

MEMA kwa Vijana: Randomised controlled trial of an adolescent sexual health programme in rural Mwanza, Tanzania

The impact evaluation:

In late 1998, the twenty trial communities were randomly allocated either to receive the intervention immediately, or at the end of the trial. Allocation of communities was done using restricted randomisation, based on an initial population-based survey of 15-19 year-olds in the same communities. A cohort of 9,645 adolescents who were aged at least 14 years was recruited in late 1998, when they were about to enter Years 5, 6 and 7 of primary schools: half in the 62 intervention schools, and half in the 59 schools in 10 comparison communities. The trial's primary outcomes were predefined as HIV incidence and genital herpes (HSV-2) prevalence at the final survey in late 2001/early 2002. Secondary outcomes included biological indicators of other sexually transmitted infections and pregnancy, and respondents' knowledge, reported attitudes, and reported sexual behaviours.

Results:

1. Knowledge and reported attitudes:

Both the impact evaluation within the trial cohort, and the reproductive health examination that was sat by Year 7 students in primary schools in 2002, showed that these outcomes were substantially and statistically significantly better in the intervention than in the comparison communities. For example, 84% of pupils in intervention communities passed the exam (scored 50% or more) and 26% scored at least 80%, whereas the equivalent proportions were only 50% and <1% respectively in the comparison communities.

Similarly, within the trial cohort, in both males and females, the proportions reporting the correct or desired answers for all three composite knowledge scores, and for the composite sexual attitudes score were substantially and statistically significantly higher in the intervention communities at the final survey (Annex 1).

2. Reported behaviour:

About two-thirds of respondents who reported never having had sex at baseline reported sexual debut during the follow-up period. There was a tendency for fewer respondents in the intervention communities to report sexual debut since the start of the follow-up, and a similar tendency for the respondents in the intervention communities to report fewer lifetime sexual partners. These differences were only observed in the males, in whom they were of borderline statistical significance.

Among those who reported having ever had sex, in intervention communities there was a substantial and statistically significant increase in the proportions who reported that they had used a condom for the first time during the follow-up period, and the difference was also significant for men who reported using a condom the last time they had had

sex. However, the absolute proportions who reported using condoms were relatively low in both intervention and comparison communities.

3. Biological outcomes:

There was no evidence of any consistent impact of the intervention on biological outcomes in either direction.

The primary outcomes of the trial were both based on biological outcomes, measured using laboratory tests on serum: HIV incidence, and HSV2 prevalence.

The incidence of HIV in the comparison communities was lower at 2.21/1,000 person-years, than had been estimated in advance. Overall, there were 45 incident cases, of which only 5 were in males. The adjusted incidence of HIV in females was 24% lower in the intervention communities, but this was not statistically significant (RR=0.75, 95% CI 0.34,1.66).

There was no evidence of any impact on HSV2 prevalence in either direction (Prevalence ratio: Males=0.92, 95% CI 0.69,1.22; Females=1.05, 95% CI 0.83,1.32).

There were six other, predefined biological outcomes. Four related to sexually transmitted infections. These were:

1. Syphilis prevalence (TPPA positive on serum)
2. Gonorrhoea (NG) prevalence based on PCR on urine in males and on self-administered vaginal swabs in females
3. Chlamydia (CT) prevalence based on PCR on urine in males and on self-administered vaginal swabs in females
4. Trichomonas (TV) prevalence based on PCR on self-administered vaginal swabs in females (only)

Two related to pregnancy:

1. Pregnancy prevalence based on a dipstick test on urine (in females only)
2. Proportion of females reporting ever having been pregnant, excluding those who reported this at baseline

In males, the prevalence of syphilis was lower in the intervention communities, while the prevalence of CT was higher. Neither difference approached statistical significance. There were too few cases of NG (10) for analysis to be valid.

In females, there was a tendency for the prevalences to be higher in intervention communities than in comparison communities, but this difference only approached statistical significance for NG and CT. However, there was a slightly higher prevalence of CT in the intervention communities at baseline (NG was not measured at baseline), and the difference was in the opposite direction for HIV incidence.

