ADOLESCENT REPRODUCTIVE HEALTH IN LATIN AMERICA AMONG LOW-INCOME GROUPS

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1 - Introduction

Commitment to the health and development of adolescents has come a long way in recent years. It has become increasingly clear that what happens in the formative years of adolescence will be crucial to the rest of their youth, will impact their health and their future personal, economic and social development, and furthermore it will affect the next generation of children (their offspring).

Despite the fact that adolescent reproductive health has become a research priority, the field is still new and challenging. Current scientific knowledge on adolescent sexual and reproductive health is patchy in the developed world and almost non existent in less developed countries. Several factors have contributed to the scanty evidence on the topic of adolescent reproductive health. Among them: lack of available data on adolescent reproductive and sexual health; little exploitation of existing sources that could improve our understanding of young populations; lack of scientific rigour, which may lead to unreliable or biased conclusions; and no or narrow theoretical or conceptual focus (i.e. medical or social) which miss the broader dimensions of sexual behaviour and may result in inadequate policies.

Field experiences in programmes to improve adolescent sexual and reproductive health have not been fruitful. The only conclusion that can be drawn from the current evidence is the desire, from NGO's and government actions, to improve adolescents health and well-being, but they do not know how to achieve these goals. Most of their strategies are not substantiated by scientific evaluations, and their actions are more like blind trials (*dar palos a ciegas*), hoping that their strategies and efforts are on the right track. To resolve these problems, I would propose a cooperative approach of scientists and field partners, in order to arrive at the best strategy of action to improve the sexual and reproductive health and well-being of adolescents.

The objective of this paper is to incorporate into the study of adolescent reproductive health different inputs from various disciplines and perspectives. These include analytical, theoretical, and research findings. This document is divided in five sections. Following this introduction, I present what we know about adolescents reproductive health in Latin America through a descriptive analysis of the information available. Sexual and reproductive health behaviour is hindered by the lack of theories. The third part presents what we know about theories of social psychology specially developed to understand sexual practices and risk related behaviour among adolescents. In the fourth section, the optimal research strategy and actions to promote sexual and reproductive health is illustrated with a case study from Brazil. The investigation presented incorporates one of the theories mentioned in the previous section. In the final section, some concluding remarks on how to increase knowledge and reduce the sexual and reproductive health risks of adolescents are presented.

2 – Adolescent reproductive health in Latin America

In Latin America, sexual activity, pregnancy and childbearing among young people is not a new phenomenon. Cultural norms have traditionally encouraged early entry into marriage and reproduction. It was not until the 1960s and 1970s that the concept of smaller families became widespread and consequently neither early marriage nor reproduction was promoted after that time. However, estimates for the period between the 1970s and the 1990s indicate that age at marriage has only been slightly increased, around 1 year during the 20 years (Rosero-Bixby, 1996; UN,

1990). Age at first birth has remained relatively constant but changes in reproduction have occurred at older ages (Juarez and Llera, 1996). Though, one can argue that in Latin America the interlude from childhood to adulthood has only slightly lengthened, what is important is that the social context of early reproduction behaviour has changed remarkably mainly due to the AIDS pandemic[1] and the breaking of traditional norms, which encourage celibacy for girls until marriage, resulting in an increasing tendency for premarital sexual activity in a context where young people (compared to adults) are often less knowledgeable about the means of avoiding unwanted sexual outcomes such as pregnancy or STDs/AIDS.

2.1 - HIV/AIDS in Latin America

The advent of AIDS has given a sense of urgency to improving our understanding of sexual and reproductive behaviour; in particular for the young population. It is estimated that in 1997 approximately 30 million individuals were living with HIV/AIDS (UNAIDS, 1998). About half of all HIV infection affect individuals under 25 years (WHO, 1989), around 50% of HIV infected people progress to AIDS within 10-12 years of initial infection, and death occurs within 2 years of AIDS diagnosis (Mindel and Tenant-Flower, 1997). In more than 75% of cases the transmission is heterosexual, around 7% homosexual, 7% through injecting drug use and 4% blood transfusions (UNAIDS, 1998).

In Latin America, 1.7 million people had been diagnosed as living with HIV/AIDS (UNAIDS, 1998) by the end of 1997. At present, Brazil occupies the 9th place worldwide, and the first place in Latin America for the number diagnosed HIV/AIDS cases. This country accounts for 75% of all reported AIDS cases in the region. Incidence of HIV/AIDS (i.e. rate of new infected cases) is biggest in Brazil, followed by Haiti and Mexico (in absolute numbers, Mexico has the second place).

The trend of HIV infection in Latin America is rising and most infection occurs among young people, mainly among males but rapidly expanding to females, with most of the transmission heterosexual. To illustrate this we will look at the case of Brazil. Figures 1 and 2 (Brazil, Ministry of Health, 1997) present the total number of AIDS cases by

