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The role of theory in HIV prevention

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Abstract *There is growing evidence that well designed, targeted, theory-based behaviour change interventions can be effective in reducing the spread of HIV. Although each behaviour is unique, there are only a limited number of theoretical variables that serve as the determinants of any given behaviour. Understanding these variables and their role in behavioural prediction can guide the development of effective behaviour change interventions. This paper will describe and define these variables and show how they can be used in the development of behavioural interventions.*

We are now nearing the end of the second decade of the AIDS epidemic. Unfortunately, although we've made enormous progress in prolonging and improving the quality of life of those infected with HIV, we still have neither a cure for, nor a vaccine to prevent, this disease. Perhaps most important, it has become increasingly clear that preventing the transmission and the acquisition of HIV must focus upon behaviour and behaviour change. AIDS is first and foremost a consequence of behaviour. It is not who one is, but what one does, that determines whether he or she will expose themselves or others to HIV. As Kelly *et al.* (1993) pointed out, the task confronting the behavioural sciences is to develop theory-based intervention programmes to reduce 'risky' and increase 'healthy' behaviours. And I think it's safe to say that we have come a very long way in doing so.

In the past five years, there has been a growing recognition that behavioural science theory and research can play an important role in protecting and maintaining the public health (see, for example, Fishbein *et al.*, 1996b). For example, in February of 1997, the National Institute of Health's (NIH) Office of Medical Applications Research conducted a Consensus Development Conference to evaluate the effectiveness of behavioural intervention methods to reduce the risk of HIV infection. A 12-member, non-federal, expert panel concluded that, 'Behavioral interventions to reduce risk for HIV/AIDS are effective and should be disseminated widely' (NIH, 1997).

Clearly, however, not all interventions are equally effective. What behavioural science theory and research can do is to provide guidelines for developing effective behaviour change programmes. For example, we have learned that the most effective interventions will be those directed at changing specific behaviours (e.g. walk for 20 minutes, three times a week) rather than behavioural categories (e.g. exercise) or goals (e.g. lose weight) (Fishbein *et al.*, 1992). With respect to STDs/HIV, it's important to recognize that while the use of a male condom may be a behaviour for men, it is a goal for women. In addition, condom use is not a single

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behaviour but a behavioural category—condoms are used for different sexual activities with different types of partner, and always using a condom for vaginal sex with one's spouse or main partner is a very different behaviour to always using a condom for vaginal sex with a commercial sex worker, or always using a condom for anal sex with one's spouse.

Generally speaking, the definition of any given behaviour includes at least four elements: the action (e.g. using), the target (e.g. a condom), the context (e.g. anal sex with one's regular partner) and the time period in which the behaviour is observed or expected (e.g. always). Changes in any one element also change the behaviour one is observing. Thus for example, as indicated above, 'always using a condom for anal sex with my regular partner' is a different behaviour to 'always using a condom for anal sex with my occasional partners'. Similarly, 'always using a condom for anal sex in Location A' is a different behaviour to 'always using a condom for anal sex in Location B'.

So to be effective, interventions should focus upon specific behaviours and, perhaps not surprisingly, the most effective interventions will be those directed at a single behaviour rather than at multiple behaviours. This is because each behaviour is substantively unique, and the substantive factors influencing one behaviour are often very different to those influencing another behaviour. Despite this substantive uniqueness, there appear to be only a limited number of theoretical variables underlying any given behaviour.

Figure 1 provides an integration of several different leading theories of behavioural prediction and behaviour change (Ajzen & Fishbein, 1980; Bandura, 1986; 1994; Becker, 1974; Fishbein *et al.*, 1991; 1992; Rosenstock *et al.*, 1994). Before describing this model, however, there is one important point that needs to be made. I have often heard people argue that theoretical models such as the one presented in Figure 1 are 'Western' or 'US' models that don't apply to other cultures or countries or that these types of model are not culturally specific. In marked contrast, I would argue that when properly applied these models are culturally specific. For example, the relative importance of each of the variables in the model is expected to vary as a function of both the behaviour and the population under consideration. As I will try to demonstrate, when properly applied, these types of models require one to understand the behaviour from the perspective of the population being considered. In addition, I would argue that each of the variables in the model can be found in almost any culture or population. Indeed, the theoretical variables contained in the model

