

availability and supply. Despite these challenges, vigorous and creative condom promotion campaigns and marketing of various condoms have brought some changes in perception and uptake of condoms. Analyses of data from the Demographic and Health Surveys have shown increases in the use of condoms by young, unmarried women in many parts of the world [62].

2..4.2. Synopsis on the effectiveness of female condom

Contrary to the male condoms, female condoms are still not widely used. However, female condoms have been promoted to by-pass the obstacle of male condoms which use is dependent on the willingness of men.

The female condom provides a physical barrier that prevents exposure to genital secretions containing HIV, such as semen and vaginal fluid. Like their male counterparts, laboratory tests have shown that polyurethane female condoms also provide an effective physical barrier against HIV transmission. A number of clinical trials have demonstrated the effectiveness of female condoms in preventing exposure to semen, and subsequently reducing risk of sexually transmission infections; however, the ability of the female condom to prevent HIV infection has not been directly assessed. The effectiveness of female condom was shown to be whether similar or lower than male condom. In a crossover trial in which male and female condoms were compared, increased rates of semen exposure (detected by post coital prostate-specific antigen test) and self-reported mechanical difficulties were noted, which might suggest lower effectiveness of female condoms for prevention of transmission. By contrast, in a randomized controlled trial that compared women who were provided with condom counselling and male condoms with those who were provided with condom counselling and female condoms, rates of sexually transmitted infections did not differ substantially, suggesting that male and female condoms have similar effectiveness [62].

2.4.3. Trends of condom use among adolescents and young in selected regions and countries.

2.4.3.1 Europe

Result from a multilevel analysis of condom use among adolescents in the European Union indicate that the use of condom in European countries and schools is low, and is correlated with alcohol use, a history of bullying behavior and gender, HIV prevalence rate and a range of socio-economic factors.

In the 2000/2001 HBSC survey [5], the proportion of sexually active young people who reports using a condom the last time they had sexual intercourse ranges from 64% in Finland to 89% in Greece. The proportions are 70% or less in six countries and regions including Scotland, Germany, Wales Sweden, and Finland, with Finland and Sweden at the low end. The proportions were 80% to nearly 90% in seven countries including Greece, Spain, Israel, Macedonia, France, Austria, and Switzerland, with the highest levels in Greece and Spain. In almost all countries and regions, boys are more likely than girls to report condom use the last time they had sexual intercourse.

In some countries like Ukraine, and Belgium, the gender difference could be sometimes large. The proportions reporting condom use ranged from 68.5% in Portugal to 91% in Greece for boys and from 58% in Sweden to 89% in Spain for girls. These genders discrepancies raise complex questions related to cultural context, public policy and content of health education programmes.

There was a notable increase in the proportion of adolescents reporting condom use in the 2009/2010 survey [6] when compared to the 2000/2001 survey [5]. However, a significant minority still reports non-use. This may be explained by young people lacking either access to or the necessary skills to buy or use condoms. As in the 2000/2001 survey, boys were more likely to report condom use at last sexual intercourse, possibly as they feel less embarrassed buying and/or using condoms, but rates of use do not vary significantly between countries. The proportion of sexually active young people who reports using a condom the last time they had sexual intercourse ranged from 63.5% in Sweden to 90% in Estonia. The proportions are 70% or less in 4 countries including Iceland, Finland, Norway, Romania, and Sweden. The proportion were 80% or more in 14 countries and regions including Estonia,

Luxembourg, Greece, France, Slovenia, Spain, Croatia, Switzerland, Portugal, Austria, Poland, Wales, Lithuania, and Ukraine. Compared to the 2000/2001 survey, Germany has moved from 70% to 79.5% and Wales from 69.5% to 80.5%.

In almost all the countries, the proportion of girls who report condom use at last sexual intercourse has increased at the exception of Spain, Switzerland, and Austria. However, the proportion of male who report using condom at last sexual intercourse did not increased in some countries (Greece, Spain, Lithuania, Ukraine, Latvia, Hungary, Netherlands, Scotland, and Sweden) and other countries did not have comparative data (Luxembourg, Italy, Slovakia, MKD, Armenia, Ireland, Romania, Norway, and Iceland). (Fig. 15 & Fig. 16)

In countries with increased proportions of condom use in boys and girls, the increased proportion of condom use was much higher in girls than in boys in Slovenia, Poland and Germany, while in other countries the increase was relatively proportionate (Fig. 17)

Fig 15. 15-year-olds female who used condom at last intercourse (%)

