Pregnancy rates, attitudes and behaviour changes among graduates of Teens and Toddlers programmes

Dr A J McDowell

This paper provides an account of the pregnancy rates, attitudes and behaviour changes of graduates from a teenage pregnancy prevention intervention called Teens and Toddlers. The programme utilises an experiential youth development approach. The study comprised a survey of 163 graduates of the Teens and Toddlers programmes that were conducted in the London (UK) Boroughs of Greenwich, Islington, Southwark and Tower Hamlets. Strong evidence was found to suggest that the aims of the programme are both well implemented and effective as 97.5% of programme graduates were found not to have become pregnant under the age of 18 years. It is concluded that while the programme requires further research, it appears to be successful in affecting the attitudes, behaviour and pregnancy status of participants.

Introduction

Teenage Pregnancy in the UK

The United Kingdom is considered to have the highest rate of Teenage Pregnancy in Europe (Bailey, 2005; UNICEF, 2001). In response, the government's Teenage Pregnancy Strategy aims to reduce under 18 conception rates (by 50% by 2010) and to minimise the social exclusion experienced by teenage parents (Social Exclusion Unit, 1999). However, while small improvements have been recorded in recent years the high teenage pregnancy rates in the UK have remained relatively high (Swann et. al., 2003).

Research has identified a number of risk factors that seem to be consistently associated with teenage pregnancy in the UK. These include poverty and social exclusion (Botting, Rosato & Wood, 1998; Bradshaw, Finch & Miles, 2005; Ermisch & Pevalin, 2003); one's mother being a teenage mother, (Bonell et al., 2006; Botting et. al., 1998; Ermisch & Pevalin, 2003; Kiernan, 1995); poor educational attainment, dislike of school and behavioural problems at school (Bonnell et al., 2003; Bonnell et al., 2005; Kiernan, 1995; Wellings et. al., 2001); childhood sexual abuse (Roberts et. al., 2004); young people in or leaving care (Biehal, 1995); poor self esteem (Emler, 2001); and, being from certain black or ethnic minority groups (Berthoud, 2001; Connell, 2004; Higginbottom et. al., 2006; Robson & Berthoud, 2003).

Additionally, research has identified a number of negative effects and outcomes of teenage pregnancy. These include: lower levels or breast feeding by teenage mothers (Dykes et. al., 2003; Hamlyn, et. al., 2002); poorer than average mental health for teenage mothers in the three years post birth of their baby (Liao, 2003); a future with a lower standard of living for mother and baby (Ermisch & Pevalin, 2003; Nanchahal, 2005); and the significant financial and social costs associated with caring for teenage mothers and their children (Teenage Pregnancy Strategy Evaluation Team, 2005).

Therefore, from a brief overview of literature, it is apparent that the issue of teenage pregnancy is relatively well researched and understood in terms of risk factors and outcomes. Despite this understanding, progress towards reduction of teenage pregnancy rates appears to be slow. It can subsequently be concluded that traditional sex education and contraception strategies are not as effective as they need to be, and innovative approaches are needed in order to meet government targets.

Intervention programmes for Teenage Pregnancy prevention

A variety of intervention programmes that aim to prevent teenage pregnancies have been attempted and documented in the literature. However, the results of the impact of contraception provision, teacher led contraception lessons, peer education and electronic dolls are all relatively inconclusive (Swann, et. al., 2003). For example a randomised trial evaluation of an experientially based Sex and Relationship Education programme suggest that while the programme was evaluated positively by participants and it had a positive impact on knowledge, the

programme did not result in changes in reported contraception use or sexual behaviour (Wight, et. al., 2002).

In general, school based intervention programmes appear to be negatively appraised by young people who might be considered to be "at risk" of becoming teenage parents. Independent qualitative research conducted for the Teens and Toddlers organisation suggested that young people felt that traditional school based approaches to sexual education are unsatisfactory because they are: 1) fear based and moralistic; 2) inherently theoretical and didactic; and 3) conducted in groups that are too large (McDowell, 2005).

Programmes that promote abstinence among young people also fail to produce conclusive results. While popular in the United States of America (USA) (e.g., Brindis, 2006; Santelli, 2006), in the UK the Health Development Agency recently concluded that there is no strong evidence for the effectiveness of abstinence education approaches (Swann et. al., 2003). Further, a UK based review by DiCenso et. al., (2002) concluded that evidence exists to suggest that abstinence approaches may actually increase pregnancy rates.

The most promising approaches to interventions that focus on preventing teenage pregnancy appear to be programmes that take a youth development approach. Such programmes are yet to suitably tested in the UK, but Swann et. al., (2003) in their review of USA based interventions of this nature conclude that models which combine elements of self esteem building, voluntary work, educational support, vocational preparation and health care with Sex and Relationship Education are most likely to produce promising results. Further evidence for this kind of approach can be found in the review undertaken by DiCenso et. al., (2002) where in evaluating 26 interventions, the only one concluded to be effective was a long term youth development programme that utilised a multi-dimensional approach.

The Teens and Toddlers Approach

The Teens and Toddlers programme is an initiative of the UK charity Children Our Ultimate Investment (COUI UK). It claims to be a practical education and mental health programme that fosters awareness of the realities of conception and parenting through an experiential learning model. The course aims to educate young people about the responsibilities associated with caring for a child by a direct experience of mentoring with a 3-4 year old child. "Teenagers" accompany and interact with a "toddler" for a two hour session, and then undertake a one hour class that includes experiential and theoretical learning about topics associated with understanding the impact of an unplanned pregnancy combined with personal development.

During a Teens and Toddlers programme, participants receive approximately 40 hours of contact time with nursery children and 20 hours of curriculum input. The approach comprises a confluent pedagogy through integrating participants' personal experiences with a "toddler", with a theoretical understanding of the impact of having a child and the effects on other aspects of life. Learning through experience is thought to create an opportunity for participants to more fully integrate their learning and increase the likelihood of a lasting effect.

Participants for Teens and Toddlers programmes are selected on the basis of how "at risk" they are considered to be, with the target population being those who are considered to be the most at risk of becoming teenage parents. Potential participants are selected by schools through an "at risk" rating questionnaire. School teachers are asked to rate participants according to personality factors, attitudes and behaviours about sex and risk taking behaviours, and personal background information that is known to predispose to early pregnancies, and the young people that score highest (most at risk) are then invited to enrol for the programme.

The programme is open to both male and female participants, with approximately three times as many females taking the programme. Since 2001, the Teens and Toddlers programme has been delivered in the London (UK) Boroughs of Brent, Camden, Greenwich, Islington, Southwark and Tower Hamlets.