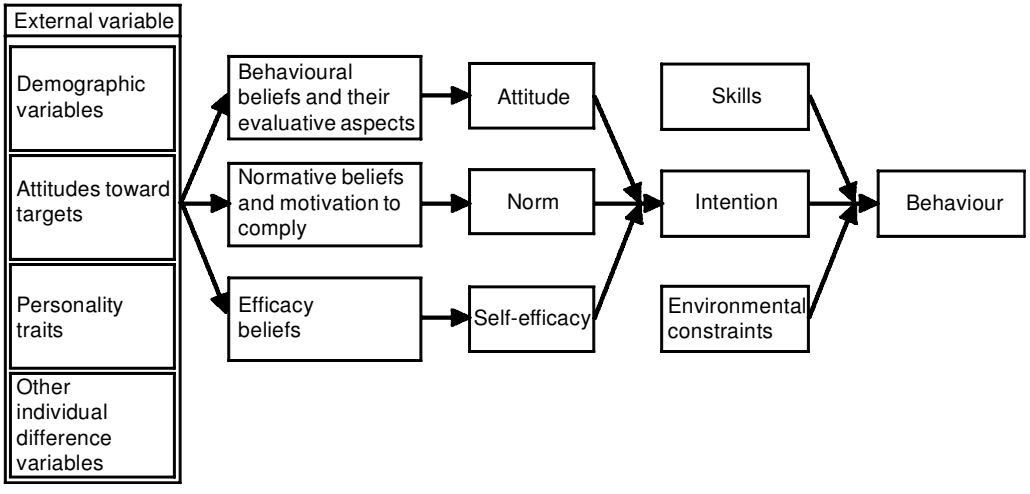

FIG. 1. *An integrative model.*

described in Figure 1 have been tested in over 50 countries in both the developed and the developing world. So as I go through the elements of the model, I would ask you to consider whether there is anything in the model that is not relevant to the culture or population you wish to study.

Looking at Figure 1, it can be seen that any given behaviour is most likely to occur if one has a strong intention to perform the behaviour, if one has the necessary skills and abilities required to perform the behaviour, and if there are no environmental constraints preventing behavioural performance. Indeed, if one has made a strong commitment (or formed a strong intention) to perform a given behaviour, and if one has the necessary skills and the ability to perform the behaviour, and if there are no environmental constraints to prevent the performance of that behaviour, the probability is close to one that the behaviour will be performed (Fishbein *et al.*, 1992).

Clearly, very different types of intervention will be necessary if one has formed an intention but is unable to act upon it, than if one has little or no intention to perform the behaviour in question. Thus, in some populations or cultures, the behaviour may not be performed because people have not yet formed intentions to perform the behaviour; while in others, the problem may be a lack of skills and/or the presence of environmental constraints. In still other cultures, more than one of these factors may be relevant. For example, von Haeften *et al.* (1999) present intention and behaviour data from, among other groups, commercial sex workers (CSWs) in Seattle, Washington. Perhaps not surprisingly, over 95% of female CSWs intend to use condoms for vaginal sex with their clients and almost 75% report carrying out these intentions. In contrast, only 30% intend to use condoms for vaginal sex with their main partners, and of those, only 40% are able to act on their intentions. Clearly if people have formed the desired intention but are not acting on it, a successful intervention will be directed either at skills building or will involve social engineering to remove (or to help people overcome) environmental constraints.

On the other hand, if strong intentions to perform the behaviour in question have not been formed, the model suggests that there are three primary determinants of intention: the attitude toward performing the behaviour (i.e. the person's overall feelings of favourableness or unfavourableness toward performing the behaviour), perceived norms concerning performance of the behaviour (including both perceptions of what others think one should do as well as perceptions of what others are doing), and one's self-efficacy with respect to performing the behviour (i.e. one's belief that one can perform the behaviour even under a number of difficult circumstances). As indicated above, it is important to recognize that the relative importance of these three psychosocial variables as determinants of intention will depend upon both the behaviour and the population being considered. Thus for example, one behaviour may be primarily determined by attitudinal considerations, while another may be primarily influenced by feelings of self-efficacy. Similarly, a behaviour that is attitudinally driven in one population or culture may be normatively driven in another. Thus, before developing interventions to change intentions, it is important to first determine the degree to which that intention is under attitudinal, normative or self-efficacy control in the population in question. Once again, it should be clear that very different interventions are needed for attitudinally controlled behaviours than for behaviours that are under normative influence or are strongly related to feelings of self-efficacy. Clearly, one size does not fit all and interventions that are successful in one culture or population may be a complete failure in another.