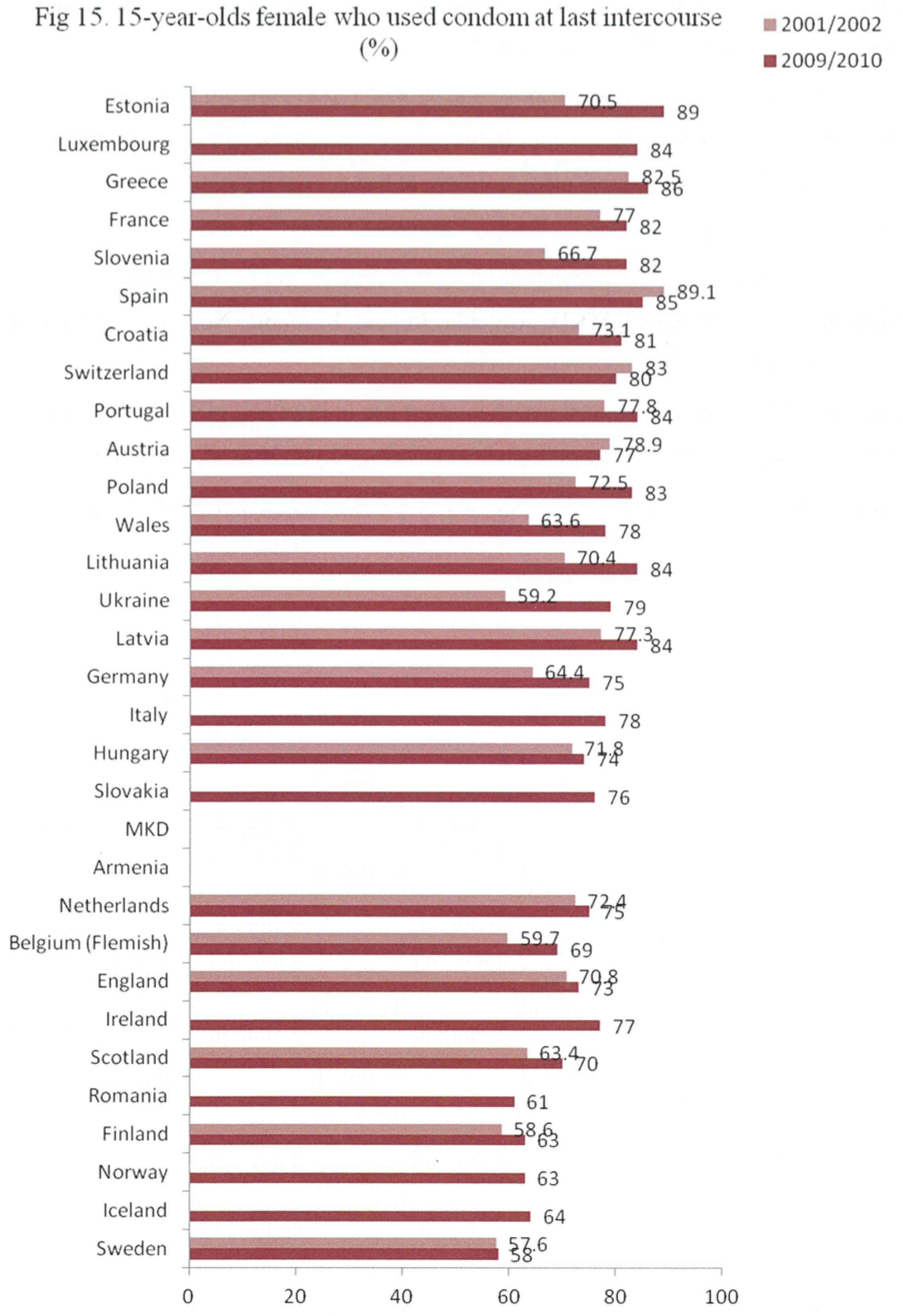


Fig 16. 15-year-old male who used a condom at last intercourse (%)

