The Theories of Reasoned Action and Planned Behavior:

Examining the Reasoned Action Approach to Prediction and Change of Health Behaviors

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To appear in K. Sweeny & M. Robbins (Eds). The Wiley Encyclopedia of Health Psychology

The ability to understand the fundamental causes of public health problems and develop interventions to address those problems is important to a range of researchers involved in the study of health psychology. Two of the most widely tested models of this nature are the Theory of Reasoned Action (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 2005) and the Theory of Planned Behavior (Ajzen, 1991; Ajzen & Fisbein, 1980, 2005). The Theory of Reasoned Action posits that behavior is a function of behavioral intentions that are, in turn, a function of attitudes and subjective norms (see Figure 1). The Theory of Planned Behavior took the components of the Theory of Reasoned Action, but added perceived behavioral control as an additional factor predicting both behavioral intentions and behavior (see Figure 2). In recent years, these models have been collapsed under the umbrella of the Reasoned Action Approach (see Figure 3).

## **Description of the Models**

Both the Theory of Reasoned Action and the Theory of Planned Behavior developed out of a theoretical tradition that considered attitudes as a major influence on human behavior (Smith, 1932; Stagner, 1942; Thurstone & Chave, 1929). However, other contradictory research emerged suggesting the link between attitudes and behavior was tenuous at best (Corey, 1937; La Piere, 1934; Vroom, 1964), with some researchers even calling for abandonment of the attitude construct altogether (Wicker, 1969). However, Fishbein and Ajzen (1974) noted that the inconsistency between attitudes and behaviors could be improved by measuring attitudes and behaviors at the same level of specificity. Thus, rather than using global attitudes (e.g., attitudes toward religion) to predict specific behaviors (e.g., church attendance the following Sunday), Fishbein and Ajzen (1975) posited that researchers should focus on the specific antecedents of specific behaviors (e.g., attitudes toward church attendance the following Sunday predicting church attendance the following Sunday). Furthermore, Fishbein and Ajzen (1975) posited that the link between attitudes and behavior might best be explained by an appeal to specific behavioral intentions. That is, attitudes about performing a behavior would predict behavioral intentions to enact the behavior, which would in turn predict behavior. In addition, because one may also take into account how others perceive one's actions, subjective norms about how to behave were also included as a predictor of behavioral intentions. Behavioral intentions were then were identified as the best predictor of behavior (Fishbein & Ajzen, 1975). In this model, *attitudes toward the behavior* were defined as an aggregate of readily accessible or salient beliefs about the likely outcomes of performing the target behavior, whereas *subjective norms* were defined as the perceived social pressure to perform or not perform the target behavior, and *behavioral intentions* were defined as the perceived likelihood of performing the target behavior.

However, one factor that may limit the translation of intentions to behavior is one's ability to enact the desired behavior. As such, the Theory of Planned Behavior updated the Theory of Reasoned Action to include a component of *perceived behavioral control*, which specifies one's perceived ability to enact the target behavior. In fact, perceived behavioral control was added to the model to extend its applicability beyond purely volitional behaviors. Prior to this addition, the model was relatively unsuccessful at predicting behaviors that were not mainly under volitional control. Thus, the Theory of Planned Behavior proposed that the primary determinants of behavior are an individual's behavioral intention and perceived behavioral control (see Figure 2). As such, according to the Theory of Planned Behavior, behavioral intentions are framed as the motivational component of the model, or one's conscious plan or decision to exert effort to perform the target behavior. Behavioral intentions are determined by *attitudes towards the behavior* (e.g., whether engaging in the behavior is evaluated to be positive or negative), *subjective norms* surrounding the behavior (e.g., beliefs about whether others think

one should engage in the behavior), and *perceived behavioral control* (e.g., beliefs regarding how easy or difficult performing the behavior is likely to be). In this context, perceived behavioral control reflects both external factors (e.g., availability of time or money, social support) as well as internal factors (e.g., ability, skill information). In other words, low perceived behavioral control exists in situations in which performance of the target behavior is dependent upon a number of other factors, which may or may not be within an individual's control. For example, one may experience low perceived behavioral control for the target behavior of eating healthy if constraints such as time, affordability, access, and temptation are viewed as obstacles to engage in the behavior despite high intentions. As a result, the higher the perceived behavioral control for a target behavior, the higher the predictive power of behavioral intentions for that behavior.

