

## Profile Analysis as a Method of Comparing Intergenerational Differences in Sexual Behavior

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*Profile analysis can be used in sex research as a statistical procedure to assess the degree of similarity between various samples on different parameters of sexual behavior. Data are presented to analyze intergenerational changes comparing three independent samples including a time interval of approximately four decades. Profile analysis can differentiate the intergenerational trend. Results show (i) a clear trend of male-female profile-convergence over time; (ii) intergenerational changes in males are few with male sexual behavior seemingly little influenced by social changes; (iii) females show large intergenerational differences. These asymmetric trends demonstrate that the sexual changes within the last four decades are a one-sided process of females liberating from the "behavioral double standard."*

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**KEY WORDS:** intergenerational change; male-female sexual behavior; sex differences; sexual behavior; cross-national sexual behavior.

### INTRODUCTION

Changes of sexual behavior and attitudes during the last two or three decades have been analyzed in different empirical studies. They unanimously show that first heterosexual behavior is practiced earlier in life, that sexual attitudes have become less restrictive, and the double standard, allowing more male sexual permissiveness than female, has almost vanished. These trends have led to a convergence of sex differences (Clement *et al.*, 1984; Sherwin and Corbett, 1985).

Methodologically, three different kinds of change assessment have been used in these studies: (i) comparison of cohorts by year of birth (Schmidt

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and Sigusch, 1972; Sigusch and Schmidt, 1973; Mahoney, 1978; Raboch and Barták, 1980; Downey, 1980), (ii) panel studies (Tolone *et al.*, 1975; Ferrell *et al.*, 1977), and for the most part (iii) replication studies (Bell and Chaskes, 1970; Asayama, 1976; Croake and James, 1973; Glenn and Weaver, 1979; Bell and Coughy, 1980; Barrett, 1980). Although arriving at similar or comparable results, these studies are based on relatively small samples (except for the Japanese study of Asayama) and take into account only a small range of basic data on heterosexual behavior with often a surprisingly restricted interest in premarital coitus. The usual methodological procedure is a univariate comparison of the parameters in question. This raises few problems when two samples are compared on one or two parameters. However, this procedure seems methodologically insufficient when more parameters and more samples or subsamples are considered. The present study therefore proposes profile analysis as a method that allows a multidimensional comparison of independent samples by using similarity coefficients.

The general hypothesis that intersex convergence in sexual behavior is primarily caused by changes in females with male sexual behavior staying relatively constant was tested.

### METHODOLOGICAL RATIONALE

The intergenerational comparison is based on sexual behavior data of three independent and relatively large samples recruited at time intervals so far apart as to allow an analysis of intertime changes over approximately four decades. For a comparison it must be warranted that the samples refer to the same sociological unit, i.e., there is no substantial sample bias. The sample bias must be considered here especially with regard to social class and educational level. To control at least the influence of educational level, the comparison refers only to probands with a relatively high educational level, namely, those who have at least college education (U.S. sample) or attended university (West German sample). A possible influence of the different types of study cannot be excluded, because they are not directly comparable between the two cultures. However, for the purpose of paralleling the samples by educational level, this is of small importance.

*Sample A* (Kinsey *et al.*, 1948, 1953; college subsample<sup>2</sup>): Data collection 1938–1947 ( $n = 2961$  male, 4457 female)

*Sample B* (Giese and Schmidt, 1968): Data collection 1966 ( $n = 2835$  male, 831 female West German students)

*Sample C* (Clement, 1986): Data collection 1981 ( $n = 1106$  male, 816 female West German students)

<sup>2</sup>Educational level 13+.

The comparison of Samples B vs. C raises no methodological problems, since this is only an intergenerational comparison within the same culture. When considering the Kinsey data, we face a difficulty by introducing a further dimension—the intercultural comparison between the United States of America (USA) and the Federal Republic of Germany (FRG). The comparison of these three samples, therefore, confounds the intergenerational and intercultural dimension. For this reason, the following rationale for the intended multidimensional comparison is proposed: The changes in sexual behavior during the last four decades follow a “monotonous” trend of increasing sexual permissiveness in all Western industrialized societies. This trend may vary on different levels of permissiveness. The intergenerational changes between Sample A and Sample B (about 20 years) *within* the two cultures are larger than the intercultural differences *between* the USA and the FRG at the two periods of data collection. When this rationale is presumed and we compare samples of different periods and cultures, two kinds of mistakes are possible:

*Mistake 1.* The prior investigated sample comes from the more restrictive culture, the later investigated sample from the more permissive culture. In this case, intergenerational and intercultural differences *accumulate*. Intergenerational differences of this kind of comparison are *overestimated*.

*Mistake 2.* The former investigated sample comes from the more permissive culture, the latter investigated sample from the more restrictive culture. In this case, we have a *subtraction* of intergenerational and intercultural differences. Intergenerational differences of this kind of comparison are *underestimated*.