Aims of Teens and Toddlers

The Teens and Toddlers programme asserts that an effective way to convey the importance and the value of postponing pregnancy, and thereby achieve a reduction in teenage pregnancy rates, is to give young people an experience of the responsibility and work involved in caring for a child and to help them develop alternative goals to being pregnant, such as satisfying work and relationships.

Table 1: Aims of the Teens and Toddlers programme in relation to Every Child Matters

Being Healthy: Enjoying good physical and mental health

To prevent teenage pregnancies through:

- Practical experience of working with children and gaining an appreciation of the responsibility and hard work involved in having a child
- Developing an understanding of the personal and financial responsibilities of an unexpected pregnancy
- Encouraging the development of alternative goals to being pregnant, such as satisfying work and relationships
- Educating teens about the realities of STIs and the importance of sexual responsibility

To promote increased emotional literacy by:

- Helping teens to develop new behaviours and vision for their lives through a more empowered sense of choice
- Teaching skills of personal responsibility, interpersonal and social skills
- Increasing self-esteem through the experience of being a responsible young adult and role model, treated with respect by facilitators, nursery staff and children

Staying safe: Being protected from harm and neglect

To support young people to:

- Re-engage with their community to develop new, healthier life goals
- Develop the social and interpersonal skills necessary to protect themselves from bullying
- Develop the capacity for healthy self assertion and manage their anger to foster crime prevention
- Learn to be proactive for their own safety and well being, with an awareness of available resources
- Early intervention with small children

Enjoying and achieving: Getting the most out of life and developing the skills for adulthood

Teens & Toddlers promotes improved educational attainment through:

- Achieving the National Award in Interpersonal Skills (NCFE) and promoting a lower teenage conception rate

To improve future parenting skills so that when project participants do reach parenthood, they have the necessary life skills by:

- Teaching child development to promote improved behaviours and communication
- Developing communication skills and providing an environment to understand the impact of their words and behaviour on small children
- Helping teenagers to internalise good parenting skills thereby addressing generational cycles of teenage pregnancy and social deprivation

Making a positive contribution: Being involved with the community & society and not engaging in anti-social behaviour

To foster youth action and engagement by:

- Enabling a multi-cultural group of young people to contribute to their local community engendering an appreciation of difference, empowering the development of positive future goals and valuing the part they play
- Creating a sense of achievement through a successful working relationship with a small child and in-depth work experience culminating in a nationally recognised award in Interpersonal Skills (NCFE)
- Exploring the realities of teenagers' lives today including sex, drugs and peer pressure to facilitate a more informed sense of choice and personal responsibility
- Developing work-related skills, life planning and alternative goals to anti-social behaviour.

The organisation claims to address four of the five core outcomes of the UK government's Every Child Matters agenda (DfES, 2004a; 2004b) and achieve positive outcomes across a wide range of educational, health and social exclusion indicators. Table 1 provides a summary of the programmes intended aims in relation to the Every Child Matters agenda in order to provide an overview of the Teens and Toddlers approach.

Previous research about Teens and Toddlers

Previous research about Teens and Toddlers has demonstrated the programme to be positively appraised by participants. McDowell (2005a) found that participants value the Teens and Toddlers approach because it: 1) invites them to form and express their own opinions; 2) provides a real life experience of the implications of having a child; 3) encourages them to think about their futures; 4) includes discussions about relationships; and 5) treats them like adults and trusts them to make their own decisions.

Participants have consistently reported that they highly valued the practical experience of working with small children during the programmes, and that these experiences were highly influential in their decisions to postpone becoming a parent (McDowell, 2004). Further, it was found that the process of mentoring a small child during the Teens and Toddlers programme and consistent interaction between "teens" and "toddlers" creates a positive and measurable effect on the small child's learning. Participants report that this contributes to an increased sense of self esteem and a positive sense of contributing to their communities (McDowell, 2005b).

The most effective measure of the programmes efficacy is longitudinal tracking of graduates in order to determine their pregnancy status. In 2004 a retrospective analysis of graduates pregnancy status revealed no pregnancies had occurred among respondents, and that lasting attitude and behaviour change was produced through participation in the programme (McDowell, 2004). However, the study can be criticised on the grounds of low sample size and poor response rates, and hence the need for further tracking was evident.

Research Aims

The aim of the current study was effectively to replicate the previous retrospective analysis conducted in 2004 and increase the size of the sample given that more participants had completed the Teens and Toddlers programme. The focus was to assess pregnancy rates within the sample with a focus on the under-18 age groups, and to analyse graduates' attitudes and opinions about teenage pregnancy. A core aim of this study was to increase the response rate among the hard to reach and transient "at risk" population that Teens and Toddlers works with. An in depth process of address checking, address tracking, and multiple attempts to contact participants was therefore adopted.

Methods

The study involved a survey of young people who had undertaken the Teens and Toddlers programme. All data collection processes were conducted in accordance with the Children and Young People's Unit (CYPU) Core Principles and COUI's internal research policy.

Procedure

The pencil and paper questionnaire was distributed by mail and returned via reply paid post.

Sample

Participants had undertaken the Teens and Toddlers programmes in the London Boroughs of Greenwich, Southwark, Tower Hamlets and Islington between 2001 and 2005. In order to qualify for inclusion in the study, participants needed to have completed the Teens and Toddlers programme at least 12 months prior to the survey. Therefore participants from programmes conducted in Camden and Brent were not sampled. In order to boost response rates, participants were offered a £10 incentive for completing questionnaires.

A four stage model of survey distribution was employed. First, the survey was distributed to 256 young people for whom the organization had valid addresses. Second, non-responders were sent the survey a second time. Third, non-responders were contacted again by mail with another copy of the questionnaire. Fourth, non-responders for whom the organisation had telephone numbers were contacted to inquire why they had not responded. Table 2 below provides a summary of response levels for the first three stages of the survey distribution process.

Table 2: Responses to survey			
		Returned	
Stage	Distributed	Completed	Unopened
1	256	122	19
2	115	40	8
3	67	1	1
	Totals	163	28

Following theses three stages a total of 163 completed questionnaires were available for analyses; 28 questionnaires were returned either by the mail service or via a "no longer at this address" redirection; and 65 questionnaires were unaccounted for. Therefore the possible size was 228; derived by subtracting the 28 returned unopened questionnaires from the 256 questionnaires originally distributed. Thus a response rate of 71% was achieved.

Non-responders for whom the organisation had a telephone number were contacted in an effort to increase sample size and understand the perspectives of non-responders. Messages were left for approximately ten potential respondents, none of which returned the calls. Telephone contact was only made with one non-responder, who claimed that their reason for not responding was that they "couldn't be bothered".