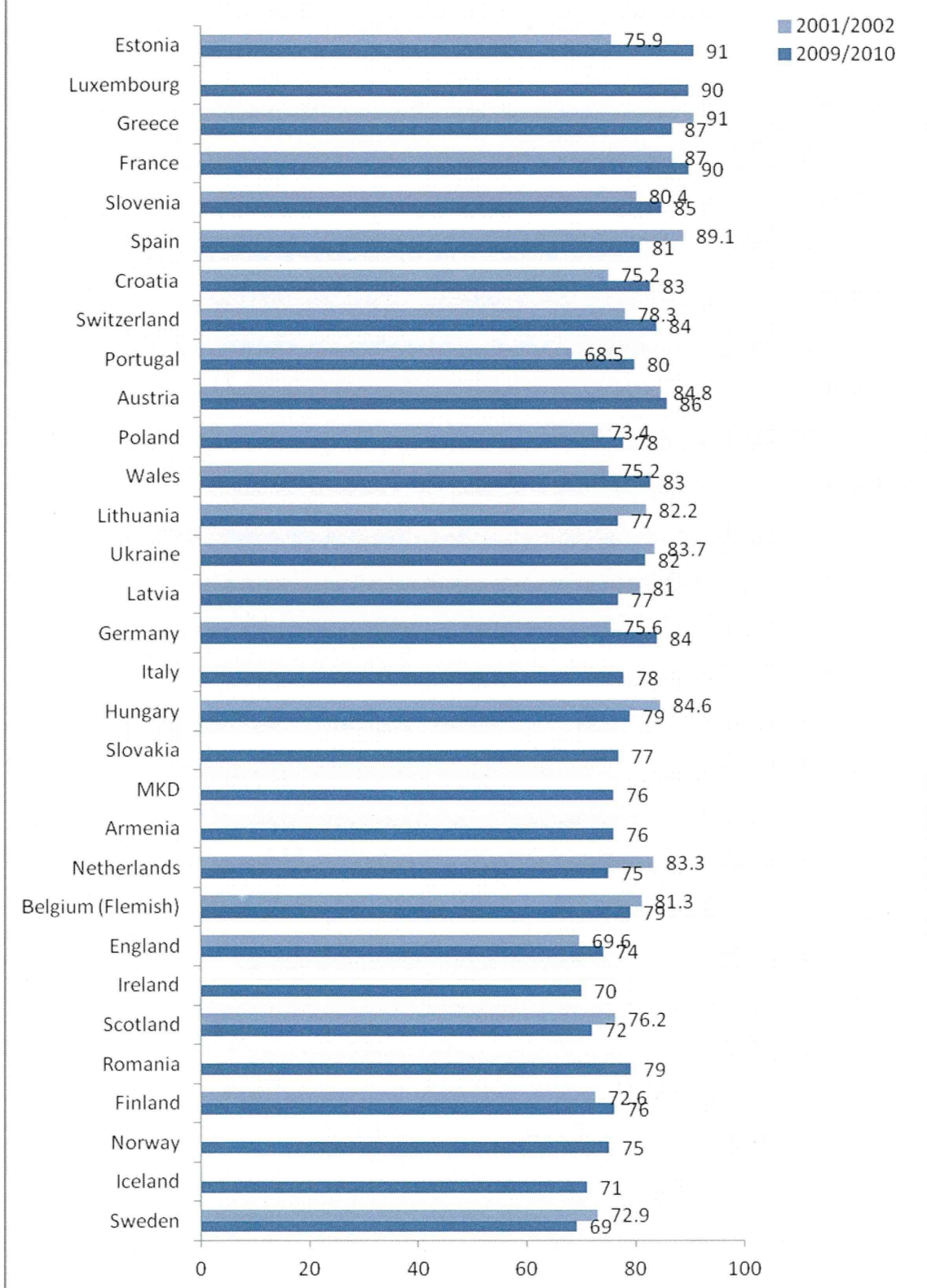
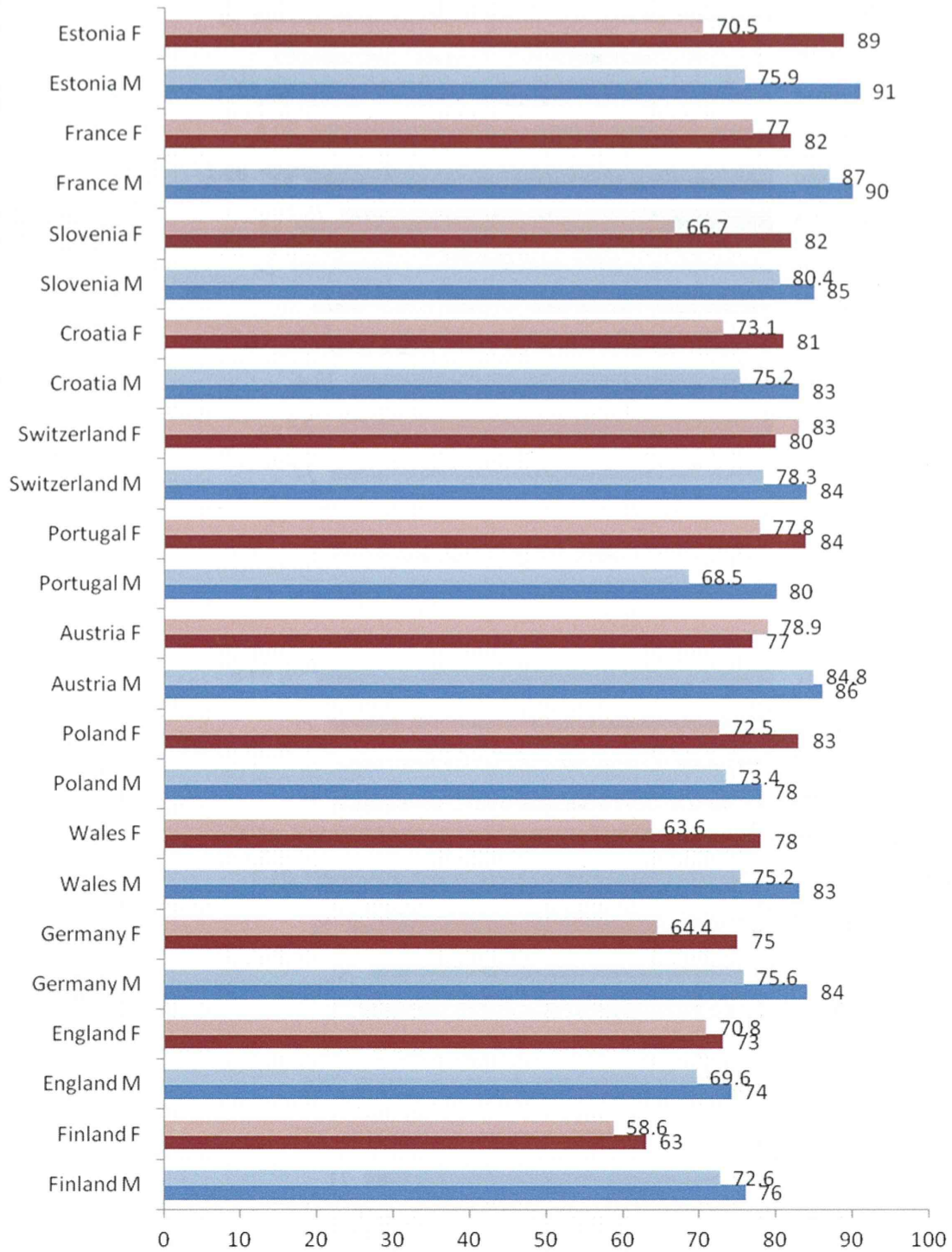


