Asian Language & Literature Occasional Papers | Asian Languages and Literatures

1986

Adolescent Sexuality and Family Planning Awareness, Knowledge, Attitude and Behavior: Taiwan

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ACKNOWLEDGEMENTS

INTRODUCTION

The Government has carried out an active family planning
education and contraceptive service program which has helped cut
Taiwan's natural increase rate in half in twenty years (from 1963's
3.0% to less than 1.6% in 1983).[3,5,13] Nevertheless, the
population has increased from 1963's 12 million to nearly 19
million in 1983. To continue this fertility decline, the program
is considering focusing more efforts on the adolescent group (15-
19) whose births comprised 6-8% of all during the past few years.
In addition to demographic policy, there has recently been more
awareness of social problems occurring as a result of an increase
in unwanted premarital pregnancy for those married at age less than
20 (derived from findings of the 1980 Island-wide Fertility KAP
survey).[5,6,12,15]

Modernization, it appears, is bringing not only universal
education but certain social and demographic problems.
Unfortunately, until recently, we did not know a great deal about
adolescent activities, i.e., our scientific body of knowledge on
adolescent sexuality-related behavior was quite limited. Although
there were a number of university-centered or sponsored studies of
small samples or limited geographic areas (which attracted a fair
amount of newspaper coverage), there had been no island-wide
probability sample from which one might draw conclusions about the
whole adolescent body. Too often, impressions of adolescent sexual
activity are overstated based on anecdotes, sometimes apocryphal,

about factory workers who represent only a small segment of the adolescent population.

To remedy this and provide a clearer understanding of the existing social situation, the Taiwan Provincial Institute of Family Planning, with National Science Council support, and the cooperation of the University of Massachusetts Division of Public Health, the first Island-wide sample survey of youth's viewpoint and behavior to male and female socializing took place. This survey focused particularly on unmarried females ages 15-19, but also included married women as well.

These findings, made available in mid-1984, indicate the need to review the present Governmental policy to strengthen the educational input on reproduction, pregnancy, family planning and contraception in the public and private schools. In addition, curriculum input, teacher and school administrator training, and educational materials related to the social relationships of male and female adolescents, particularly responsibility regarding sexuality, need to be developed.

These findings also show that Government and private agencies need to make stronger efforts to reach adolescents, both in and out of school, with specific public information about contraception, particularly its availability and usage.

SOCIAL BACKGROUND

The Republic of China on Taiwan has gone through a rapid economic, demographic and social transition.[7] See Table 1. In 1985 it became the world's 10th biggest exporter (US$ 31 billion).

Table 1. Indicators of Economic and Social Development: Taiwan, Selected Years, 1952-83

Indicator	1952	1956	1960	1964	1968	1972	1976	1980	1983
Economic Indicators									
GNP index	100	135	176	259	375	599	795	1100	1311
Per capita real national income index [a]	100	119	137	172	227	324	405	546	611
Savings as percent of national income	5.2	4.8	7.6	16.3	19.8	31.6	32.2	32.7	29.9
Agricultural production index	100	121	143	179	223	237	260	289	295
Total industrial production index [b]	100	155	243	400	767	1655	2478	3910	4589
Electric power production index	100	158	255	416	690	1229	1893	2874	3205
Percent of labor force over age 11 in nonagricultural occupations	39	40	44	46	51[c]	60[c]	65[c]	72[c]	73[c]
Education Indicators									
Percent of population aged 6 and over who are illiterate	42	37	27	22	16	13	17	10	9
Percent of primary school graduates enrolled in junior high school	34	47	51	55	75	84	91	97	99
Communication and Transportation Indicators									
Daily newspaper and magazines circulation per 1000 population	--	--	--	37	42	73	90	142	160
Automobiles per 1000 population	1	1.4	2.0	2.5	4.9	9.3	19.4	38.8	57.3
Posting of domestic letters per capita	8	17	33	32	32	46	44	52	62
Telephone sets per 1000 population	3.9	5.2	8.6	11.6	19.9	38.9	84.2	177.8	259
Television sets per 1000 households	--	--	--	14	175	670	931	1020	1037
Health Indicators									
Death rate per 1000 population	10	8	7	6	5	5	5	5	5
Life expectancy, males [d]	56	60	62	64	64	67	68	69	69
Population per doctor	1610	1601	1661	1847	2075	1900	1437	1323	1268

[a] At constant price of 1981 and adjusted for gain or loss due to changed terms of trade.
[b] Includes manufacturing, mining, electricity, gas, and water.
[c] For labor force over age 14.
[d] Data from Taiwan Demographic Fact Book, Ministry of the Interior, Republic of China, Taipei, Taiwan, 1971, 1972, 1980, and 1983.