1. The first recognised cases of Acquired Immune Deficiency Syndrome (AIDS) were reported in 1981.

Figure 1
Total number of AIDS cases by sexual category. Brazil, 1984-1994

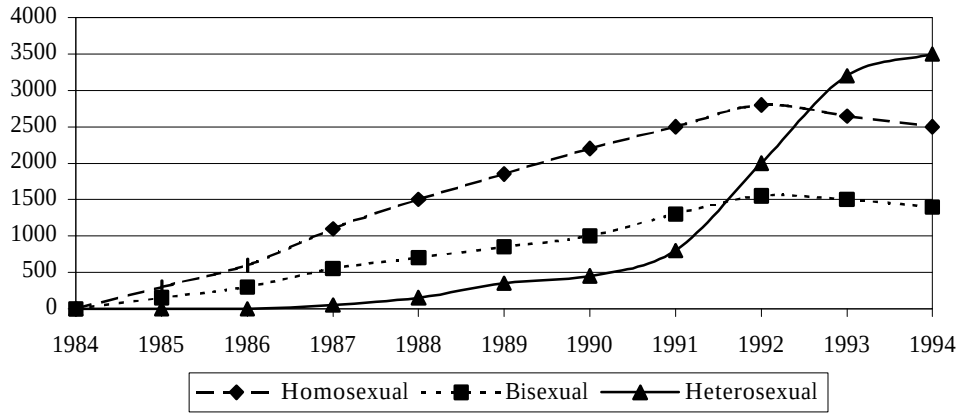
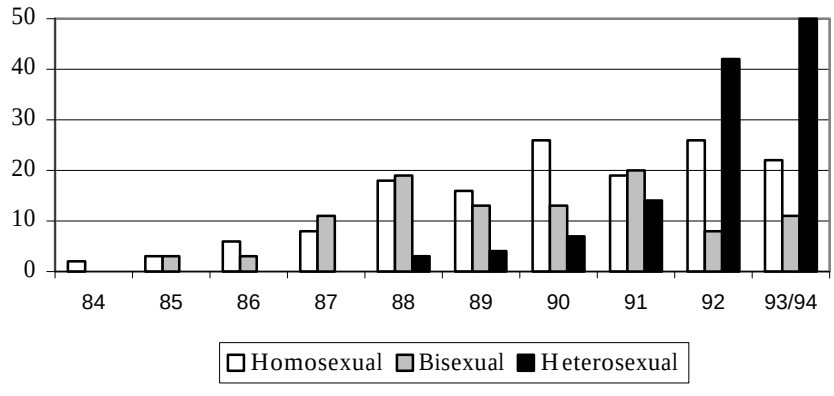


Figure 2
Cases of AIDS among adolescents (13-19)
by sexual category. Brazil, 1984-1994



sexual category, for Brazil as a whole and for young adolescents ages 13-19 years.

From the Brazilian data for 1984 to 1994, it can be observed that initially the homosexual and bisexual groups had the highest incidence (Fig. 1), but over time this changed to the heterosexual group. The same pattern can be observed among adolescents (Fig. 2). Over the last past 5 years, cases among women have increased 6 times. In the mid-1980s, men were 15 times more likely than women to be infected, compared to only 4 times more likely in 1997 (Brazil, Ministry of Health, 1997).

2.2 – Sexual activity among young people in Latin America

A slow continuous change of values, attitudes and behaviours have been occurring in the Latin American countries. They have moved from a traditional society that placed sexual activity within marriage to one where premarital sex is silently hidden and accepted - particularly if the boyfriend is expected to marry the young girl. However, gender roles continue to vary by country and social group, they continue to be polarised and conflicting, and in the open discourse, women are expected to be virgins whilst men are expected to be sexually experienced.

The post-1968 period marked the sexual revolution in America (the Peace and Love Era); for Latin America, the decade of the 1970s marked the breaking point of traditional sexual behaviour. New reproductive and sexual patterns have emerged, and continue to do so, among the young, the single and the married. These changes in reproductive and sexual patterns go hand in hand with an increase in women's education, autonomy, labour force participation and with the contraceptive revolution (Castro and Juarez, 1995; Garcia and Oliveira, 1998; Juarez *et al.*, 1996).

In Latin America, the problems faced by adolescents engaging in premarital sexual activity are quite different to those faced by adult couples:

- sex occurs at an age where the phase of development has not been completed and where future sexual behaviours are established;
- sex is more occasional and opportunistic;
- the logistics of finding a setting for sexual activity is complicated and opportunistic. Usually, adolescents live with their parents until they are married, and settings reported by young people for their sexual experiences include at the girlfriend's house when her parents are absent.

The potential sexual and reproductive health risks that face young group are unwanted pregnancies (and unsafe abortions) and STDs/AIDS which have huge consequences from social, economic and psychological perspectives. Moreover, the vulnerability of adolescents and youth in the area of sexual and reproductive health is increased because of deficiencies in the channels of sexual education and the coverage of health and family planning services which usually exclude unmarried young people and, even when they are available, do not provide the environment required by the adolescents (Juarez and Castro, 1997).

A portrait of the sexual and reproductive health of the adolescents in Latin America can be obtained by using data sources of World Fertility Survey (WFS), the Demographic and Health Surveys (DHS), and the Young Adult Reproductive Health Surveys (YARHS, coordinated by the Center for Disease Control-CDC). The YARHS are of great value because they were specially designed to study young people's reproductive health, and also because they collected information for both males and females, which is seldom done. They were collected between 1985 and 1992, and represent the most recent available information on the topic for the region. Juarez and Castro (1997) have compiled estimates from these sources WFS, DHS and YARHS and a summary of their findings are presented next.

Table 1 presents various indicators of sexual, nuptial and childbearing experience among young women from the DHS. The proportion of women with premarital sexual experience by age 20 varies from country to country, ranging from 11% in Mexico to 33% in Paraguay. These levels can be considered as the minimum prevalence as underreporting is expected by women due to the traditional double standards which censors sex outside marriage in Latin America. Entry into marriage by age 18 is relatively high, ranging between one-fifth in Peru to two-fifths in Guatemala, and many of the unions are consensually formed. Regarding early childbearing experience, about a third of the Latin American women have had a birth by age 20. And the proportion of unwanted or mistimed births among women 15-19 is extremely large, around 4 out of 10 for married females and 6 out of 10 for unmarried females. These estimates can be considered underreported because motherhood is socially valued in the region, and consequently it may be difficult for adolescent women to report that their recent birth was unwanted or unplanned.

Table 1
Various indicators of sexual, nuptial and childbearing experience among young women, DHS-1

Country	Survey Year	% of women 20-24 with pre-marital sexual experience by age 20	% of women 20-24 married by age 18	% of women 20-24 married by age 20	% of married women 15-24 in consensual unions	% of women 20-24 who gave birth by age 18	% of women 20-24 who gave birth by age 20	Of women who gave birth, % women with premarital birth		% of never married women who had a child		% of unwanted or mistimed births among women 15-19 who had a birth in last 5 years	
								15-19	20-24	15-19	20-24	All	Unmarried
Bolivia	1989	32	24	41	38	19	37	29	22	4	14	36	55
Brazil	1986	21	22	39	23	15	31	17	16	2	9	49	79 [a]
Colombia	1990	22	22	37	60	14	31	24	22	3	14	44	71
Dom. Rep.	1991	12	30	47	75	17	33	7	6	1	4	39	39 [a]
Ecuador	1987	19	26	44	43	16	35	12	14	1	8	21	42 [a]
El Salvador	1985	-	38	59	71	-	-	-	-	2		-	-
Guatemala	1987	15	41	60	48	28	50	12	9	2	7	17	37 [a]
Mexico	1987	11	28	44	24	19	35	10	9	1	3	33	88 [a]
Paraguay	1990	33	24	40	36	16	37	34	25	5	21	21	37
Peru	1992	27	18	31	57	12	27	22	20	2	7	57	70

a. Values based on 10-25 cases.