Fig 17. Comparison of proportion of condom use at last sexual intercourse between females and males in 2000/2001 and 2009/2010 surveys.



2.4.3.2 USA

According to the YRBS [14], condom use at most recent sexual intercourse, as reported by sexually active high school students, increased from 46 percent in 1991 to a high of 63 percent in 2003. Since then, there was a slight decrease, to 60 percent in 2011.

Reported condom use differs greatly by gender. In 2011, 67 percent of sexually active male high school students reported that they or their partner used a condom at most recent sexual intercourse, compared with 54 percent of females. (Figure 1) Disparities differed by race. Hispanic males were 10 percentage points more likely than females to report condom use at last sexual intercourse, white males were 13 percentage points more likely, and black males were 22 percentage points more likely. (Fig. 18 & Table 9)

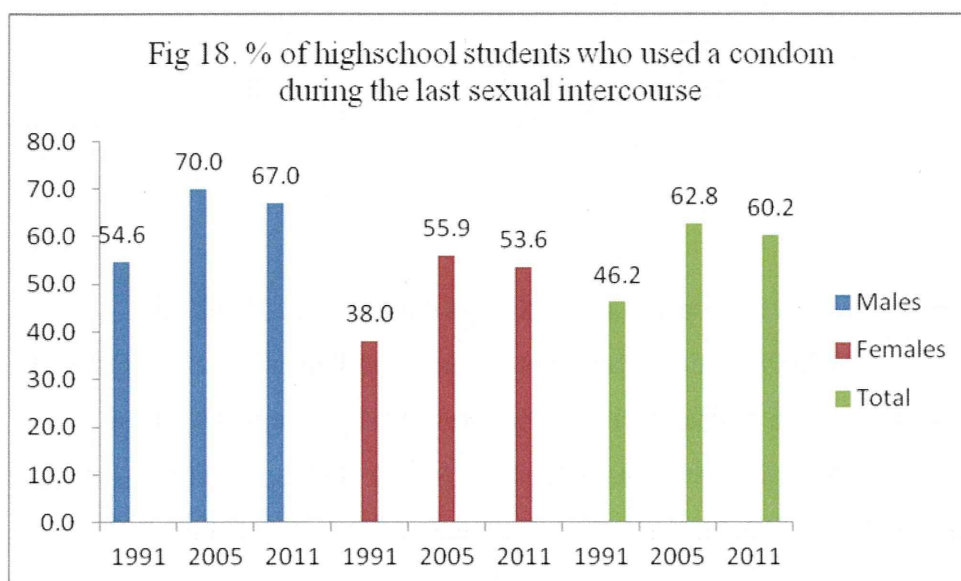


Table 9. Percentage of high school students who used a condom during the last sexual intercourse by sex and grade

| | 1991 | 2005 | 2011 |
|--------------|------|------|------|
| Sex | | | |
| Males | 54.6 | 70 | 67.0 |
| Females | 38.0 | 55.9 | 53.6 |
| Total | 46.2 | 62.8 | 60.2 |
| Grade | | | |
| 9 | 53.3 | 74.5 | 62.2 |
| 10 | 46.3 | 65.3 | 63.3 |
| 11 | 48.7 | 61.7 | 61.1 |
| 12 | 41.6 | 55.4 | 56.3 |

2.4.3.3 Australia

Unsafe sex practices and unwanted pregnancy are significant health issues for Australian teenagers. The 2008 National Survey of Australian Secondary Students [19], HIV/AIDS and Sexual Health indicate that slightly fewer students reported that a condom was actually used at the last sexual encounter (64%). Young men (74%) more likely than female students (60%) to report using a condom the last time they had sex. This trend is similar to the result from the 2002 National Survey of Australian Secondary Students.