The model in Figure 1 also recognizes that attitudes, perceived norms and self-efficacy are all, themselves, functions of underlying beliefs—about the outcomes of performing the behaviour in question, about the normative proscriptions and/or behaviours of specific

referents and about specific barriers to behavioural performance. Thus, for example, the more one believes that performing the behaviour in question will lead to 'good' outcomes and prevent 'bad' outcomes, the more favourable one's attitude toward performing the behaviour. Similarly, the more one believes that specific others think one should (or should not) perform the behaviour in question, and the more one is motivated to comply with those specific others, the more social pressure one will feel (or the stronger the subjective norm) with respect to performing (or not performing) the behaviour. Finally, the more one perceives that one can (i.e. has the necessary skills and abilities to) perform the behaviour, even in the face of specific barriers or obstacles, the stronger will be one's self-efficacy with respect to performing the behaviour.

It is at this level that the substantive uniqueness of each behaviour comes into play. For example, the barriers to using and/or the outcomes (or consequences) of using a condom for vaginal sex with one's spouse or main partner may be very different form those associated with using a condom for vaginal sex with a commercial sex worker or an occasional partner. Yet it is these specific beliefs that must be addressed in an intervention if one wishes to change intentions and behaviour. And although an investigator can sit in her or his office and develop measures of attitudes, perceived norms and self-efficacy, she or he cannot tell you what a given population (or a given person) believes about performing a given behaviour. Thus one must go to members of that population to identify salient outcome, normative and efficacy beliefs. One must understand the behaviour from the perspective of the population one is considering.

Finally, Figure 1 also shows the role played by more traditional demographic, personality, attitudinal and other individual difference variables (such as perceived risk). According to the model, these types of variable play primarily an indirect role in influencing behaviour, For example, while men and women may hold different beliefs about performing some behaviours, they may hold very similar beliefs with respect to others. Similarly rich and poor, old and young, those from developing and developed countries, those who do and do not perceive they are at risk for a given illness, those with favourable and unfavourable attitudes toward family planning, etc. may hold different attitudinal, normative or self-efficacy beliefs with respect to one behaviour but may hold similar beliefs with respect to another. Thus, there is no necessary relation between these 'external' or 'background' variables and any given behaviour. Nevertheless, external variables such as cultural differences and differences in a wide range of values should be reflected in the underlying belief structure.

This model represented by Figure 1 has now served as the theoretical underpinning for two large multi-site studies supported by the US Centers for Disease Control and Prevention (CDC). The first, known as the AIDS Community Demonstration Projects (CDC, 1996; CDC AIDS Community Demonstration Projects Research Group, 1999; Fishbein *et al.*, 1996a; Higgins *et al.*, 1997), attempted to reach members of populations at risk for STDs/HIV that were unlikely to come into contact with the health department. The second, known as Project RESPECT, was a multi-site randomized controlled trial designed to evaluate the effectiveness of STDs/HIV counselling and testing (Kamb *et al.*, 1996; 1998). Project RESPECT asked whether prevention counselling or enhanced prevention counselling were more effective in increasing condom use and reducing incident STDs than standard education.

Although based on the same theoretical model, these two interventions were logistically very different. In one, the intervention was delivered 'in the street' by volunteer networks recruited from the community. In the other, the intervention was delivered one-on-one by trained counsellors in an STD clinic. Thus one involved community participation and mobilization while the other involved working within established public health settings. In

addition, one was evaluated using the community as the unit of analysis while the other looked for behaviour change at the individual level.

Despite these logistic differences, both interventions produced highly significant behavioural change. In addition, in the clinic setting (where it was feasible to obtain biologic outcome measures), the intervention also produced a significant reduction in incident STDs. I would argue that the success of these two interventions is largely due to their reliance on established behavioural principles. More important, it appears that theory-based approaches that are tailored to specific populations and behaviours can be effective in different cultures and communities.

And at this point I would like to suggest that community participation and community mobilization are not 'theories of behavioural change', but instead are best viewed as strategies for change—while we do need theories to help us understand how to mobilize communities and get increased participation, these types of theory are very different to theories of behavioural prediction and behaviour change. More specifically, these types of theory do not help us identify the determinants of behaviour or behaviour change. Indeed, I think it's now safe to say that by helping us identify the determinants of specific behaviours, our current theories of behaviour and behaviour change have given us the tools we need to change behaviour. I believe that we really do know how to change behaviour, and I would argue that we really don't need 'new' theories of behaviour and behaviour change. What we do need, however, is for investigators and interventionists to better understand and correctly utilize existing, empirically supported behavioural theories in developing and evaluating behaviour change interventions.

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