The only study that compares students of the USA and the FRG, thus giving data on what intercultural differences exist, is the study of Luckey and Nass (1969). They found US students to have more conservative attitudes (especially a more explicit sexual double standard) and larger differences in coital experience between the two sexes in favor the male (behavioral double standard). The males of both countries had about the same level of coital experience (58 vs. 55%); the German female students, however, were more coitally experienced (59%) than the US females (43%). On the basis of these data, the US students tend to be more restrictive than the German students. If this tendency is not inverted within the relevant interval of the four decades in question, we can expect Mistake 1. Thus, for the compared samples of the present study, the differences between Sample A and Sample B are overestimated when interpreted only as intergenerational differences.

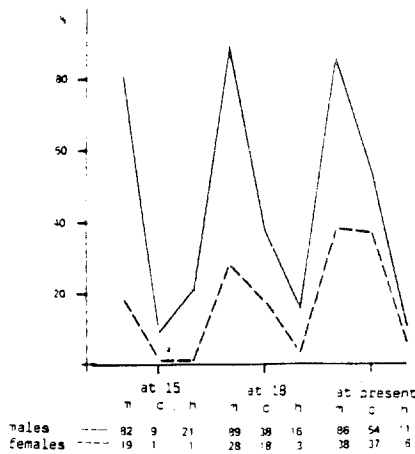
On the basis of this methodological rationale we can assess the trend of intergenerational change by computing the similarities of the three samples on different parameters of sexual behavior. The statistical procedure, which allows a multidimensional comparison of this type, is the *profile analysis* as developed by Fleiss and Zubin (1969) and Schlosser (1976). The un-

**Table I.** Active Incidence of Masturbation, Coitus, Homosexual Activity at Different Ages (15 Years, 18 Years, At Present) in Percentages

	Sample A		Sample B		Sample C	
	Male	Female	Male	Female	Male	Female
15 years						
Masturbation	82	19	74	28	84	54
Coitus	9	1	3	1	7	10
Homosexuality	21	1	9	1	9	3
18 years						
Masturbation	89	28	83	33	89	65
Coitus	38	18	19	10	44	59
Homosexuality	16	3	5	1	5	4
At present						
Masturbation	86	38	82	44	89	73
Coitus	54	37	56	48	78	83
Homosexuality	11	6	3	1	5	4

derlying parameters are the incidences of three sexual behavior variables (masturbation, coitus, homosexual activity) at three different age levels (15 years, 18 years, at present). These nine variables form a sexual behavior profile for each gender of the three samples. We thus have six profiles for the profile similarity analysis (Table I, Figs. 1, 2, 3).

Two types of similarity coefficients should be distinguished: Type A: Small distance of profiles with no regard of profile pattern, and Type B:



**Fig. 1.** Sample A intersex comparison (solid line = male; dashed line = female).

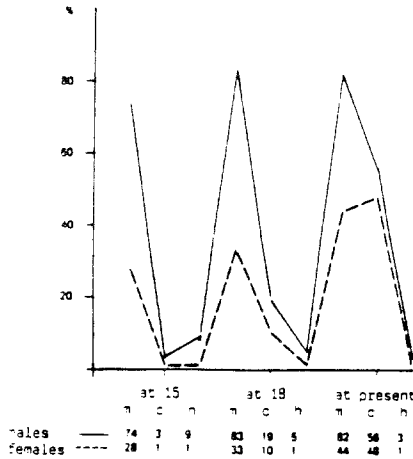


Fig. 2. Sample B intersex comparison.

Parallel pattern with no regard of profile distance. In the present study, both types of profiles are of concern. Type A is defined by the average profile distance, Type B by the average profile distance after a linear transformation by subtracting the average profile distance. The following coefficients are used:

**Type A Coefficients<sup>3</sup>**

$$S_1 = \frac{1.14 - \frac{\sum d_i}{N}}{1.14} \quad \text{where } d = \frac{D}{s}, \text{ i.e., standard difference}$$

$$S_2 = \frac{1.14 - \sqrt{\frac{\sum d_i^2}{N}}}{1.14} \quad \text{where } k = \text{median } (p = 0.50) \text{ of } \chi^2 \text{ distribution}$$

$$r_p = \frac{2k - \sum d_i^2}{2k - \sum d_i^2} \quad \text{where } k = \text{median } (p = 0.50) \text{ of } \chi^2 \text{ distribution}$$

<sup>3</sup>For  $S_1$ ,  $S_2$ ,  $S_{corr}$ , see Schlosser (1976), pp. 92ff and 123ff; for  $r_p$ , see Cattell (1949).