Sources: Juarez and Castro (1997); Bongaarts and Cohen (1998).

Table 2
Various indicators of young women's and men's sexual and reproductive behaviour, YARHS

Country	City	Survey date	% reporting pre-marital sex		% first births pre-maritally conceived (ever-married)	% first pregnancy reported unintended (unmarried)	% used contraception at first sexual relation (ever sexually active)		% currently using contraception (sexually active unmarried)		% received sex education in school		% knows fertile period	
			Fem. 15-19	Males 15-19	Fem. 15-24	Fem. 15-24	Fem. 15-24	Males 15-24	Fem. 15-24	Males 15-24	Fem. 15-24	Males 15-24	Fem. 15-24	Males 15-24
Brazil	Recife	1989	16	69	52	47	22	23	73	58	62	49	20	18
	Salvador	1987	20	73	53	59	23	20	67	65	45	38	17	25
	Rio de Jan.	1989	28	73	49	58	32	22	78	56	50	41	24	24
	Sao Paulo	1988	27	73	45	57	32	22	75	82	48	46	18	16
	Curitiba	1989	24	56	39	46	27	24	80	66	67	60	30	20
Chile	Santiago	1988	19	48	63	46	20	19	65	66	76		27	24
Costa Rica		1991	22	42	36	57	22	33	57	53				
Dom. Rep.		1992	15	48									16	21
Ecuador	Quito	1988	12	59	35	76	8	14	64	64	70	71	17	26
	Guayaquil	1988	18	64	25	76	13	14	64	64	64	26	17	16
Guatemala	Guatem.City	1986	12	65	42		10	15		40	46	60	24	18
Jamaica		1985	55	78		77	41	11	69	68	80	59	19	21
Mexico	Mexico City	1985	13	44	31	50	22	31	75	82	78	73	26	24

Source: Juarez and Castro, 1997.

Table 2 presents various indicators of young women's and men's sexual and reproductive behaviour from YARHS. Premarital sexual activity is not uncommon, the levels vary by country. The most striking contrast are the differences by sex: 69% of young males from Recife (Brazil) reported having had sex before marriage, while only 16% of women reported having had sex before marriage. From the Latin American region, Quito (Ecuador) reports the lower sexual activity, but similarly the sex differential are extremely large: 59% of young males reported premarital sex while only 12% of women reported having had sex before marriage. These values reflect the cultural norms that sexual experimentation is approved for men and restricted for females. Most births occur within marriage, but there is a growing trend of out-of-wedlock births and also a larger number of single mothers, who in the past would have ended up marrying (shot gun marriages), do not do so now.

The data presented from the surveys, have been useful in drawing a profile of the sexual activity among young people in Latin America. However, further data need to be collected for adolescents sexual and reproductive health to know the current patterns and levels and to understand the determinants of reproductive health risk.

3 – Theories developed to understand sexual and reproductive health behaviour

As we have seen in previous sections, the reproductive health of adolescents has recently become a major focus of research for those in the health and population field. This is partly due to the effect of the AIDS pandemic, and partly due to the impact of the 1994 Cairo Conference and its Programme of Action which drew the attention of the international community to the fact that reproductive health issues in general, and for adolescents are a priority, both in terms of research funding and programme formulation.

Since 1994, many population scientists have directed efforts to advance knowledge in reproductive health. An example of this is the various sessions organized on adolescent reproductive health in national and international conferences, but my impression is that researchers have used a narrow perspective. Though sexual and reproductive health behaviour appears as a new field to the population scientist, social psychology has been researching into this topic for decades, developing theories

and advancing the understanding of sexual behaviour and reproductive health. To guide population scientists, this section presents a summary of the most significant theories for the identification of socio-cognitive determinants relevant to the practice of safer sex. These theories emerge from a social theory (or socio-cognitive), where sexual activity is considered a volitional behaviour.