Students who reported not using a condom at their last sexual encounter were presented with a set of reasons to account for their non-use. Being unprepared and not expecting sex (‘it just happened’, 39%), trusting a partner (31%) and knowing a partner’s sexual history (27%) were the most common reasons stated for failing to use a condom at the last sexual encounter. Young women were significantly more likely to offer both trusting their partner (39% vs. 6%) and knowing their partners sexual history (31% vs. 14%) as reasons why a condom was not used the last time they had sex

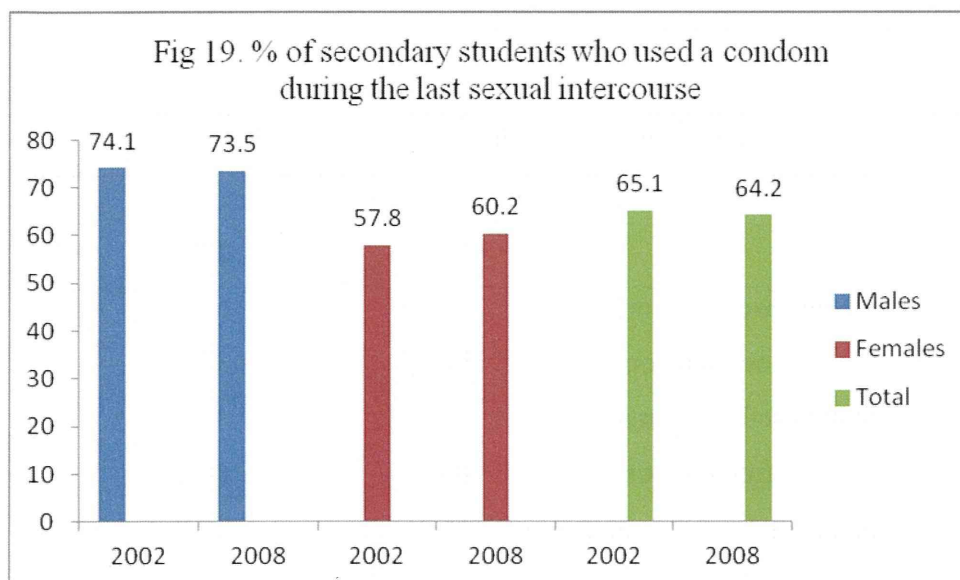


Table 10. Sexually active students reporting that a condom was used at the most recent sexual encounter (%)

| | Total | |
|---------|-------|------|
| | 2002 | 2008 |
| Males | 74.1 | 73.5 |
| Females | 57.8 | 60.2 |
| Total | 65.1 | 64.2 |

Of sexually active students half reported always using condoms when they had sex in the previous year. A considerable proportion (43%) of sexually active students reported they only used condoms sometimes when they had sex, and a small (7%) but nonetheless notable proportion never used condoms when they had sex in the previous year. There were significant differences in consistency of condom use by gender. Young men (61%) were more likely than young women (46%) to always use condoms when they had sex in the previous year. In 1997 and 2002 studies, of concern was the finding that consistent condom use and number of sexual partners were negatively associated – the same pattern persisted in 2008 data. Students who were more sexually active, in terms of number of partners (3 or more), were significantly less likely to report always

using a condom when they had sex in the past year compared with those who had fewer sexual partners (42% vs. 54%). (Fig. 19, Table 10&11)

Table 11. Sexually active students reporting condom use in the previous year (%)

| | | Total | |
|---------|------------------------|-------|------|
| | | 2002 | 2008 |
| Males | Always used condoms | 59.7 | 60.8 |
| | Sometimes used condoms | 31.3 | 34.9 |
| | Never used condoms | 9.0 | 4.3 |
| Females | Always used condoms | 46.1 | 46.1 |
| | Sometimes used condoms | 44.8 | 45.8 |
| | Never used condoms | 9.1 | 8.1 |
| Total | Always used condoms | 46.8 | 50.5 |
| | Sometimes used condoms | 46.9 | 42.6 |
| | Never used condoms | 6.3 | 6.9 |

2.4.3.4 Canada

According to the CCHS [15], 24-year olds reported using condoms the last time they had intercourse, compared with 62% in 2003. As in 2003, condom use was more common among males than females—in 2009/2010, 73% of males, compared with 63% of females, reported using condoms the last time they had intercourse.

As was the case in 2003, the 2009/2010 results indicate that condom use declined with age from 80% among 15- to 17-year-olds to 63% among 20- to 24-year-olds. It may reflect the tendency to use other forms of birth control, such as oral contraceptives, at older ages. (Fig. 20 & Table 12)