Participants

The sample comprised 163 respondents, including 126 females (77.3%) and 37 males (22.7%). At the time of the survey the ages of respondents ranged between 14.6 years and 22.3 years. The mean age of the sample was 17.3 years (SD = 1.7 years). Ages of participants when they undertook the Teens and Toddlers programme ranged between 13.3 and 16.5 years, with a mean of 15.1 years (SD = 0.9 years). The time since participants had undertaken the Teens and Toddlers programme ranged between 1.0 years (12 months) and 4.7 years (56 months), with a mean of 2.1 years (SD = 1.1 years).

Instruments

The questionnaire comprised three sections. Care was taken to ensure the language and concepts used in the questionnaire were suitable for a teenage sample group. The instrument was piloted with other young people before distribution and changes to wording and presentation made to ensure that young people at different levels of educational and mental ability could complete the survey.

Section 1

Section 1 requested participants to report their pregnancy status. Both males and females were requested to respond. Females were asked to describe whether they were "a female who has NOT become pregnant", "a female who became pregnant but I didn't have the baby", or whether they had "become a mother". Males were asked to describe whether they were "a male who has NOT got a girl pregnant", "a male who has got a girl pregnant but she didn't have the baby" (i.e., a miscarriage or abortion), or whether they had "become a father". In the second and third options for both males and females, respondents were asked to list month and year dates of pregnancy loss or birth.

Section 2

Section 2 focussed on participants' attitudes about teenage pregnancy and the value of the Teens and Toddlers programme. Five questions were asked in this section, four of which asked participants to respond using a 5 point lichert scales, where "1" referred to "Not at all", "2" referred to "Not much", "3" referred to "Unsure", "4" referred to "A little" and "5" referred to "A lot", the extent to which they felt the Teens and Toddlers programme had effected them. The questions asked were: question 1: "How much do you feel the T&T programme has influenced you to increase the age at which you would like to have children?"; question 2: "How much do you feel the T&T programme affected your practice of safe sex (using condoms)?"; question 3: "How much do you feel that doing the T&T programme made a positive difference in your life?"; question 4: "Overall how useful would you say the T&T programme would be to other teenagers?". Question 5 asked participants to respond to the question: "What do you think would be the ideal age for you to become a parent?", using the following scale: "Under 16", "16-18", "18-20", "20-22", "22-24", "Over 25".

Section 3

Section 3 invited participants to make open ended responses about the programme with the following questions "What was the most important thing(s) you learned from Teens and Toddlers?" and "Are there any other thoughts or comments that you would like to make?" Finally respondents were asked how they defined their ethnicity according to five categories: "White", "Mixed", "Asian", "Black" and "Chinese". Standard ethnic monitoring strata were provided as options within these categories.

Results

Overview of results
Data management and analysis were conducted using SPSS for Windows, Release 12.0.1. When t tests are performed, Levene's test for the equality of variance was routinely applied and, if necessary, the unequal variance model is reported (including adjusted degrees of freedom).

Ethnicity
While collected in the third section of the questionnaire, ethnicity is reported first as it is a variable used to analyse other data. Respondents defined their ethnicity in the following proportions: 60% "White", 22% "Black", 9% "Mixed", 7% "Asian", and 2% "Chinese". Those participants who described themselves as White were primarily "English" (80%), "European" (8%) or "Irish" (7%). Respondents who described themselves as Black were primarily Caribbean (43%) or African (36%).

Section 1: Teenage Pregnancies
Table 3 provides a full account of the births, losses and births pending reported by respondents since undertaking the Teen and Toddlers programme. Responses are presented according to the customary teenage pregnancy age bands of "Under 16" and "16-18"; and in addition, results are provided for "18-20" and "Over 20" categories. Note that these age categories correspond to the age of the mother at the time of a birth or loss, not the mother's current biological age. Further, while the main objective of the Teens and Toddlers programme is to decrease pregnancies under the age 18, figures are provided for over 18s in order to provide a comprehensive set of results.

Table 3: Births, losses and births pending

Age band	Births	Losses	Pending
Under 16	0	0	0
16-18	2	2	0
18-20	6	1	1
Over 20	0	0	2

No (zero) pregnancies were recorded among respondents under the age of 16. In the 16-18 age band two females reported having become mothers and two reported becoming pregnant but "losing the baby". None of the male respondents reported having caused a pregnancy in the 16-18 age band. In the 18–20 age band a further six births, one loss and one birth pending was reported. One of the births in this category was reported by a male who had caused a pregnancy. In the Over 20 age band two births pending were reported.

In the 16-18 age band, for the two pregnancies that resulted in births, the average age of females at the time of birth was 17.3 years, which was an average of 1.3 years after they had completed the Teens and Toddlers programme. For the two pregnancies that were "losses", the average age of the females at the time of the loss was 16.3 years, an average of 1.2 years after they had completed the Teens and Toddlers programme.

In the 18-20 age band, for the six pregnancies that resulted in births, the average age of females at the time of birth was 18.9 years, which was an average of 2.9 years after they had completed the Teens and Toddlers programme. The age of the female that reported a loss was 18.5 years, which was 2.3 years post completion of the programme. The respondent that was currently pregnant expected to become at mother at the age of 18.4 years, which would be 1.2 years post completion of the programme. Finally, in the over 20 age band the average age of mothers at the birth of their child was 20.2 years, an average of 3.7 years after they had completed the Teens and Toddlers programme.

Both of the births and one of the losses in the 16-18 age band, were reported by participants who had undertaken programmes in the borough of Greenwich. The other loss was reported by a respondent from Southwark. Additionally, all of the births and losses in the 18-20 and over 20 age categories were also reported by graduates of Teens and Toddlers programmes from Greenwich. Table 4 provides a full description of results.

Responses to attitudinal questions did not differ significantly across the different pregnancy conditions except for estimations about the ideal age to become a parent. In this case, as might be expected, participants who had either given birth or experienced a loss estimated lower ideal ages for becoming a parent, as demonstrated by ANOVA analysis ($F_{(5,153)} = 4.90$, $p < .001$). However, such results should be considered conservatively due to small cell sizes.

Table 4: Births, losses and births pending by Borough and age			
Age band	**Births**	**Losses**	**Pending**
Under 16			
Greenwich	0	0	0
Islington	0	0	0
Southwark	0	0	0
Tower Hamlets	0	0	0
16 - 18			
Greenwich	2	1	0
Islington	0	0	0
Southwark	0	1	0
Tower Hamlets	0	0	0
18 - 20			
Greenwich	6	1	0
Islington	0	0	0
Southwark	0	0	0
Tower Hamlets	0	0	1
Over 20			
Greenwich	0	0	2
Islington	0	0	0
Southwark	0	0	0
Tower Hamlets	0	0	0

Section 2: Attitudinal variables
Summaries of results from analyses of attitudinal variables are provided in Table 5 and Figure 1.