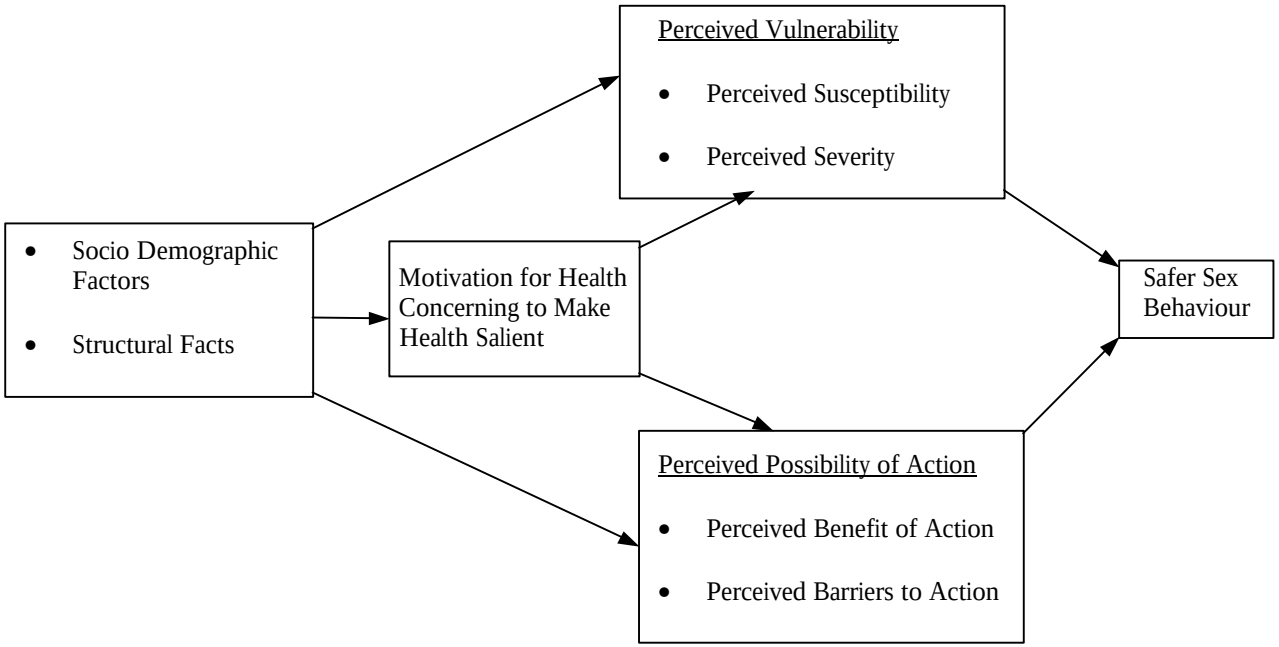
3.1 – The Health Belief Model

In 1950, there emerged from the United States Public Health Service a theoretical framework based on social theory to help understand behavioural patterns (Mullen *et al.*, 1987; Rosenstock, 1966; Rosenstock, 1974). This approach has been frequently applied to study health behaviour, including sexual health and is known as the Health Belief Model (HBM). From its original conceptualization, variations to the model have proliferated, usually resulting in more detailed models (refer to Rosenstock, 1988). Theories and frameworks have also been derived from the HBM. The most important theoretical approaches used are: the Social Learning Theory (Bandura, 1977*a*, 1977*b*), later re-named as Social Cognitive Theory, the Theory of Reasoned Action (Fishbein and Ajzen, 1975), the Theory of Planned Behaviour (Ajzen and Madden, 1986), and more recently, the Interactional Framework (Van Campenhoudt *et al.*, 1997; Ingham and Van Zessen, 1997).

According to cognitive theories, which the Health Belief Model (HBM) forms part of, the roles of subjective rationales for health-related behaviour are a function of the subjective values of an outcome, and of the subjective expectations that a particular action will achieve that outcome. In its original formulation, the HBM hypothesized that health related actions depend upon the simultaneous occurrence of three classes of components: 1) the existence of sufficient motivation to make health salient; 2) the belief of a perceived threat to health; and 3) the belief that following a particular health recommendation would be beneficial in reducing the perceived threat (Rosenstock, 1966; Rosenstock, 1974; Becker, 1974; Rosenstock *et al.*, 1988). The relationship between these components and behaviour is held to be mediated by demographic, structural and enabling factors.

These hypotheses in the HBM are operationalized by four explanatory factors (presented in parenthesis is an illustration of factors related to the success of safer sex practices to prevent AIDS):

Figure 3
Traditional Health Belief Model



- *perceived susceptibility* of an individual to the health risk (one's perception of the possibility that unprotected sex would lead to AIDS);
- *perceived severity* of the illness if it is contracted (if AIDS is contracted, the likelihood of dying);
- *perceived benefits* of strategies for preventing the illness (condom use prevents AIDS);
- *perceived barriers* to effective action (sex with condoms is not pleasurable, condoms are too expensive...).

When it has been applied the predicted power of HBM for explaining sexual health risk has been inconsistent. The HBM has been criticised because of its inherent conceptual problems (Janz and Becker, 1984; Vanlandingham, 1993; Rosenstock *et al.*, 1988). Some of the most serious are: the failure to consider adequately the bases of variation in an individual's ability both to evaluate the potential consequences of behaviour and to utilize these evaluations; the cost-benefit perspectives may be ill-suited for explaining adolescent sexual behaviour, as age-related influences are ignored; one important social factor not incorporated in the model is the influence of peer groups, which may be an important factor in understanding the sexual behaviour of adolescents.

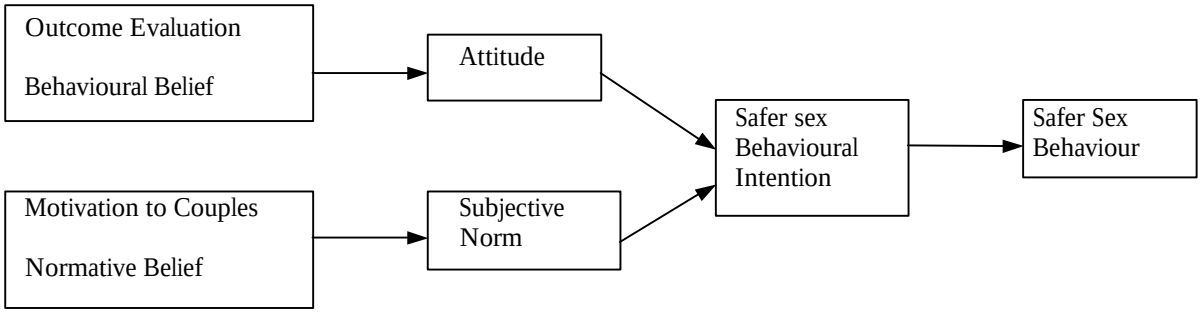
3.2 – The Theory of Reasoned Action

The Theory of Reasoned Action (TRA) was first developed by Ajzen and Fishbein in 1973. It considers that human beings are usually rational in making their decisions and in engaging in a given behaviour, and will therefore act in accordance with their preferences. Intention is a determinant of behaviour, and actions that are not intentional (not under volitional control) will be outside the scope of TRA. The theory recognises two determinants of intentions: the personal attitudes affecting the behaviour, and the influence of social pressure in performing or not performing a behaviour.

TRA may be used to study the individuals' intentions to safe sex (Vanlandingham *et al.*, 1995).

Attitudes would reflect the individuals' beliefs about their evaluation of condom use during sexual intercourse. And it is represented by a weighted relationship between:
- *behavioural belief* that condom use will result in a certain outcome (condom use will reduce the risk of AIDS);

Figure 4
Theory of Reasoned Action



Source: Ajzen and Fishbein, 1973.

- and the *outcome evaluation* of how pleasant or unpleasant the effect of AIDS would be as a consequence of non-compliance with condom use (if AIDS is contracted, the likelihood of dying).