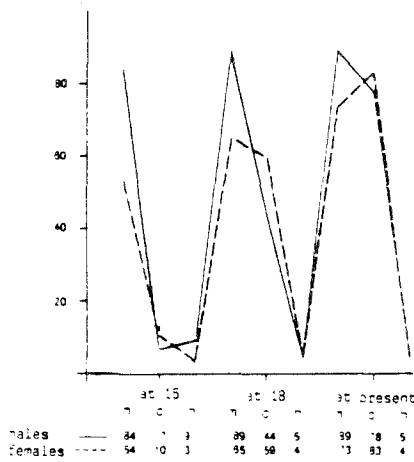


Fig. 3. Sample C intersex comparison.

**Type B Coefficients<sup>3</sup>**

$$S_{corr} = \frac{1.14 - \frac{\sum D - (\bar{x}_1 - \bar{x}_2)}{N}}{1.14}$$

$$\rho = 1 - \frac{6 \sum D^2}{N(N^2 - 1)} \quad \text{where } D = \text{rank order difference}$$

**RESULTS**

Table II shows the same trend of a profile convergence over time between the two sexes in four of five coefficients. The sex differences are very large in the Kinsey sample (see Fig. 1), which corresponds to low similarity coefficients and the youngest sample from 1981 shows a high similarity of sexes (see Fig. 3). This trend is particularly clear in coefficients of Type A. Thus changes are not expressed as an increasing similarity of profile patterns but as a decreasing distance of profiles.

The intergenerational changes in males are low. Similarity coefficients of the three samples in comparison are high (Fig. 4). Thus we find a relatively high level of constancy over time in the adolescent and adult sexual behavior of men.

Table II. Profile Similarity of Sexual Behavior<sup>a</sup>

		$\Sigma d_i$	$\Sigma d_i^2$	Coefficients					
				Type A			Type B		
				$S_1$	$S_2$	$r_p$	$S_{corr}$	$\rho$	
Intersex comparison	$M_A-F_A$	8.26	13.21	.19	.14	.12	.42	.82	
	$M_B-F_B$	5.98	6.56	.42	.39	.44	.48	.85	
	$M_C-F_C$	3.43	2.36	.67	.64	.75	.65	.76	
Intergenerational comparison	Male	$M_A-M_B$	2.59	0.99	.75	.76	.89	.89	1.00
		$M_A-M_C$	2.25	1.08	.78	.75	.88	.78	.94
		$M_B-M_C$	2.59	1.53	.75	.71	.83	.78	.96
	Female	$F_A-F_B$	1.57	0.41	.85	.85	.95	.84	.95
		$F_A-F_C$	6.61	7.51	.36	.35	.38	.46	.89
		$F_B-F_C$	6.40	7.30	.38	.36	.39	.55	.95

<sup>a</sup>Sexual behavior parameters are defined in Table I.

In contrast, females show large intergenerational changes (Fig. 5). The similarity coefficients between the two older samples are high; the youngest sample shows low similarity to both older samples. Therefore, the culturally equal West German samples did not show higher similarity in sexual behavior. The large changes in sexual activity of females took place after 1966—a monotonous overall cultural trend being presumed.

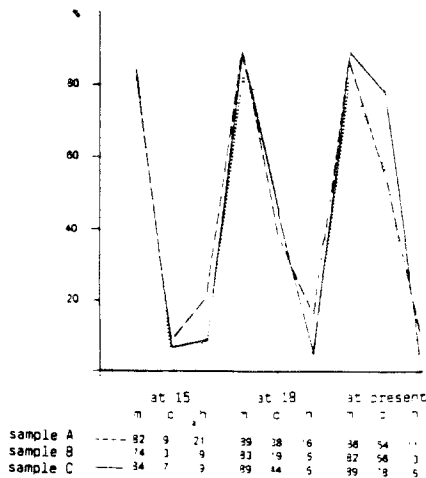


Fig. 4. Intergenerational comparison: males.

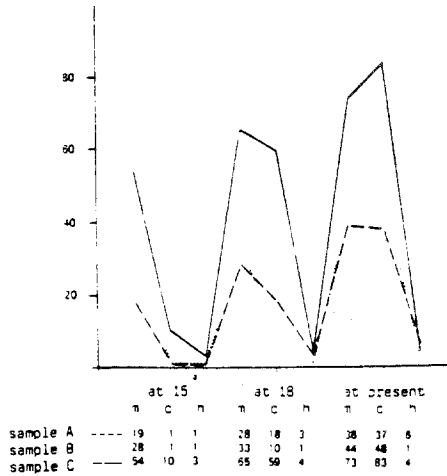


Fig. 5. Intergenerational comparison: females.