In recent years, the Theory of Reasoned Action and the Theory of Planned Behavior have fallen under the umbrella of the *reasoned action approach* (Ajzen & Albarracín, 2007; Fishbein & Ajzen, 2010). As seen in Figure 3, the reasoned action approach encompasses all of the components proposed by earlier models (e.g., attitudes toward the behavior, subjective norms, perceived behavioral control, and intentions), while also including additional factors such as *actual control*, defined as skills, abilities, and environmental factors that influence one's ability to enact a target behavior. As such, the Theory of Reasoned Action and the Theory of Planned Behavior will be referred to jointly as the reasoned action approach throughout.

## Ability to Predict Health Intentions and Behaviors

A series of meta-analyses and reviews examining the application of the reasoned action approach to health behaviors have now been published, including those focusing on multiple health domains (Armitage & Connor, 2001; Conner & Sparks, 2005; Godin & Kok, 1996; McEachan, Conner, Taylor, & Lawton, 2011; Webb, Joseph, Yardley, & Michie, 2010) and those focusing on specific behaviors (e.g., exercise: Hagger, Chatzisarantis, & Biddle, 2002; condom use: Albarracín, Johnson, Fishbein, & Muellerleile, 2001). Such reviews have shown the reasoned action approach to be a relatively successful predictor of health intentions and behavior, explaining 32-44% of the variance in intentions and 15-41% of the variance in behavior.

One important moderator of the predictive ability of the reasoned action approach is behavior type. For instance, the reasoned action approach appears to be relatively more successful in the prediction of diet and exercise behaviors, as well as condom use. In a recent comprehensive meta-analysis, McEachan and colleagues (2011) found that the reasoned action approach was able to explain 21% and 24% of the variance in dietary and exercise behaviors respectively. At the same time, the reasoned action approach appears to be less successful at explaining the variance in addictive and clinical screening/detection behaviors. The same metaanalysis revealed that the reasoned action approach was able to explain only 15% and 14% of the variance in such behaviors respectively. It is not surprising that the reasoned action approach is better at predicting some behaviors than others. Looking at the categories in which the reasoned action approach is more versus less successful in predicting behavior, it follows that the model is less predictive of addictive and clinical screening behaviors, as these behaviors are likely to be low in perceived and actual behavior control, affected not only by personal motivation and desire but also other factors (e.g., biological aspects of addiction, access to treatment and health services, financial resources to engage in screening behaviors).

Along with behavior type, there are also two important methodological moderators to consider when examining the ability of the reasoned action approach to predict health behavior: length of follow-up and method of measurement (objective vs. self-report). The amount of time

between measurement of reasoned action approach variables and assessment of behavior is an inherent limiting condition of the reasoned action approach. Ajzen and Fishbein have repeatedly stressed that the measurement of behavior should occur as close as possible to the measurement of the reasoned action approach variables as the model is only able to predict behavior to the extent that the reasoned action approach variables remain consistent from the time of measurement to the time of assessment of behavior (Ajzen, 1985; Ajzen & Fishbein, 1980; Ajzen & Madden, 1986). Given that it is less likely for the reasoned action approach variables to remain stable as the length of follow-up increases, it is not surprising that the overall ability of the model to predict health behavior decreases over time (Albarracín et al., 2001; McEachan et al., 2011)<sup>1</sup>. For dietary and exercise behaviors, McEachan and colleagues (2011) found that the reasoned action approach was only able to predict 18% (dietary) and 16% (exercise) of the variance in behavior when follow-up occurred more than 5 weeks after initial measurement, compared with 23% (dietary) and 32% (exercise) when follow-up was less than 5 weeks after initial measurement. Like many models of human behavior, a long-standing concern regarding the ability of the reasoned action approach to predict health behavior, and behavior in general, is its frequent reliance on self-reported measures of behavior. A primary concern regarding reliance on self-reported behavior is the vulnerability of self-report measures to social desirability bias, or

<sup>&</sup>lt;sup>1</sup> Randall & Wolff (1994) conducted a meta-analysis of 98 studies and found no significant relationship between length of follow-up and the strength of the intention-behavior relationship. It is important to note, however, that this meta-analysis did not focus specifically on health behavior and only looked at the correlation between intentions and behavior, not the overall predictive power of the model.