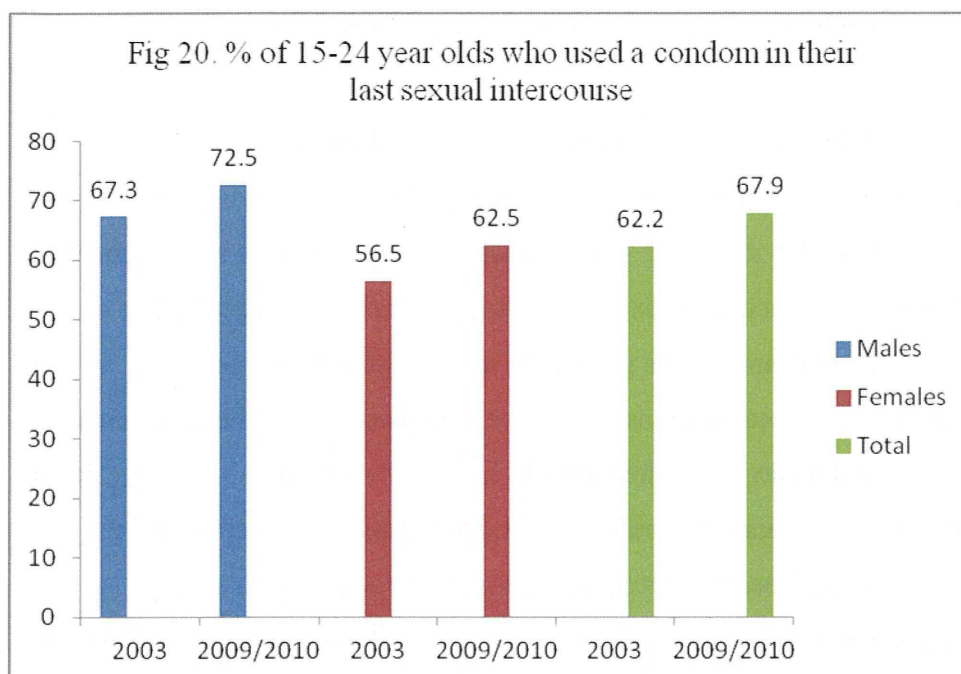


Table 12. Condom use of sexually active 15-to-24 year olds by sex (%)

| | Total | |
|-----------|-------|-----------|
| | 2003 | 2009/2010 |
| Males | 67.3 | 72.5 |
| Females | 56.5 | 62.5 |
| Total | 62.2 | 67.9 |
| Age group | | |
| 15-17 | 78.5 | 79.9 |
| 18-19 | 67.6 | 73.7 |
| 20-24 | 56.4 | 62.8 |

Section 3: Intervention to improve risky sexual behaviors

Outline of the study “Sexual behavior in context: a global perspective” [4]:

Considering the negative implications and the diversity of risky sexual behaviors, a range of strategies are needed to protect sexual health and promote safe sex practices.

There is a spectrum of approaches to sexual behavior interventions targeting one or more sexual risk behavior(s) among the general or specific population groups.

Obviously, sexual behavior interventions have to be informed by broader determinants or drivers of risky sexual behaviors if they have to be effective. Sexual health is a social issue, and voices have been raised for public health interventions to account for the social context within which social intercourse occurs. It is believed that such intervention(s) should go beyond mere provision of information in order to be effective. Previous studies assessing the effectiveness of interventions designed to encourage safer sexual practices have shown increased effectiveness where information was combined with other strategies such as skill building and counselling, as the use of condoms and safe sex negotiation skills, and when all is packaged into behavioral change theories, and where several delivery methods are used, and where the need for sustainability are taken into account.

Evidence also indicate that sexual behavior strategies that focus exclusively on expectation individual behavior change are unlikely to produce substantial improvements in sexual-health status in poor countries where factors beyond individual controls (Poor livelihood) may restrict safer sexual practices. On the other hand, in developed countries, personal choice is greater than in poorer countries, yet power inequalities persist [4].

Settings and target populations for sex behavior interventions are very diverse. Men have been successfully reached out in occupational context with subsequent in sexual-risk reduction. As for young people, schools have been the most and commonly used setting to address sexual risk behaviors. There are evidences on the effectiveness of school-based sex education, and the fear that such education could result into increased sexual risk-taking behavior did not prove to hold.

Systematic reviews have shown school-based sex education to lead to improved awareness of risk and knowledge of risk reduction strategies, increased self-effectiveness and intention to adopt safer sex behaviors, and to delay, rather than hasten, the onset of sexual activity.

Broad-scale strategies to encourage behavior change, with tools such as mass-media communication have demonstrated greater effectiveness in increasing awareness and knowledge, and in reducing high-risk behavior, and have used social-marketing techniques targeting individuals based on their lifestyles, values, and risk status rather than demographic characteristics alone. Risk reduction messages need to take account of the diverse reasons for having sexual intercourse and for changing sexual behavior.

Sexual behavior-change interventions crafted based on individual needs, context, and circumstances is very essential. For example, interventions aiming to delay first sexual debut among adolescents may not be effective in settings where first sexual relations are forced, where sexual abuse of adolescent is common, and where financial circumstances force young people to sell sex. It is also shown that many men who have sex with men also have sex with women, and different preventive strategies might be used for these two behaviors. Broader sexual repertoires need to be taken into account.

An important point to consider in planning a sexual behavior intervention is that people seldom engage in only one risky behavior; they are most likely to have multiple sexual risk behaviors. Thus, interventions that target multiple risky sexual behaviors are likely to be more effective compared to those targeting single behaviors.

Evidence from the literature also indicate the importance for individual-based interventions to address social norms as the effects of behavior change interventions may not be sustained over time if participants return to an unsupportive environment.

On the other side community-based interventions have demonstrated their effectiveness in mobilizing local groups in support of preventive strategies. Important stakeholders in community mobilization are the homosexual communities. The rapid response of homosexual communities to the HIV/AIDS epidemic in developed countries had played a crucial role to the pre-existence of non-governmental organization infrastructure, and

this later serve as a source of information more likely to lead to behavior change, than information traditionally gained through impersonal agencies. For example, sexual behavior change programmes that are built from social networks were shown effective in reducing risky sexual behavior in homosexual men in Russia.