Increased the age that you want to have children
Over 85% of respondents reported that the Teens and Toddlers programme had a positive effect in influencing them to increase the age at which they would like to have children, with 57% reporting it had a large effect (see Table 3). Females and males did not differ significantly in their rating of this variable. Similarly there were no significant effects for age, or the time since respondents had undertaken the Teens and Toddlers programme. Further, there were no differences between ethnic groups.

Influenced your practice of safe sex
Over 75% of respondents reported that undertaking the Teens and Toddlers programme positively influenced their practice of safe sex. It should be noted that some respondents were likely not to be sexually active which may account for the spread of responses to this question. Evidence for this interpretation was supported by a small negative correlation between participants responses to this question and their age at the start of the programme ($R = 0.16$, $p < .05$).

An ANOVA analysis indicated significant findings that the older respondents were, the more they believed the programme had influenced them to practice safe sex ($F_{(7,149)} = 2.85$, $p < .01$). However when respondent age was analysed while controlling for the time since respondents had undertaken the programme, this significant result was not maintained, indicating that the age of respondents in itself is not a major factor. There were no significant effects in the analyses of these data for gender or ethnicity.

Made a positive difference in your life
Over 85% of respondents reported that undertaking the Teens and Toddlers programme had made a positive difference in their lives; with 33% reporting that it affected them “a little” and 55% reporting it had affected them “a lot”. This indicates a broadly positive impact of the Teens and Toddlers programme on the attitudes of respondents. There were no differences in responses to this question when analysed for the effects of gender, ethnicity, age and the time since respondents had undertaken programmes.

Would be useful to other teenagers
More than 90% of respondents felt that the Teens and Toddlers programme would be useful for other teenagers, with more than 85% responding in the highest positive category. A gender effect was evident from analyses ($t_{(46)} = 1.8$, $p < .05$) with females ($M = 4.9$, $\underline{SD} = 0.5$) believing the programme would be more useful to other teenagers than males ($M = 4.6$, $\underline{SD} = 0.7$). However, further analyses indicated that responses did not differ significantly across age, ethnicity or time since respondents had undertaken the programme.

Ideal age to become a parent
All respondents reported that the felt the ideal age to become a parent was over 18. The “18-20” age category was selected by 9.8% of respondents, the “20-22” age category by 16.6% of respondents, the “22-24” age category by 35.0% of respondents, and the remaining 38.7% nominated the “over 25” age category as their ideal age to become a parent. In total, more than 73% of participants reported that they considered the ideal age to become a parent was over 22 years of age.

Table 5: Percentage responses to attitudinal questions about Teens and Toddlers Programme

	Not at all	Not much	Unsure	A little	A lot
1. Increased the age that you want to have children	3.1%	2.5%%	8.6%	28.2%	57.7%
2. Influenced your practice of safe sex	6.1%	10.4%	6.7%	18.4%	58.3%
3. Made a positive difference in your life	1.2%	3.1%	8.0%	32.5%	55.2%
4. Would be useful to other teenagers	-	0.6%	4.9%	8.6%	85.9%

Figure 1: Percentage responses to attitudinal questions about Teens and Toddlers programme in graphical form

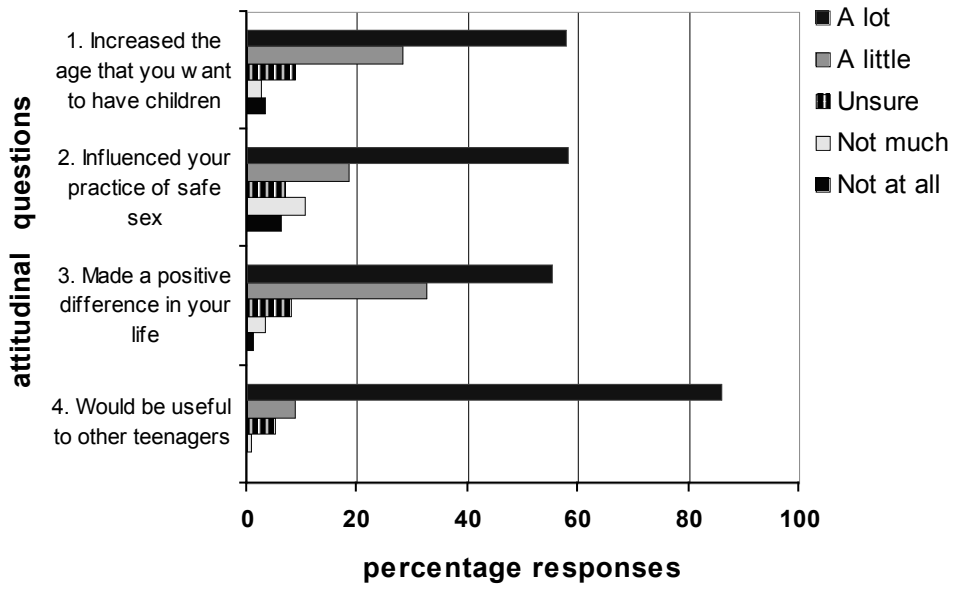

Table 6: Themes of main learning from programme

1. Responsibility and hard work associated with having a child
2. Making choices about the right time to become a parent
3. Sexual responsibility through the practice of safe sex and use of contraception
4. Understanding child development and children's needs
5. Learning about sexually transmitted infections
6. Enjoying making a contribution to children's' learning
7. Learning about the effect of drugs and alcohol on developing babies
8. Making choices before having a child (financial, education, etc.,)
9. Self respect and self valuing
10. Planning for the future and having goals
11. Communication skills
12. Expressing own opinions

There were no gender or ethnicity differences in responses, but an ANOVA analysis indicated significant findings ($F_{(7,149)} = 2.14$, $p < .05$) for an increase in respondents' perceptions of the ideal age to become a parent with an increase in age. However when respondent age was analysed while controlling for the time since respondents had undertaken the programme, this significant result was not maintained, indicating that the age of respondents in itself is not a major factor.

Borough differences

No differences were recorded between respondents from different Boroughs for the questions about the practice of safe sex, the positive impact of the programme on participants' lives, the perceived usefulness of the programme for other teenagers, and the age that respondents felt would be the right age for them to become a parent. The only attitudinal variable for which a difference existed between respondents from different Boroughs was the extent to which respondents felt that the Teens and Toddlers programme had actually influenced the age at which they would decide to become a parent. An ANOVA analysis demonstrated this significant finding ($F_{(3,159)} = 3.16$, $p < .05$).