the tendency to over-report desirable behavior and under-report undesirable behavior (Edwards, 1953; Schroder, Carey, & Vanable, 2003). This may be particularly problematic for the prediction of health behavior given the tendency for many health behaviors to be viewed as either desirable (e.g., healthy eating, exercise, condom use) or undesirable (e.g., drug and alcohol use). Given the prominent role of attitudes in the reasoned action approach, individuals' inclination to maintain attitudinal and behavioral consistency (Hessing, Elffers, & Weigel, 1998; Kiesler, 1971) is also of particular concern. Thus, the model may overstate the intention-behavior relation due to individual's desire to maintain consistency in their reported intentions and behaviors. Two large meta-analyses support this concern. Armitage and Conner (1999) found that reasoned action approach explained 31% of the variance in self-reported behavior but only 20% of the variance when behavior was directly observed. Specific to health behavior, McEachan and colleagues (2011) found that reasoned action approach variables explained 26% of the variance in self-reported physical activity but only 12% of the variance in objectively measured physical activity. Although the reasoned action approach is able to predict a significant amount of variance in behavior regardless of length of follow-up or method of measurement, it consistently shows greater efficacy in situations with short follow-up and self-reported measurement of behavior.

## **Interventions to Change Behavior**

Although the reasoned action approach was originally presented as a tool to 'understand' and 'predict' behavior (Ajzen & Fisbein, 1980), there is growing interest in the theory's possible utility in designing behavioral interventions. Ajzen and Fishbein (2005) agree that successful modification of predictors specified by the reasoned action approach should lead to a corresponding change in behavior. McEachan and colleagues (2011) found encouraging evidence for the model's ability to identify important targets for interventions to change health behaviors. Although their meta-analysis of health behaviors found that past behavior exhibited the strongest correlation with current behavior (mean  $\rho = 0.50$ )<sup>2</sup>, intention was also a strong predictor of behavior (mean  $\rho = 0.43$ ) and remained so after controlling for past behavior. From a behavioral intervention perspective, intentions are more relevant than past behavior as they are susceptible to change while past behavior is not. As a result, it is encouraging that intentions remain a strong predictor of behavior even when controlling for past behavior (McEachan et al., 2011).

In 2002, Hardeman and colleagues published a review of behavior change interventions using the reasoned action approach (Hardeman, Johnston, Johnston, Bonetti, Wareham, & Kinmonth, 2002). The review identified twenty-one interventions targeting health-related behaviors, including smoking cessation, exercise, and testicular self-examination. Of the twenty-one interventions identified, only ten actually used the reasoned action approach to develop the intervention; the remaining eleven interventions simply used the reasoned action approach for measurement and therefore should not be considered a valid assessment of the theory's ability to help change behavior. It is important to note that even for the ten interventions that used the theory to develop the intervention, the interventions often focused on selected reasoned action approach components only. Furthermore, the descriptions of the interventions were limited and it was often difficult to assess the specific manner in which the reasoned action approach informed the intervention design. Among the ten theory-driven interventions, four (40%) reported a positive change in behavioral intentions as a result of the intervention, three (30%) reported no difference in behavioral intentions, and three (30%) did not measure intentions. In terms of

 $<sup>^2</sup>$  McEachan et al. (2011) used mean true score correlations corrected for sampling and measurement error (mean  $\rho).$ 

behavior change, three (30%) of the interventions reported a positive change in behavior as a result of the intervention, two (20%) reported no difference in behavior, and five (50%) did not measure behavior.

In the domain of condom use, Albarracín and colleagues (Albarracin, Gillette, Earl, Glasman, Durantini, & Ho, 2005) examined the efficacy of the reasoned action approach by examining the link between intervention components and change in model constructs, as well as the links with behavior change. In line with the reasoned action approach, attitudinal arguments about condom use did indeed change attitudes toward condom use, which in turn led to changes in condom use (Albarracín et al., 2005). In additional, self-management training led to changes in perceived behavioral control, which in turn facilitated change in condom use (Albarracín et al., 2005).

Although it may be argued that the mixed results of the Hardeman and colleagues (2002) review suggest that the reasoned action approach is far better suited to predict behavior than to help change it, it is important to remember that there were only ten studies in which the reasoned action approach was used to develop the intervention, the interventions often focused only on selected reasoned action approach components, the descriptions of the interventions were limited, and evidence about mediation of effects by reasoned action approach components was rare. McEachan and colleagues' (2011) finding that behavioral intentions remain a significant predictor of behavior even when controlling for past behavior, combined with evidence indicating that a change in individuals' beliefs can bring about changes in attitudes, intentions and behavior (Ajzen & Fishbein, 2005) lends support to the potential for the reasoned action approach may have potential for developing behavioral change interventions, but more comprehensive studies are

needed to systematically examine the effectiveness of well-designed reasoned action approachbased interventions.

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Figure 1. Theory of reasoned action, Fishbein & Ajzen, 1975



Figure 2. Theory of planned behavior, Ajzen, 1991



Figure 3. Reasoned action approach, Fishbein & Ajzen, 2010