In settings where non-governmental organizations, groups, or other community-based organizations are marginalized, interventions that aim to change risky sexual behaviors should start with informal groups in which norms are maintained.

3.1 Intervention targeting adolescents and young People: Europe

This section outlines a systematic review that examined the effectiveness of interventions that were designed to prevent the spread of sexually transmitted infections, including HIV, among young people in the European Union [20].

This systematic review was inspired the European Union call to action outlined in the “Report on sexual and reproductive health and rights and the European Parliament Committee on Women's rights and Equal Opportunities.

The authors designed a highly sensitive search string of over 150 terms to capture all articles related to sexually transmitted infections and their preventions, treatment, epidemiology, and care among young people aged 10-24 published from 1995 to November 2005, and they included studies from 27 selected European Union countries. The data base used included MEDLINE, EMBASE, CINHALL, PsychoInfo, and POPLINE.

The search yielded 19 studies of intervention studies for preventing sexually transmission studies among young people in Europe, and covered 9 countries from United Kingdom [22,23,28,31,32,34,36,37,39], 3 studies from Italy [24,25,27], 2 from the Netherland [30,33], 2 from Spain [26,35], and the other studies were from Bulgaria [21], Estonia [29], and Sweden [38].

The studies were categories in terms of whether there was a targeted behavior outcome, and the nature or the type of the implementer of the intervention, and in terms of the target groups, and in terms of the implementation setting of the intervention. Based on the behavior change outcome, 10 studies targeted behavior change (eg. condom use)

[21,24,26,28,31,32,34,37-39], 2 studies did not measure any behavior change [23,29], and the other studies targeted knowledge and/or intentions as well as behavior change. In terms of the type the implementer of the interventions 6 studies were implemented by teachers [24-26,29,35,39], 8 studies by peers [21,24,29,30,33,36-38], 7 studies by health professionals [23,27,28,31-34], and 1 study used specially trained workers [22]. In terms of the target groups, 12 studies targeted secondary school students [22,24,27,29,32,35-37,39], 2 studies targeted post-secondary school students [31,38], and 2 other studies targeted genitourinary medicine clinic patients [28,34]. In terms of the setting, school based interventions included 11 [22,24-27,31,32,35-39] studies, clinic-based studies included 2 studies [28,34], and community-based interventions included 6 studies [21,23,29,30,31,33].

Overall, 11 of the 19 studies reported improvements in sexual knowledge and attitudes; however, only 3 of the studies which targeted behavior change reported a significant improvement in sexual behavior [21,26,37]. In the quest to elucidate the reasons behind the ineffectiveness of behavior interventions, the authors articulated the following: First, the problem could lie within the methodology of many studies. Methodologically sound studies of prevention interventions among young people are difficult to find. Of the hundreds of studies identified by the search, only 19 were deemed suitable for the review. Even though these latter were published in peer-reviewed journal, they did not seem all to be adequately designed. Second, the length of the intervention could be another possible reason to this failure of demonstrating an effective result of the interventions. In fact, most of studies had relatively short follow-ups, although behavior may take long to occur. Among the studies, 2 had no follow-ups [23,31], 2 had follow-ups of 18 months [28,37], 2 had follow-ups immediately after the interventions [29,38], and the others were between 4 weeks and 6 months. However, even though longer follow-up may provide better evidence, it is often unrealistic in terms of their feasibility (cost, time, etc). Thirdly, poor segmentation of the target population may be another problem. Most of the studies targeted large groups of young people but not sub-groups such as males, females, or migrants with differing needs, interest, and knowledge background. Interventions that are informed by careful segmentation could yield more positive results.

More importantly, most of studies in this review were based on the Information, Education Communication (IEC) strategy; while evidence have suggested that Behavioral Change Communication(BCC)-based studies tend to be more effective than IEC-studies [40].

Most of the studies were conducted in schools. School-based interventions are widely used, probably because they provide the easiest way to reach large groups of young people. However, the success of interventions within the school environment is attached to some factors such as the pupils' motivation, teachers' attitude, the curricula of the school, parental supports, etc. A recent review from European countries indicated that school sex education is not universally accepted in Europe, largely because of religious reasons [41].

In addition, most of studies in the review assessed knowledge and attitudes as a result of the intervention. While such studies may prove useful in increasing knowledge and sensitizing attitudes related to sexual behavior, it is important to underline that changes in knowledge and attitude do not necessarily lead to behavior change.

In this review we could learn that interventions to prevent the spread of HIV and other STIs among young Europeans can improve sexual health and STI prevention knowledge and attitudes, but their effect on actual sexual behavior remains limited. None of the major implementation models clearly reduced sexual risk behavior, though studies of one teacher-led and two peer-led interventions reported some statistically significant behavioral improvement. The other 16 studies we reviewed reported no significant behavior changes. This underlines the importance of new and innovative strategies to drive sexual behavior change; and interventions should directly target behavior change instead of just aiming to improve knowledge and attitudes.

