The Use of Research and Statistical Analyses for Social Marketing Practices and Targeting: Scientific considerations on how to determine what factors are associated to behavioural change.

Main Objective of the Study

Demonstrate that research and statistical analyses are crucial for better targeting of audiences and the main determinants of health problems in public education interventions.
Main Aspects Addressed

What are the main problems in determining such association during analyses of the data for better targeting and segmentation practices:

- Levels of Association
- Use of Proper Statistical Technique
- Interaction
- Confounding

Research Description

Durex has conducted global sexual surveys around the world to determine what predicts unprotected sex and use of contraception at first sex and other social determinants of positive sexual health (2006-2008).
Case Study: Use of Contraception at First Sex by Age at First Sex

A probabilistic sample of 26,000 sexually active individuals participated in a 26 country research study on contraception use at first sex conducted by Durex. After an initial bibliographic review, potential predictors were identified. Twelve independent variables were selected and included in the final questionnaire, such as gender, age, income, age at first sex, alcohol/drug consumption, prior planning, readiness and pressure at first sex. Finally, a multiple logistical regression model was created for tests of statistical significance for identification of main predictors and/or confounders. The level of statistical significant was set at p-value<0.05 and 95% confidence interval.

Research Question

What demographic and behavioural variables are associated to use of contraceptive methods at first sex around the world?
Scientific Justification

“It is noteworthy that non-use of contraception at first intercourse in itself predicts subsequent high-risk sexual behavior”

Svare, Edith Ingerslev Svare
Contraception, 2002 Elsevier Science Inc.

Main Findings

Not Associated to Use of Any Contraceptive Methods at First Sex (p-value > 0.05):

- Felt Pressure at First Sex
- Under the Influence at First Sex
- Felt Risk of STIs
- Felt Risk of Pregnancy
Main Findings
Associated to Use of Any Contraceptive Methods at First Sex (p-value < 0.05):

- Gender (Females, 28% more likely)
- Age (35-49, 335% less likely)
- Income (Average, 45% more likely)
- Education (Highest Degree, 74% more likely)
- Age at First Sex (At 17, 257% more likely)
- Planned First Sex (Planned, 75% more likely)
- Relationship Status (Stable, 22% more likely)
- Relationship Status (Married, 61% less likely)
- Felt Ready at 1st Sex (Ready, 53% more likely)

Main Considerations I: Levels of Association
Constant Linear Association or Up to What Level?
Regression Age on Contraception at First Sex

Regression Age at 1st Sex on Contraception at First Sex
Main Considerations II: Use of the Best Statistical Technique

Limiting statistical analysis to sexually experienced individuals is a common restriction of the scientific literature for calculations of median/mean age at first sex of respondents. Durex Network conducted an analysis of age at first sex using Life Table Technique and compared with median age at first sex for sexually active.

Comparisons in Use of Different Techniques

<table>
<thead>
<tr>
<th>Analytical Model</th>
<th>Mean</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional Models (not accounting for virgins)</td>
<td>19.1 years old</td>
<td>18.0 years old</td>
</tr>
<tr>
<td>Life Table (accounting for virgins)</td>
<td>20.2 years old</td>
<td>19.5 years old</td>
</tr>
</tbody>
</table>
Levels of exposure to sources of sexual education

Kaplan-Meier survival estimate

0.00 0.25 0.50 0.75 1.00

Age At First Sex

Main Sources of Sexual Education

0.0% 10.0% 20.0% 30.0% 40.0% 50.0% 60.0%

Friends/Peers Books Magazines School Internet TV Programmes
Partner Parents/Guardians College/University Newspapers Health Clinic/Doctor Work Colleagues
Church/Mosque/Religious NGOs
Governm ent Distributor of Sex Products

Other Family Members
Sources of sexual education vs. Levels of sexual confidence

Main Considerations III & IV: What About Interaction and Collinearity?

Do variables that seem not to be a predictor become an important “ingredient” when interacting with another variable?

How to account for similar variables in the same model (eg. Pressured and Forced Sex)?
Main Findings

Interaction (p-value = 0.002):
Found for Neither Using Alcohol and Drugs at First Sex and Feeling Ready for First Sex (120% more likely to have reported using contraceptives at first sex)

Confounded (from insignificant to significant):
Area Type (positively confounded by age – older individuals are more likely to live in rural areas)

Main Conclusion

Social marketing practitioners should make better use of evidence based interventions and work closely with research and evaluation experts/scientists for better targeting of educational health interventions