Subjective Norms is an expression of the individual's subjective judgement of the external pressure to perform or not and to comply or not with a behaviour:
- the person's *normative beliefs*, i.e. beliefs that specific individuals or groups think he or she should (or should not) perform the behaviour (my friends think that using condom is vital for protection of AIDS);
- and the *motivation to comply* with the behavioural expectations and norms of key social figures in their life (the cost of non compliance with condom use with their friendship groups).

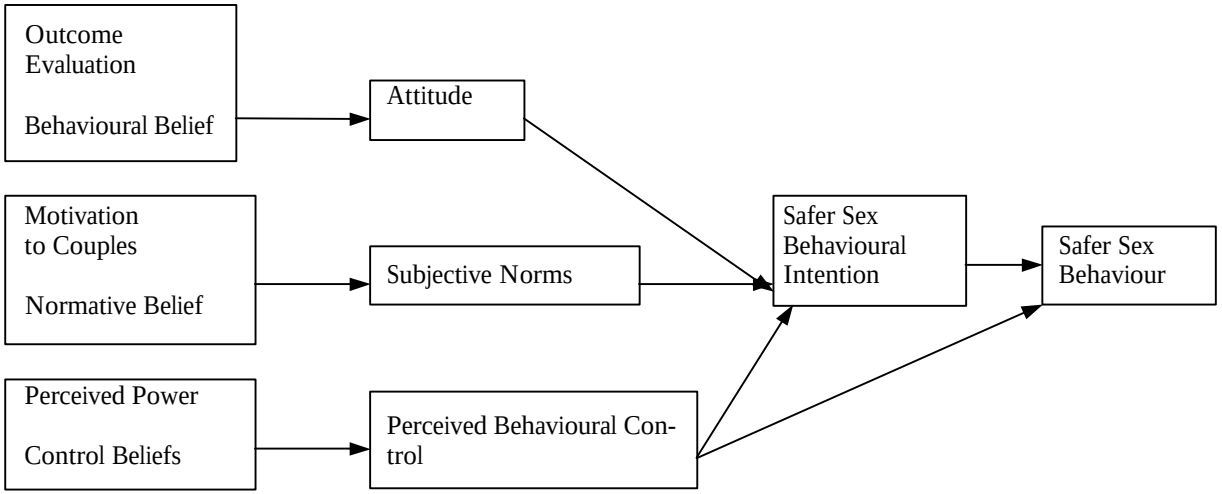
3.3 – The Theory of Planned Behaviour

The authors of the TRA, modified it to include perceived behavioural control and named this modified version, the Theory of Planned Behaviour (TPB). According to the TPB, intentions have three determinants: attitude, subjective norms, and perceived behavioural control. Attitudes and subjective norms remain as defined as in the TRA.

Perceived behavioural control refers to the beliefs about the degree of control of the behaviour. It is a weighted relationship between the control belief and the perceived power:
- *control belief* describes the person's perceived obstacles and opportunities for performing specific behaviour (in the study of safe sex, this will refer to access to the necessary skills and resources required to use a condom successfully during sex - if they do not know how to use a condom, they will be less motivated to use it);
- and *perceived power* refers to the person's perceived degree of control over the behaviour (whether to facilitate or inhibit condom use).

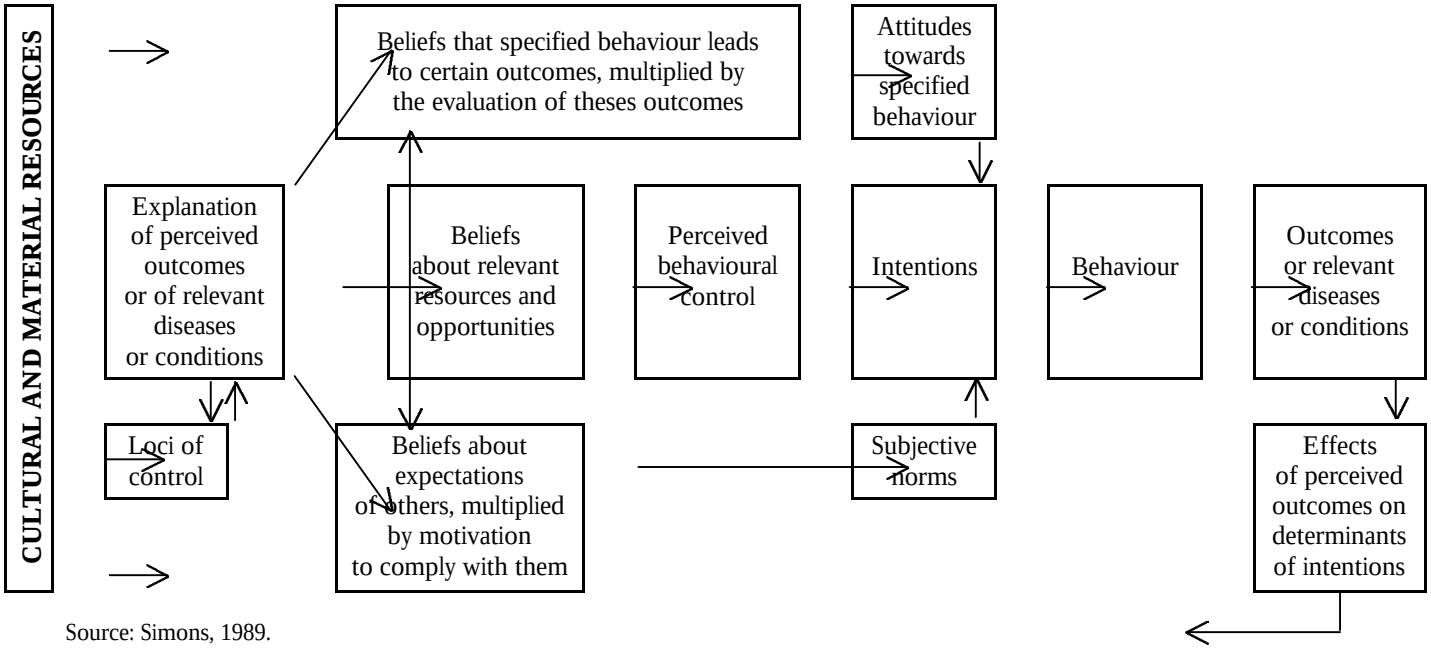
In the TPB, perceived behavioural control influences intentions and also has a direct influence upon behaviour (Ajzen and Madden, 1986). The notion of perceived behavioural control is a close concept to the self-efficacy that Bandura (1977*a*, 1977*b*) derived from the social learning theory.