Length of programme differences

Participants in Teens and Toddlers programmes in different Boroughs had experienced programmes of different lengths. The conditions were that they either participated in a long programme which was delivered once a week for 20 weeks, or they participated in a short programme which was delivered twice a week for either 10 or 12 weeks. That is, the amount of actual contact time participants received was roughly equivalent, but the length of time over which the programme was delivered varied.

Attitudinal differences were revealed to exist among participants from the different programme length conditions. For the question in which participants were asked to report the extent to which they felt that the Teens and Toddlers programme had influenced their decision to increase the age at which they would like to become a parent participants in the long programme condition ($M = 4.7$, $\underline{SD} = 0.6$) believed that the programme influenced their decision more than respondents who had experienced short programmes ($M = 4.2$, $\underline{SD} = 1.1$). This difference was demonstrated by a statistically significant t-test ($t_{(146)} = 3.54$, $p < .001$).

Similarly a statistically significant difference ($t_{(105)} = 2.70$, $p < .01$) was observed for respondents reporting of the effect of the programme on their practice of safe sex. Participants who had experienced long programmes ($M = 4.5$, $\underline{SD} = 1.1$) believed that the programme effected their practice of safe sex more than respondents who had experienced short programmes ($M = 4.0$, $\underline{SD} = 1.3$).

Section 3: Learning from Teens and Toddlers

Respondents were asked to list the "most important thing(s) they had learned" from undertaking the Teens and Toddlers programme through an open-ended question. Responses were aggregated into 12 themes that were consistently reported which are presented in Table 6.

The themes listed can be broadly aggregated into two broad categories: (a) themes related to teenage pregnancy and care for children; and, (b) themes related to self and personal development. The themes relating to teenage pregnancy and care for children were generally reported more often than those relating to self and personal development, although in many cases respondents made comments that clearly linked these categories, demonstrating how integrated they can be.

Table 7 provides examples of verbatim comments received from respondents. These examples provide an overview of the type of comments offered by respondents and present their generally positive view of the programme. Further, two verbatim quotes from teenage mothers are provided in Table 7 which demonstrate how participants who do become pregnant over the age of 18 also appreciate and value their teens and Toddlers experience.

Table 7: Examples of respondents' answers to open ended questions

1. *"I learned that children are precious and the most important thing I learned is that its not easy having children, you have to focus 100% on them and you have to be strong, confident and have courage in yourself. T&T taught me a lot"* Female, 17 years
2. *"It shows you to be sensible in life and respect yourself. I would love to do this programme again because T&T has shown me that I want to work with kids, not have them"* Female, 17 years
3. "*The best part of teens and toddlers was the working with the children, it showed you how much attention children need and how you can help them learn. The most important things that I learned during the project was how hard it is to be a teenage parent*" Male, 17 years
4. *"I think T&T is a really good project to take part in, it helps you understand other people's points of view and the people who run it listen to you and are interested in what you think"* Female, 16 years
5. *"The learning about STIs and STDs, and to be safe from them and pregnancy by using protection. It made me think about the future and what I want in my life"* Male, 16 years
6. *"How much responsibility it takes to become a parent, it made me think really about and decide what age I really want to become a parent."* Female, 18 years
7. *"Care of children takes a lot and how important it is to do it properly. Responsibility to become a parent is big and I don't want it yet."* Female, 19 years
8. *"All about safe sex, about how drinking would harm a baby, and how hard it would be to bring up a child without a partner" Male, 18 years*
9. *"the most important thing I learned about teens and toddlers was that you should only bring a child into this world if it is right for them – if you can give it everything it needs – not just because you want to" Male, 19 years*
10. *"Teens and toddlers helped me a lot, before doing it I wanted to have a child at the age of 16. But after a lot of decision I realised I was just being selfish. I couldn't provide for it and give it what it would have needed. " Female, 18 years*
11. *"Teens and Toddlers has been very helpful for me. I'm now pregnant and will benefit from everything I've learned about bonding with children and learning to cope in stressful situations. Mine is not an unwanted teenage pregnancy. I am in a stable relationship with my fiancé and we chose to have a baby together, and I still know it will be a lot of work, but its what we want" Female – birth pending, 20 years*
12. *"I would just like to say that although I am pregnant at an age when I wouldn't recommend anyone to be pregnant, I did learn a lot from Teens and Toddlers and when I did get pregnant by accident even though we were using protection we decided to keep the baby because deep down I felt I could handle the pressure. But I remember that children need a lot of praise to build their confidence and you need a lot of patience dealing with children" Female – birth pending, 20 years*

Discussion

A discussion of the results of the current study is aided considerably by a brief review of the population that is targeted for inclusion to Teens and Toddlers programmes. The aim of this is to create a realistic view of the sample in order to enable a meaningful interpretation of the findings. The aim of the Teens and Toddlers programme is to identify and work with young people who are believed to be the most at risk of becoming teenage parents in a given Borough. However, no predictive recruitment is ever perfect and can only be as good as an understanding of the risk factors. As stated in the introduction of this paper, the process of selection and inclusion to the programme involves a rating of participants on the basis of the risk factors are thought to predispose to teenage pregnancy. These risk factors have been derived from academic literature and the expert judgement of the facilitators involved in the programmes.

Assessment of risk factors is undertaken by teachers in the schools from which the at-risk sample is drawn. Teachers are asked to rate potential participants on: (1) personality factors; (2) attitudes and behaviours about sex and other risk-taking behaviours; and, (3) personality background information. Teachers are asked to rate each potential participant in comparison to other students that they teach on each of these three domains.

Personality factors rated include: shyness or withdrawn-ness; negativity and lack of self belief; depression (sub-clinical); anxiety (sub-clinical); aggressiveness; and, disengagement from others. Attitudes and behaviours are assessed through questions about how much potential participants express risky attitudes and behaviours about: frequent drug and alcohol use; lack of interest in their futures; lack of interest in school; how sexually active they claim to be; and, how acceptable they feel it is to be a teenage parent.

Personal background information is assessed through teachers knowledge of (or suspicions about) the following factors: poor school attendance; whether the student entered puberty earlier than their peers; history of sexually transmitted infections; previous pregnancies; family members who had been teenage parents; sexual and/or physical abuse; history of being in care; history of family instability; and history of poor academic achievement.