## DISCUSSION

The convergence of sexual behavior between the two sexes over the last four decades is evident when various parameters are considered and when data from two different industrialized societies are used. However, two different asymmetric trends, which contribute to this convergence, can be found. The sexual behavior patterns of three male subsamples show high similarity coefficients and do not form a visible intergenerational or intercultural trend. The high similarity of the two older female subsamples (A vs. B) can be read as follows: Until the mid-1960s, the heterosexual, homosexual, and masturbation experience of female students was constantly low. Furthermore, intercultural differences seem to be of little significance here. Beginning in the late 1960s, however, large changes in sexual behavior took place. Particularly, female students show markedly increased levels of masturbation and coitus experience at each age and thus approximate the sexual behavior pattern of their male counterparts.

The sexual liberalization of the last two decades reveals itself as a liberation of females from the behavioral double standard and is thus a one-sided process of change—as referred to behavior. However, the convergence of behavior profiles due to changes of female behavior must not be interpreted as a simple adaptation of female to male sexuality, i.e., females making up for what had already been allowed males. The increasing similarity of sexual behavior profiles between the two sexes is “epidemiological” and does not reveal anything about similar sexual feelings and emotions. On the contrary,



large sex differences, which are typical for restrictive societies or epochs, are an expression of the dependence of female sexuality on male-dominated sexual norms, particularly the double standard. Inversely and paradoxically, we can interpret the described decrease of male-female differences in sexual behavior as an increasing independence of female sexuality from male norms.

## REFERENCES

- Asayama, S. (1976). Sexual behavior in Japanese students: Comparisons for 1974, 1960, and 1952. *Arch. Sex. Behav.* 5: 371-390.
- Barrett, F. M. (1980). Sexual experience, birth control usage, and sex education of unmarried Canadian university students: Changes between 1968 and 1978. *Arch. Sex. Behav.* 9: 367-390.
- Bell, R. R., and Chaskes, J. B. (1970). Premarital sexual experience among coeds, 1958 and 1968. *J. Marr. Fam.* 32: 81-84.
- Bell, R. R., and Coughney, K. (1980). Premarital sexual experience among college females 1958, 1968, and 1978. *Fam. Rel.* 29: 353-357.
- Cattell, R. B. (1949).  $r_p$  and other coefficients of pattern similarity. *Psychometrika* 14: 279-298.
- Clement, U., Schmidt, G., and Kruse, M. (1984). Changes in sex differences in sexual behavior: A replication of a study of West German students (1966-1981). *Arch. Sex. Behav.* 13: 99-120.
- Clement, U. (1986). *Sexualität im sozialen Wandel*, Enke, Stuttgart.
- Croake, J. W., and James, B. E. (1973). A four year comparison of premarital sexual attitudes. *J. Sex Res.* 9: 91-96.
- Downey, L. (1980). Intergenerational change in sex behavior: A belated look at Kinsey's males. *Arch. Sex. Behav.* 9: 267-317.
- Ferrell, M. Z., Tolone, W. L., and Walsh, R. H. (1977). Maturational and societal changes in the sexual double-standard: A panel analysis (1967-1971; 1970-1974). *J. Marr. Fam.* 29: 255-271.
- Fleiss, J. L., and Zubin, J. (1968). On the methods and theory of clustering. *Multiv. Behav. Res.* 4: 235-250.
- Giese, H., and Schmidt, G. (1968). *Studentensexualität*, Rowohlt, Hamburg.
- Glenn, N. D., and Weaver, C. N. (1979). Attitudes toward premarital, extramarital, and homosexual relations in the U.S. in the 1970's. *J. Sex Res.* 15: 108-118.
- Kinsey, A. C., Pomeroy, W. B., and Martin, C. E. (1948). *Sexual Behavior in the Human Male*, W. B. Saunders, Philadelphia.
- Kinsey, A. C., Pomeroy, W. B., Martin, C. E., and Gebhard, P. H. (1953). *Sexual Behavior in the Human Female*, W. B. Saunders, Philadelphia.
- Mahoney, E. R. (1978). Age differences in attitude change toward premarital coitus. *Arch. Sex. Behav.* 7: 493-501.
- Raboch, J., and Barták, V. (1980). Changes in the sexual life of Czechoslovak women born between 1911 and 1958. *Arch. Sex. Behav.* 9: 495-502.
- Schlosser, O. (1976). *Einführung in die Sozialwissenschaftliche Zusammenhanganalyse*, Reinbek.
- Schmidt, G., and Sigusch, V. (1972). Changes in sexual behavior among young males and females between 1960 and 1970. *Arch. Sex. Behav.* 2: 27-45.
- Sherwin, R., and Corbett, S. (1985). Campus sexual norms and dating relationships: A trend analysis. *J. Sex. Res.* 21: 258-274.
- Sigusch, V., and Schmidt, G. (1973). *Jugendsexualität*, Stuttgart.
- Tolone, W. L., Ferrell, M. Z., and Walsch, R. H. (1975). *Attitudinal and behavioral bases of the sexual double-standard*. Paper presented at the Annual Meeting of the Midwest Sociological Society, Chicago.