Figure 5
Theory of Planned Behaviour



Source: Ajzen and Madden, 1986.

Figure 6
Eclectic approach based on Ajzen's (1988) Planning Behaviour Model
but incorporating other components of subjective rationales



Source: Simons, 1989.

3.4 – An eclectic approach, the Planned Behavioural Theory incorporating components of subjective rationales

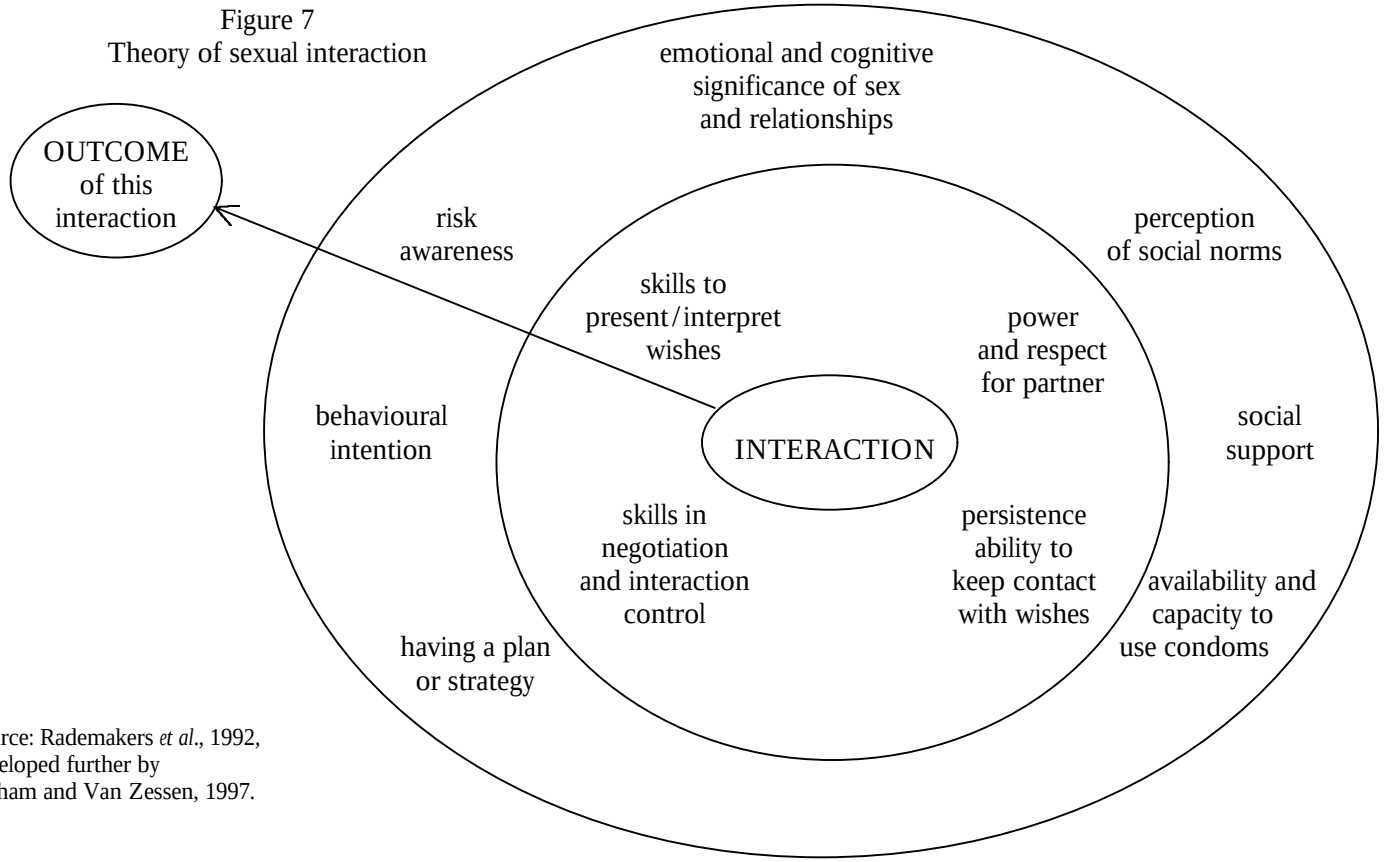
John Simons (1989) states that theories and models overlap in some components, for example, health beliefs with locus of causality. He proposes an eclectic approach which incorporates several of the above mentioned theories and others not described here. Figure 6 presents the main relationships of the components. In it, the Health Belief Model is subsumed by the Planned Behaviour Theory. Provision is made for relationship between the components of the PBT: loci of control and explanation of outcomes, and for feedback effects from outcome to determinants of intentions.

The locus of control refers to the degree of control people perceive they have over events in their lives. While a person with an internal locus of control perceives that events are a consequence of his or her own behaviour, a person with an external locus of control feels that events are beyond his or her own control and are determined by fate, chance or powerful others (Rotter, 1996). In addition, people's own explanations of the events in their lives have been shown to be valuable for understanding behaviour (Kelley, 1973). Whatever the individual's explanation, it is likely to be manifested in beliefs about outcomes and the expectations of others. For example, the way a person explains or interprets the cause of a particular illness (locus of causality) can influence the way he/she will cope with the disease and the way they will follow to proposed treatment or preventive measure. Finally, subjective rationales are powerfully influenced by cultural and material resources. For example, where a community's value orientations emphasize submission to Divine will, this is likely to be evident in typical explanations of disease. In many settings, the impact of poverty and other material constraints on perceived behavioral control will be by far the most important determinant of intentions and behaviour.

3.5 – The Theory of Interaction

An alternative approach developed by Rademakers *et al.* (1992) and developed further by R. Ingham and G. Van Zessen (1997) proposes to minimize the role of social dimension and to incorporate the interactional process. They argue that in the study of sexual behaviour, the object of interest is not the individual decision-making but the interaction itself.

