explain, the extent to which they overlap with existing variables, and their value across a broad range of behaviours. As Head and Noar (2014) note this may represent an important basic conflict between academic researchers interested in model development and practitioners interested in behaviour change. Academic researchers might value parsimonious models that are

predictive across a broad range of behaviours and so be very cautious about adding additional variables (i.e., wanting to show they are truly distinct from existing variables and add predictive power across a range of behaviours). In contrast practitioners often want to understand and change a particular behaviour in a specific population and so are more open to adding variables that explain additional variance and that might be useful targets for interventions (see Hagger & Chatzisarantis, 2005; Rhodes, Blanchard, & Matheson, 2006). However, taking the practitioner approach of building unique models for every combination of behaviour and population may be an inefficient and confusing way to proceed. However, this is not to dismiss the potential value of models that apply to relatively broad range of related behaviours, but not necessarily all behaviours (e.g., approach versus avoid versus detection health behaviours; see Conner et al., submitted for an example of this approach to extending the TPB). Existing research would suggest that a useful starting point for such models might be variants of an extended TPB.

In summary, Sniehotta et al. (2014) appear to be premature in their desire to retire the TPB and replace it with other models that only have a fraction of the evidence base. It seems unlikely that such new models will exceed the predictive power of the TPB across such a broad range of behaviours using such a limited number of variables, although tests of rival models should be welcomed. However, there may be value in first testing 'extended TPB' models that build upon what we have learnt from the TPB and help us better predict health behaviours and better inform interventions designed to change such behaviours.

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