It is acknowledged by Teens and Toddlers that the assessments made by teachers are subjective, and rely very much on how good teachers are at making educated guesses and comparisons. However, it can also be argued that teachers can have the best, and often the only, accessible insight to students' circumstances. Further, it has been found that teachers can make positive predictions about students' future health behaviours and how "at-risk" young people can be (e.g., de la Barra, Toledo & Rodriguez, 2005; Carbonneau et. al., 2005).

Thus it can be concluded that the processes currently used by Teens and Toddlers to select and enrol participants to their programmes is a relatively non-invasive and robust ranking process that identifies the young people considered to be most at-risk in a local population. This process, coupled with the fact that Teens and Toddlers operates in boroughs and wards that have high teenage pregnancy rates according to national statistics, suggests that the organisation does indeed work with young people who are much likely than average to become teenage parents.

The challenge in interpreting the effect of the Teens and Toddlers programme lies primarily in understanding how to interpret the population statistics in relation to the at-risk group that Teens and Toddlers works with. The very aim of the Teens and Toddlers programme is to attempt to identify the young people most likely to become teenage parents and therefore contribute to the population statistics. That is, the target group represents a sub-sample of the normal population in which the percentage of young people who do become or cause pregnancy is very much higher than the average for that Borough. It can be extrapolated that the at risk group that Teens and Toddlers' targets are the individuals that are the primary causes of the population statistics and causing a reduction in this sub-sample, will cause a reduction in the overall Borough figures.

In order to gain further realistic understanding of the population that Teens and Toddlers works with a Teenage Pregnancy Co-ordinator, an Inclusion Officer, and a Youth Worker who were familiar with the population Teens and Toddlers targets, but were not directly involved in the programme, were asked to estimate what percentage of young people in the target group would be likely to

become pregnant if no interventions were made. In their professional opinions, it was felt that between 25% and 45% of the target population would become pregnant if they received no intervention and were left to their own devices. While such predictions are hardly scientific and to be considered to be "evidence" would require a whole study of their own, they provide a sense of "reality check" and reference point upon which comparisons of the results of this study can be made.

The results of the current study compare relatively well with the findings of the previous retrospective survey of graduates from Teens and Toddlers programmes conducted in 2004. In the previous evaluation no (zero) pregnancies were identified under the age of 18; and ratings of the programmes impact were broadly positive. However the response rate of 47%, was criticised for being low and questions were raised about whether pregnant teenagers felt motivated to respond. However, it should be noted that the respondents who reported the two recorded births in the 16-18 age band in the current study, both responded to the previous retrospective survey (2004) and both were not pregnant at the time.

Therefore a more extensive contact strategy was employed in the current study, with three contact phases, a follow-up phone call where possible, and a cash incentive for questionnaire completion. This proved to be an effective strategy as a 71% response rate was achieved, which is very high considering that a 50% response rate is usually considered to be good for social research with low socio-economic groups.

The finding of only two births and two losses under the age of 18 from a sample size of 163 is strong evidence for the programmes efficacy as a strategy for teenage pregnancy prevention in an at risk population. The births represent 1.2% of the sample, as do the two losses; and therefore it can be extrapolated that 97.5% of participants in Teens and Toddlers programmes do not become pregnant, and nearly 99% do not become parents, under the age of 18. These results are very positive indeed given the high risk population that the organisation deals with.

The extent to which Teens and Toddlers is solely responsible for these positive figures is difficult to assess as many other factors can also have an effect on graduates during the long tracking period between when they participate in the programme and when they answered the questionnaire in this study. Causation is always a difficult concept to demonstrate, but the very positive evaluations made by respondents about the extent to which they felt the programme affected their attitudes and behaviours, corroborates the findings about pregnancy status and is further evidence of a strong impact of the programme on young people's decisions about becoming parents. A brief summary of the major findings demonstrates this: 85% of respondents reported the programme influenced them to increase the age at which they wish to become parents; 75% reported it positively influenced their practice of safe sex; 85% reported it made a positive difference in their lives; more than 90% felt that the programme would be useful to their peers; and, 73% of the sample believed that the ideal age to become a parent was over 22.

Further, the relatively few differences identified when data was analysed for effects and differences on the basis of ethnicity, gender, age and the time passed since they had undertaken the programme, suggests a relatively robust and undifferentiated positive appreciation of the programme by participants. Such attitudes and behaviours seem to influence pregnancy status in the desired direction in 97.5% of respondents. The significance of such a result is perhaps best interpreted against the estimates of the experts previously mentioned who predicted that 25% to 45% of the at-risk target population would be likely to become pregnant if they did not receive any intervention.

The qualitative data gathered in the survey is good evidence that the primary objectives of the Teens and Toddlers programme are largely understood and integrated by participants. The themes presented in Table 6, supported by the verbatim quotes presented in Table 7 demonstrate that both factual knowledge about the implications of becoming a teenage parent, and the personal development benefits associated with an experiential approach and opportunities to talk about the issues, are valued by respondents.

One interesting finding was the clustering of pregnancies in the Borough of Greenwich. With both reported births and one of the reported losses in the 16-18 age band, (as well as 6 births and one loss in the 18-20 age band), being reported by respondents from Greenwich, this borough accounts for nearly all of the pregnancies recorded by the survey. Possible reasons for this occurrence include

either a more at risk population in Greenwich, some sort of logistical or organisational biases, or some local effect. This result should be interpreted in with the knowledge that the clustering of teenage pregnancies is not an uncommon finding in the literature (e.g., Gould et. al., 1998; McLeod, 2001). However, further investigation into the possible causes for this result should be investigated.

It has already been explained in this discussion that the target population selected for inclusion in the Teens and Toddlers programme is at risk, and therefore not comparable to the national teenage pregnancy statistics that provide rates across the entire population. Nevertheless, interested parties inevitably ask how the programme compares against national statistics, presumably because they provide a useful benchmark. Therefore an unsophisticated attempt at comparison is offered below. It should be noted in advance that this comparison is quite superficial given the at-risk population sampled by Teens and Toddlers and the relatively small sample size.

The most recent teenage pregnancy rates available from the Office of National Statistics are for 2004 (ONS & TPU, 2006). These statistics report the conceptions recorded among females aged 15, 16 and 17 years in any given year and is expressed as a rate per 1000 females in that age band. For example, in 2004 the recorded under 18 conception rate for London was 48.1 (or 4.81%) with 59.3% of these leading to abortions. This means that 48.1 conceptions were recorded in every 1000 females aged 15, 16 and 17. The 2004 under 18 conception rates for the boroughs in which Teens and Toddlers operates are as follows: Greenwich 64.7 (or 6.47%); Islington 54.5 (or 5.45%); Southwark 85.2 (or 8.52%); and, Tower Hamlets 43.2 (or 4.32%).