Figure 7
Theory of sexual interaction



Source: Rademakers *et al*., 1992, developed further by Ingham and Van Zessen, 1997.

From this position, other aspects need to be considered in order to arrive at a complete explanation of the course of events. Since individuals enter interactions with all kinds of expectations, plans desire, capacities and histories, these need to be taken fully into account to the extent that they affect the course of the interaction. Two layers are distinguished based on the proximity of the factors to the event themselves.

As seen graphically, the centre (the arena) is the interaction. The focus of interest is any event described as occurring during the interaction that has any relevance whatsoever to the outcome of interest (safer sex): skill in negotiation, interpretation of wishes, the temporal context, the type of relationship... The outer layer contains factors that are relevant: risk awareness, behavioural intentions... While the interaction is central, individuals' characteristics, and the effect of wider society also play a part in the approach. The interactional perspective can be seen as non-hierarchical, i.e. as a system of reciprocal determination among macro processes and institutions, social network and dyads, down to the level of the individual.

4 – Theories, findings and interventions. The ideal strategy: The case study of Brazil

In this section, we will present some interesting research findings based on a social cognitive theory, and which have led to a rigorously evaluated intervention.

A recent study has been conducted to study the motivational determinants of pregnancy among teenage women in the shanty towns of Recife (Marques, 1995).

The studied population is teenagers of low income groups (*favelas*): virgin, non-virgin without a child, and non-virgin with a child. The theoretical approach followed is that proposed by John Simons (see previous section). The study incorporates some interesting factors such as: locus of control and self-esteem, attitudes toward childbearing as proposed by Ajzen (derived from outcome evaluation and behavioural belief), expectations of others' approval of childbearing (derived from normative beliefs and motivation to comply).

It is not surprising that the socio-economic statuses are not predictors of behaviour, i.e. being virgin or not, or being a single mother, as the studied girls belong to the same social stratum (*favelas*), with similar family

background and orientations (disruptive families). Findings indicate that what seems to make a difference in future behaviour (sexual activity and pregnancy out-of-wedlock) is self-esteem. Sexually active young women - among whom the use of contraception is rare - are much more likely than virgins to cite the need for love and intimacy as an explanation of sexual relationships and pregnancy among adolescents. Other studies support the view that young men have a different orientation. They are much more likely than young women to have multiple partners, to view sexual relationships as transitory and to feel they have no responsibility for an ensuing pregnancy (Juarez and Simons, 1997; CDC, 1991).

Clearly there is a need to find ways of increasing the proportion of adolescent men who use contraceptives, and that is the need addressed by a project currently being developed by F. Juarez. It is unusual in that it focuses on men, and also in its concern to measure the impact of the proposed intervention on contraceptive behaviour. The importance of the latter issue is evident from a recent review (Peersman *et al.*, 1996) of the effectiveness of "sexual health promotion interventions" for young people. This identified 122 reports of attempts to measure the impact of an intervention. Of these 122, only 21 were judged to be of sufficient methodological strength to allow any conclusions to be drawn about their effectiveness. Of these 21, only 4 found the intervention appeared to be effective in changing young people's reported behaviour. The overall message of the review is that most assumptions about the interventions likely to change behaviour - the assumptions on which policy is typically based - are either not based on evidence or have been shown to be false.

The intervention in Recife incorporates the main elements of successful interventions of adolescents and those in the field of HIV prevention: participation of adolescents at all stages of the intervention, skills training with information and practical resources to target knowledge and behavioural outcomes (Brandrup-Lukanow *et al.*, 1991; Oakley *et al.*, 1993 and 1995). It is a peer-led intervention which follows an "outreach strategy" and contains a very strong evaluative component (a control and an intervention area, and baseline and follow-up surveys).

5 – Concluding remarks

Much can be done to further our learning of adolescent sexual and reproductive health. Several aspects have been identified as key in the

advancement of the field of adolescents. New survey data, both for males and females, are required to be collected. Theories from the field of psychology have been shown to be useful in advancing the understanding of sexual behaviour and identifying safer sex determinants. Future research will benefit from incorporating these sound theoretical frameworks. As sexual behaviour is established during this phase of development, educational and health intervention programmes should be targeted before first sexual experience. Mapping the ways in which individuals develop competence is essential to enable the design of suitable and appropriate interventions. Moreover, to achieve the optimal strategy for programmes to improve adolescents' sexual and reproductive health, a partnership between scientists and those in the field of action (NGOs, government departments) needs to be developed.

References

AJZEN, I., and FISHBEIN, M. (1973), "Attitudinal and Normative Variables as Predictors of Specific Behaviour", *Journal of Personality and Social Psychology*, vol. 27, pp. 41-57.

AJZEN, I., and MADDEN, T. J. (1986), "Prediction of Goal-Directed Behaviour: Attitudes, Intentions and Perceived Behavioural Control", *Journal of Experimental Social Psychology*, vol. 67, pp. 371-378.

BANDURA, A. (1977*a*), *Social Learning Theory*, Englewood Cliffs, NJ, Prentice Hall.

BANDURA, A. (1977*b*), "Self-Efficacy: Toward a Unifying Theory of Behavioural Change", *Psychological Review*, vol. 84, pp. 191-215.

BECKER, M. H., ed. (1974), "The Health Belief Model and Personal Health Behaviour", *Health Education Monographs*, vol. 2, pp. 324-473.

BONGAARTS, J., and COHEN, B., eds. (1998), "Adolescent Reproductive Behaviour in the Developing World", *Studies in Family Planning*, Special issue based on a National Academy of Sciences Workshop, vol. 29, no. 2, June.

BRANDRUP-LUKANOW, A., MANSOUR, S., and HAWKINS, K., eds. (1991), *Adolescent Sexuality and Reproductive Health*, IPPF/CIE/GTZ, Report of the workshop CIE, Paris, July.

BRAZIL, MINISTRY OF HEALTH (1997), *Programa Estadual DST/AIDS-PE*, DIEPI/DIEVIS/FUSAM, Brazil.

CASTRO, T., and JUAREZ, F. (1995), "Women's Education and Fertility in Latin America", *International Family Planning Perspectives*, vol. 21, no. 2, June.