A review of 48 research studies in the US found that about two-thirds of the HIV/STD prevention programs studied had a significant impact on reducing sexual risk behaviors, including a delay in first sexual intercourse, a decline in the number of sex partners, and an increase in condom or contraceptive use, and identified key common attributes among these programs. Effective HIV/STD prevention programs tend to be those that are delivered by trained instructors, are age-appropriate, include components on skill-building, support of healthy behaviors in school environments, and involvement of

parents, youth-serving organizations, and health organizations. These common traits should guide curriculum development and integration of program activities for HIV/STD prevention programs in schools and communities.

| Sample of studies included in the review [20] | | | | |
|--|------------------------------|--|--|---|
| Authors | Setting | Study design | Comparison group | Program implementers |
| Amirkhanian et al, 2003 [21] | Bulgaria, Russia | Pre- and post-intervention risk assessment, ethnographic observations, sociometric measures, statistical analysis- Community-based outreach | No | Peers (trained social leaders of young MSM networks) |
| Baraitser et al, 2002 [23] | South London, United Kingdom | Qualitative approach Community-based outreach | No | Health professional (sexual health outreach nurse) |
| Borgia et al, 2005 [24] | Rome, Italy | Randomized controlled trial (RCT) Social learning theory School based | Schools were randomly assigned to a peer- or teacher led program program | 54 peers (trained by psychologists) 27 teachers (trained by health care workers) |
| Borgia et al, 1997 [25] | Lazio region, Italy | RCT School based | Schools were randomly divided into treatment and control groups | Teachers (trained by health workers) |
| Low et al, 2003 [31] | Inner London, UK | Pilot study evaluation Statistical analysis School and community-based | No | Sexual health advisor (qualified nurse), with assistance from project |

| | | | | |
|-----------------------------|----------------------------------|---|--|--|
| | | | | manager |
| Magnusson et al, 2004 [32] | Hertfordshire, UK | Pilot non-RCT Pre- and post-intervention School based | Intervention groups (given information at): a. family planning clinic, b. general practice, c. school drop-in clinic Control: usual school-based sex education | Health professionals (either family planner, general practitioner or a school nurse) |
| Martijn et al, 2004 [31] | Rotterdam, the Netherlands | Comparative study Theory of planned behavior Community-based outreach | a. no b. refugees were assigned to groups led by either a lay health advisor (LHA) or professional health advisor (PHA) | a. 4 trained LHAs b. 2 trained LHAs, 2 PHAs (public health nurses) |
| Stephenson et al, 2004 [37] | Central and Southern England, UK | RCT School based | 15 intervention schools (peer-led sex education) 14 control schools (usual teacher-led sex education) | Peers (trained by external team) |
| Stephenson et al, 1998 [36] | Greater London, UK | RCT School based | 2 intervention schools (peer-led sex education) 2 control schools (usual teacher-led sex education) | Peers (trained by experts) |
| Rebull et al, 2003 [35] | Southern Tarragona, Spain | Pre- and post-intervention study School based | No | Teachers |

| | | | | |
|----------------------------|------------------|---|--|---|
| Wight et al, 2002 [39] | Scotland, UK | RCT (cluster randomized trial) School based | 13 intervention schools: Sexual Health and Relationships Program 12 control schools: existing sex education | Teachers |
| Oakeshott et al, 2000 [34] | South London, UK | RCT (cluster randomized trial) Clinic based | Intervention group: 14 general practices Control group: 14 practices | Health professionals (nurses and general practitioners) |
| Kocken et al, 2001 [30] | Netherland | RCT Community-based outreach | Intervention group: n = 293 Control group: n = 296 | Peer educators (men from same ethnic group as participants) |
| Kaldmäe et al, 2000 [29] | Estonia | Background study Interactive learning methods 2 school based projects 1 community-based outreach project | No | Teachers and peer educators |
| Donati et al, 2000 [27] | Rome, Italy | 5 workshops 3 questionnaires School based | No | Health specialists (1 gynecologist, 1 psychologist) |
| Diez et al, 2000 [26] | Barcelona, Spain | Quasi-experimental study, pre- and post-intervention questionnaires Health belief model; social cognitive theory; theory of planned behavior School based | Intervention group: n = 220 students Information group: n = 593 Control group: n = 402 | Teachers (one training session) |

| | | | | |
|--|-----------------------------|---|---|--|
| James et al, 1998 [28] | Nottingham, UK | RCT Social learning theory Clinic based | Intervention (individual counseling and skills training): n = 148 Control (written materials only): n = 162 Control (usual clinic procedure): n = 182 | Health advisors (trained) |
| Tyden et al, 1998 [38] | Uppsala, Sweden | Quasi-experimental study, mass media campaign, peer education School based | Intervention group: n = 600 Control group (no campaign): n = 400 Control group (post-intervention questionnaire only): n = 600 | 19 trained peer educators (first-year medicine and nursing students) |
| Bagnall and Lockerbie, 1996 [22] | Lothian region, Scotland | Pre- and post-intervention evaluation School based | No | Specially trained sessional workers (young adults from outside) |