These rates imply the likelihood or probability that a female could become pregnant if she is under the age of 18 (for 2004). However, in order to calculate the overall likelihood of a female becoming pregnant before the age of 18, we must consider the cumulative effect of the aforementioned rates in each of the years that a female is 15, 16 or 17. That is, a female is at risk of becoming pregnant each year as she progresses to the age of 18, and this must be taken into account when postulating about the overall likelihood of her conceiving before the age of 18.

In order to make such calculations two broad assumptions need to be made. First, it must be assumed that each female in a population is as likely to become pregnant as any other. Clearly, a female from a sample such as the one accessed by Teens and Toddlers is more "at risk" of conceiving than is reflected in figures provided for the national population, however as no specific conception rates for at risk groups exist the national statistics must be used. Second, calculating the overall likelihood of conceiving during the ages of 15, 16 and 17 by using the rate provided for under 18 conceptions, assumes that females are equally likely to conceive at the ages of 15, 16 or 17; where in fact, the risk of becoming pregnant increases with age. However, the national rates are averaged across year groups and therefore the increasing rates should be controlled in the averaging process. Nevertheless, it should be noted that calculations that employ specific rates for each year (15, 16 and 17) would provide a more accurate picture of the cumulative risk.

While acknowledging these assumptions, it is possible to make a crude estimation of the cumulative risk of a female conceiving before the age of 18 by using the under 18 conception rate to calculate the chances of her not becoming pregnant in each of the three years. This is achieved using the equation (1 - conception rate when 15) x (1 - conception rate when 16) x (1 - conception rate when 17) or simply (1 - conception rate under 18)^3. For example London wide, where the under 18 conception rate is 48.1, the likelihood of not becoming pregnant is (1 – 0.0481)^3 or 86.2%. Therefore the overall likelihood of becoming pregnant across the ages of 15, 16 and 17 is 13.8%.

Applying the same equation to the specific conception rates recorded for boroughs where Teens and Toddlers operates it can be calculated that the likelihood of becoming pregnant before the age of 18 is 18.2% in Greenwich, 15.5% in Islington, 23.4% in Southwark and 12.4% in Tower Hamlets. While it is acknowledged that these figures are not completely accurate and should therefore be interpreted conservatively, they do give some indication of the cumulative risk that individuals face as they progress through the years to 18.

The current retrospective study demonstrates comparatively excellent results for the Teens and Toddlers intervention: with 4.5% of the Greenwich sample reporting pregnancies

under the age of 18; none of the Islington sample reporting pregnancies under the age of 18; 2.1% of the Southwark sample reporting pregnancies under the age of 18; and none of the Tower Hamlets sample reporting pregnancies under the age of 18. That is, the young people that have undertaken a Teens and Toddlers programmes report fewer pregnancies than what would be expected in general population of people their age. Therefore, the results of this study suggest that the Teens and Toddlers programme in its work with an at-risk sample, is efficacious to the point that out performs the teenage pregnancy rates for the general population.

Improvements to research are always possible and this study is no exception. One obvious improvement that will aid in the understanding of results in the future is seeking further information from respondents about the nature of any reported pregnancy losses. The questionnaire used in the current study effectively asked respondents to describe whether they had become pregnant or not, or if the female had become pregnant but lost the baby. It would have been very helpful to know whether a loss can be attributed to a natural loss (e.g., miscarriage) or an abortion.

For obvious reasons population statistics can only record actual legal abortions and live births and do not include miscarriages. Therefore, for the results of the Teens and Toddlers retrospective survey to be more comparable, it is advisable that more specific questions that enable this distinction to be made be included. It is understood that the original decision not to seek this level of detail from respondents was in order to avoid or minimise any potential embarrassment or trauma that respondents may suffer in reflecting on their losses and thereby increase the likelihood of gaining honest responses.

However it is now clear that this level of detail is required and the questionnaire needs to be improved or some alternative method to gather the information needs to be created. If the organisation feels it is inappropriate to ask if a loss is due to an abortion or a miscarriage via the survey then one alternative would be to ask respondents if they would be willing to be contacted by telephone for further discussion about their responses (with the promise of further incentivisation) at which time they could be more delicately asked about potential losses.

Another factor that would improve the overall validity of findings would be to further increase the sample size and the response rate. While a 70% response rate is very good, especially for the at-risk population sampled, the improvement of this would be highly positive, enabling more definitive statements about the programmes efficacy. More intensive monitoring of tracking and associated database management is therefore suggested, which obviously will require greater resources and commitment from the organisation. Increasing the size of the sample will be possible as more programmes are conducted, although it should be acknowledged that there is a one year delay before participants are actually included in retrospective analyses.

One further improvement for the questionnaire could be the inclusion of more questions about respondents' academic achievements, employment status, and residential status. While the original aim of the tracking was to source pregnancy status only, it is suggested that the inclusion of these additional variables would make it possible for the organisation to draw further conclusions about the programme's effectiveness given the multiple proposed benefits of Teens and Toddlers.

Conclusion

The findings of this retrospective study suggest that the Teens and Toddlers programme is a robust teenage pregnancy prevention intervention that can be used effectively with at-risk populations. The lower than expected pregnancy rates achieved within the sample, coupled with consistent changes in attitudes and behaviours, are strong evidence for the programme's efficacy. The use of a personal development focused process in which young people learn to make their own decisions about their futures, including the best time for them to become a parent, seems to contribute to the programme's effectiveness and to its appeal to at-risk teenagers. Further evidence is required through the gradual development of a larger sample size and regular tracking of graduates from Teens and Toddlers programmes. In conclusion, the findings of this study, in conjunction to those of the 2004 retrospective analysis, suggest that the Teens and Toddlers approach is very effective both in influencing young people's attitudes and actually preventing teenage pregnancy.

References

Bailey, P. (2005). Teenage pregnancies: is the high rate of teenage pregnancy and parenthood in the UK a public health problem? Journal of Family Planning and Reproductive Health Care. 31(4): 315-319

Berthoud, R. (2001). Teenage births to ethnic minority women. Population Trends. 104: 12-17.

Biehal, N. (1995). Moving on. London: National Children's Bureau.

Bonell, C., Allen, E., Strange, V. Oakley, A., Copas, A., Johnson, A., & Stephenson, J (2006). Influence of family type and parenting behaviours on teenage sexual behaviour and conceptions. Journal of Epidemiology and Community Health. 60 (6): 502-506.