Summary & Interpretation:

External evaluations of the multi-sectoral package of interventions used in the trial showed that these were of high quality, were well implemented, and achieved high coverage. They resulted in substantial and statistically significant improvements in knowledge and reported sexual attitudes in both males and females. In terms of their

impact on reported sexual behaviour in males, they also resulted in delayed reported sexual debut (borderline statistical significance), a reduction in the reported number of sexual partners in the past 12 months, and increased condom use. In females, the only significant difference was increased reported first use of condoms during the follow-up period. There was a tendency for the benefits of the intervention to be relatively greater in males than females, and in those who had had the opportunity to receive more of the in-school component of the intervention.

However, there was no consistent impact of the interventions on biological indicators of HIV, other STIs, and pregnancy rates. Some biological outcomes were lower in intervention communities, while others were higher, and only one difference (NG prevalence) was statistically significant – a finding that could easily have occurred by chance given the large number of outcomes being examined, and supported by the fact that all the difference between the two trial arms was in those young people who only had the potential to have received one year of the in-school intervention because they were in Year 6 of primary school at recruitment.

The different findings for the biological outcomes compared to knowledge, reported attitudes, and reported sexual behaviours have important implications for future trial design, and the interpretation of past intervention evaluations.

Potential explanations for the lack of any consistent impact on the biological outcomes, despite the substantial differences in knowledge, reported attitudes and reported sexual behaviours include:

- 1. Such Interventions only change knowledge & skills, but not risk-taking, at least in the short-term**
 - Reported behaviour is notoriously unreliable in young people and may be subject to differential reporting bias (intervention vs comparison) in the presence of an intervention. Hence, reported behaviour may reflect knowledge of desired behaviours more than actual behaviour.
 - The pressures for risky sex are very strong within many African communities. Cultural norms, such as gender power relations, age-related power relations, marriage and fertility norms, within the wider community mitigate against behaviour change. Also, rural young women have few avenues for material gain except through sex & marriage.

2. Interventions need more time to work?

- 40% of impact evaluation cohort only received one year of the in-school intervention.
- The highest risk group (Year 6 at recruitment) had the least exposure to the in-school component of the intervention.
- The duration of follow-up (3 years) may have been too short to see the impact of any improvement in young men's risk-taking on biological outcomes in young women, due to the substantial differences in the average age of sexual partners.

3. Additional interventions needed?

Additional interventions might be needed to achieve an impact on HIV, other STIs and pregnancy rates in the short-term. These might include:

- Intensified mass media approaches
- Specific interventions targeting out-of-school youth
- Sexual health promotion interventions for the general community, perhaps specifically focusing on religious leaders, traditional/alternative healers/advisors, and work place interventions.
- The integration of sexual health promotion into other community development activities (eg. agricultural extension, microcredit programmes).
- Provision of accessible facilities for counselling and voluntary HIV testing

However, the evidence for the cost-effectiveness of many of these potential interventions, in terms of their ability to improve adolescent sexual and reproductive outcomes, is weak. Also, the exact approaches to deliver such interventions on a large scale are not well worked out, particularly in rural areas.

Conclusions

1. Considerable caution is needed when extrapolating from evidence of a beneficial impact on sexual health knowledge, attitudes & reported behaviour to health impact on HIV, STIs & unwanted pregnancy in adolescents.
3. Future evaluations should include biological outcomes.
4. Effective ways of preventing HIV, STIs, & unwanted pregnancies in young people are urgently needed.
5. Accurate knowledge & skills are essential for young people who want to change their behaviour, & access to them is a basic human right.
6. The trial has shown that there is a feasible intervention that can induce substantial & sustained improvements in knowledge, reported attitudes, & reported behaviours.
7. Such programmes should therefore be implemented on a large scale.
8. More work is needed to explore:
 - Whether, in the longer term, benefits on health outcomes can be demonstrated, if such interventions are sustained.
 - How to further enhance the interventions.