CDC (1991), *Pesquisa sobre saude reproductiva e sexualidade do joven. Rio de Janeiro, Curitiba e Recife, 1989-1990*, BEMFAM, Brazil.

FISHBEIN, M., and AJZEN, I. (1975), *Belief, Attitude, Intention and Behaviour: An Introduction to Theory and Research*, Reading, MA, Addison-Wesley.

GARCIA, B., and OLIVEIRA, O. (1998), *Trabajo Femenino y Vida Familiar en Mexico*, El Colegio de Mexico, Mexico.

INGHAM, R., and VAN ZESSEN, G. (1997), "From Individual Properties to Interactional Processes", in: L. Van Campenhoudt, M. Cohen, G. Guizzaradi *et al.*, eds., *Sexual Interactions and HIV Risk*, Taylor and Francis, London.

JANZ, N. K., and BECKER, M. H. (1984), "The Health Belief Model: A Decade Later", *Health Education Quarterly*, vol. 11.

JUAREZ, F., and CASTRO, T. (1997), "Reproductive Health in Latin America: Are All Adolescents High-Risk Takers?", paper presented at the Annual Meeting of the Population Association of America, March 27-29, Washington, D.C.

JUAREZ, F., and LLERA, S. (1996), "The Process of Family Formation during the Fertility Transition", in: J. M. Guzman, S. Singh, G. Rodriguez and E. Pantelides, eds., *The Latin American Fertility Transition*, Claridon Press, Oxford.

JUAREZ, F., and SIMONS, J. (1997), *Report of the Feasibility of a Study of the Impact of a Private-Sector Social Marketing Programme on Contraceptive Use Among Adolescent Men in Recife, Brazil*, Report to the Centre for Population Studies, London School of Hygiene and Tropical Medicine/Department of International Development.

JUAREZ, F., QUILODRÁN, J., and COSIO, M. E. (1996), *New Reproductive Patterns in Mexico*, Centre of Demographic Studies and Urban Planning, El Colegio de Mexico, Mexico.

KELLEY, H. H. (1973), "The Processes of Causal Attributions", *American Psychologist*, vol. 28.

MARQUES, N. (1995), *Motivational Determinants of Teenage Pregnancy in Recife, Brazil*, Ph.D. Thesis, Centre for Population Studies, Department of Epidemiology and Population Sciences, London School of Hygiene and Tropical Medicine.

MINDEL, A., and TENANT-FLOWER, M. (1997), "Natural History of Management of Early HIV Infection", in: M. Adler, ed., *ABC of AIDS*, British Medical Journal Publishing Group, U.K.

MULLEN, P. D., HERSEY, J. C., and IVERSON, D. C. (1987), "Health Belief Models Compared", *Social Science and Medicine*, vol. 24, no. 11.

OAKLEY, A., FULLERTON, D., HOLLAND, J., *et al.* (1993), *Number I Reviews of Effectiveness: HIV Prevention and Sexual Health Education Interven-*

tions, Social Science Research Unit, Institute of Education, University of London, London.

OAKLEY, A., FULLERTON, D., HOLLAND, J., *et al.* (1995), "Sexual Health Education Interventions for Young People: A Methodological Review", *British Medical Journal*, vol. 310, pp. 158-162.

PEERSMAN, G., OAKLEY, A., OLIVER, S., and THOMAS, J. (1996), *Review of Effectiveness of Sexual Health Promotion Interventions for Young People*, Social Science Research Unit, Institute of Education, University of London, London.

RADEMAKERS, J., LUIJKX, J. B., *et al.* (1992), *AIDS-preventie in heteroseksuele contacten*, Swets & Zeitlinger, Amsterdam, cited by Ingham and Van Zessen (1997).

ROSENSTOCK, I. M. (1966), "Why People Use Health Services", *Milkbank Memorial Fund Quarterly*, vol. 44, pp. 94-124.

ROSENSTOCK, I. M. (1974), "Historical Origins of the Health Belief Model", *Health Education Monographs*, vol. 2, pp. 328-335.

ROSENSTOCK, I. M. (1988), "Social Learning Theory and the Health Belief Model", *Health Education Quarterly*, vol. 15, no. 2, pp. 175-183.

ROSENSTOCK, I. M., STERCHER, V. J., and BECKER, M. H. (1988), "Social Learning Theory and the Health Belief Model", *Health Education Quarterly*, vol. 15.

ROSERO-BIXBY, L. (1996), "Nuptiality Trends and Fertility Transition in Latin America", in: J. M. Guzman, S. Singh, G. Rodriguez, and E. Pantelides, eds., *The Latin American Fertility Transition*, Claridon Press, Oxford.

ROTTER, J. (1996), "Generalised Expectancies for Internal versus External Control of Reinforcement", *Psychological Monographs*, 80.

SIMONS, J. (1989), "The Measurement of Subjective Rationales for Health-Related Behaviour", in: J. Cleland and A. Hill, eds., *The Health Transition: Methods and Measures*, Proceedings of an international workshop, London, June, Health Transition Centre, Australian National University, Canberra.

UN (1990), *Patterns of First Marriage. Timing and Prevalence*, Department of International Economic and Social Affairs, New York.

UNAIDS (1998), *The Status and Trends of the Global HIV/AIDs Pandemic*, AIDSCAP, The François-Xavier Bagnoud Centre for Health and Human Rights of the Harvard School of Public Health, and UNAIDS.

VAN CAMPENHOUDT, L., COHEN, M., GUIZZARDI, G., and HAUSSER, D., eds., (1997), *Sexual Interactions and HIV Risk. New Conceptual Perspective and European Research*, Taylor and Francis, Great Britain.

VANLANDINGHAM, M. (1993), *Two Perspectives on Risky Sexual Practices among Northern Thai Males: The Health Belief Model and the Theory of Reasoned*

Action, PhD. Thesis, Office of Population Research, Princeton University, Princeton, NJ.

VANLANDINGHAM, M., SUPRASERT, S., GRANDJEAN, N., and SITTITRAI, W. (1995), "Two Views of Risky Sexual Practices among Northern Thai Males: The Health Belief Model and the Theory of Reasoned Action", *Journal of Health and Social Behaviour*, vol. 36.

WHO (1989), *The Health of Youth*, Geneva.