Bonell, C., Allen, E., Strange, V., Copas, A., Oakley, A., Stephenson, J., & Johnson, A. (2005). The effect of dislike of school on risk of pregnancy: testing of hypotheses using longitudinal data from a randomised trial of sex education. Journal of Epidemiology and Community Health. 59(3): 223-230.

Bonell, C., Strange, V., Stephenson, J., Oakley, A., Copas, A., Forrest, S., Johnson, A., & Black, S. (2003). The effect of social exclusion on the risk of teenage pregnancy: development of hypotheses using baseline data from a randomised trial of sex education. Journal of Epidemiology and Community Health. 57(11): 871-876.

Botting, B., Rosato, M. and Wood, R. (1998). Teenage mothers and the health of their children. Population Trends. 93 : 19-28.

Bradshaw, J., Finch, N., & Miles, J. (2005). Deprivation and variations in teenage conceptions and abortions in England. Journal of Family Planning and Reproductive Health Care. 31(1): 15-19.

Brindis, C., (2006). A public health success: understanding policy changes related to teen sexual activity and pregnancy. Annual Review of Public Health. 27: 277-295.

Carbonneau, R., Tremblay, R., Vitaro, F., & Saucier, J. (2005). Can teachers' behavior ratings be used to screen early adolescent boys for psychiatric diagnoses? Psychopathology. 38(3): 112-123.

Connell, P., McKevitt, C. & Low, N. (2004). Investigating ethnic differences in sexual health: focus groups with young people. Sexually Transmitted Infections. 80(4): 300-305.

de la Barra, F., Toledo, V., & Rodriguez, J. (2005). Prediction of behavioral problems in Chilean schoolchildren. Child Psychiatry and Human Development. 35(3): 227-243.

DfES (2004a) *Every child matters: change for children.* The children's green paper. Nottingham: DfES Publications.

DfES (2004b) *Every child matters: next steps.* Nottingham: DfES Publications.

DiCenso, A., Guyatt, G., Willan, A. and Griffith, L. (2002). Interventions to reduce unintended pregnancies among adolescents: systematic review of randomised controlled trials. British Medical Journal. 324 (7531): 1426.

Dykes, F., Moran, V., Burt, S., & Edwards, J. (2003). Adolescent mothers and breastfeeding: experiences and support needs an exploratory study. Journal of Human Lactation. 19(4): 391-401.

Emler, N. (2001). Self-esteem: the costs and causes of low self-worth. York: Joseph Rowntree Foundation.

Ermisch, J. and Pevalin, D. (2003). Who has a child as a teenager? ISER working paper 2003-30. Colchester: Institute for Social and Economic Research, University of Essex.

Gould, J., Herrchen, B., Pham, T., Bera, S., & Brindis, C. (1998). Small-area analysis: targeting high-risk areas for adolescent pregnancy prevention programs. Family Planning Perspectives. 30(4): 173-176.

Hamlyn, B., Brooker, S., Oleinikova, K. and Wands, S. (2002). Infant feeding 2000. London: TSO.

Higginbottom, G., Mathers, N., Marsh, P., Kirkham, M., Owen, J., & Serrant-Green, L. (2006). Young people of minority ethnic origin in England and early parenthood: Views from young parents and service providers. Social Science and Medicine. 63(4): 858-70.

Kiernan, K. (1995). Transition to parenthood: young mothers, young fathers – associated factors and later life experiences. LSE Discussion Paper WSP/113.

Liao, T. (2003). Mental health, teenage motherhood, and age at first birth among British women in the 1990s. ISER working paper 2003-33. Colchester: Institute for Social and Economic Research, University of Essex.

Office of National Statistics & Teenage Pregnancy Unit (2006). Under 18 Conception data for top-tier Local Authorities (LAD1), 1998-2004. Version: 23.02.06.

McDowell, A. (2004). A retrospective analysis of the efficacy of theTeens and Toddlers programme. London: Children Our Ultimate Investment, UK.

McDowell, A. (2005a). A qualitative analysis of youth attitudes about Teenage Pregnancy, School and Governmental intervention approaches, and the Teens and Toddlers programme. London: Children Our Ultimate Investment, UK.

McDowell, A. (2005b). An analysis of the effect of the Teens and Toddlers programme on Nurseries and Nursery Children. London: Children Our Ultimate Investment, UK.

McLeod, A. (2001). Changing patterns of teenage pregnancy: population based study of small areas. British Medical Journal. 323(7306): 199-203.

Nanchahal, K., Wellings, K., Barrett, G.,Copas, A., Mercer, C., Macmanus, S., Macdowall, W., Fenton, K., Erens, B., & Johnson, A. (2005). Changes in the circumstances of young mothers in Britain: 1990 to 2000. Journal of Epidemiology and Community Health. 59(10): 828-833.

NHS Centre for Reviews and Dissemination (1997), Effective Health Care: *Preventing and reducing the adverse effects of unintended teenage pregnancies.* NHS Centre for Reviews and Dissemination.

Roberts, R., O'Conner, T., Dunn, J., & Golding, J. (2004). The effects of child sexual abuse in later family life; mental health, parenting and adjustment of offspring. Child Abuse and Neglect. 28(5): 525-545.

Robson, K. and Berthoud, R. (2003). Early motherhood and disadvantage: a comparison between ethnic groups. ISER working paper 2003-29. Colchester: Institute for Social and Economic Research, University of Essex.

Santelli, J., Ott, M., Lyon, M., Rogers, J., & Summers, D. (2006). Abstinence-only education policies and programs: a position paper for the Society for Adolescent Medicine. 38(1): 83-87.

Social Exclusion Unit (1999). *Teenage Pregnancy: Report by the Social Exclusion Unit.* London: Stationery Office.

Swann, C., Bowe, K., McCormick, G., & Kosmin, M. (2003). Teenage pregnancy and parenthood: A review of reviews. London: Health Development Agency.

Teenage Pregnancy Strategy Evaluation Team (2005). Final Report. London: Teenage Pregnancy Unit.

UNICEF (2001). A league table of teenage births in rich nations. Innocenti Report Card No. 3. Florence: UNICEF Innocenti Research Centre.

Wellings, K., Nanchahal, K., Macdowall, W., McManus, S., Erens, R., et al. (2001). Sexual behaviour in Britain: early heterosexual experience. Lancet. 358: 1843-1850.

Wight, D., Raab, G. M., Henderson, M., Abraham, C., Buston, K., et al. (2002). The limits of teacher-delivered sex education: interim behavioural outcomes from a randomised trial. British Medical Journal. 324: 1430.

Research undertaken by:

Dr Andrew J McDowell
Social Research Director, The Dream Mill Ltd.

The Dream Mill is a social research company that specialises in exploring issues that relate to young people. www.thedreammill.com