Source: Unless otherwise indicated, Council for International Economic Cooperation and Development, Taiwan Statistical Data Book, Council for Economic Planning and Development, Executive Yuan, Republic of China, 1983, and Social Welfare Indicators, 1983.

Per capita income in 1983 was US\$ 2,515 (approximately) vs. \$400 in

1952.[*] The index of Gross National Product has increased by about

thirteen fold during a twenty-one-year period (1952-1983). Many

serious killer communicable diseases which were once highly

prevalent have disappeared or are close to being eliminated (e.g.,

malaria, cholera, TB). Infant mortality has been reduced

dramatically from 1952's 45 per 1,000 live births to less than 10

in 1983. Agricultural production has tripled. Access to modern

communication extends throughout the island: improved roads and

modern highways; 193 phones and more than 1,000 TV sets per 1,000

population vs. virtually none in 1952. Universal education is a

national policy. The natural increase rate, primarily due to a

lower birth rate, has dropped from 1961's 37.7 per thousand to 15.7

in 1983, with the total fertility rate dropping from 5,608 to

2,155. Current use of contraception among married women ages 22-39

rose from 24% just after an Island-wide family planning program

began in 1965 to 70% in 1980. See Table 2.

This modernizing transition is bringing about considerable

social change, some of it within the Chinese familial relationship

structure: universal education for young, increased access to

"modern" ideas in the mass media, improved communications, expanded

employment outside the family and living patterns wherein separate

housing for children after marriage is becoming common (and
sometimes before marriage).[15]

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[*] at 1981 prices, after adjustment of terms of trade; source: Taiwan
Statistical Data Book: 1985, Council for Economic Planning and
Development, 1986.

TABLE 2. Fertility Rates: Taiwan Area, Selected Years: 1961-1983.

Rate	1961	1965	1970	1975	1976	1977	1978	1979	1980	1981	1982	1983
1. Crude birth rate	37.7	32.1	27.2	23.0	25.9	23.6	24.2	24.4	23.3	23.1	22.1	20.6
2. Total fertility	5,608	4,825	4,000	2,830	3,080	2,700	2,710	2,660	2,515	2,455	2,320	2,155
3. General fertility rate	177	152	120	94	105	95	96	96	91	89	85	79
4. Age-specific fertility rate for all women by age:												
15-19	45	36	40	37	38	37	36	35	33	31	29	26
20-24	249	261	238	194	213	194	194	194	180	176	166	154
25-29	342	326	293	215	241	206	213	209	200	197	186	174
30-34	246	195	147	83	87	73	73	72	69	69	66	62
35-39	157	100	59	27	28	23	20	18	16	14	14	13
40-44	71	41	20	8	8	6	5	4	4	3	3	2
45-49	10	6	3	1	2	1	1	0	1	1	0	0
5. General fertility rate for married women	258	225	192	157	175	158	160	160	152	149	141	130
6. Age-specific rate for married women by age:												
15-19	362	390	502	639	682	663	653	671	670	652	649	623
20-24	409	447	473	450	500	463	467	480	453	447	434	412
25-29	384	368	332	259	294	254	264	262	253	251	238	225
30-34	269	210	158	89	94	79	80	79	77	77	74	71
35-39	175	109	64	29	30	25	21	19	17	15	15	15
40-44	83	47	22	9	8	7	6	5	4	4	3	3
45-49	13	8	4	2	1	1	1	1	1	1	0	0

Source: Taiwan-Fukien Demographic Factbooks for relevant years.

It is in this context that there is concern about increases in premarital sex which are not in accord with traditional norms,[*] unwanted pregnancy and consequent higher adolescent marital fertility.[2-6] These changing sexual mores, of course, have significant social implications (mental health, unwanted pregnancy, premature marriage, higher adolescent fertility, possible juvenile delinquency) which undoubtedly are affecting the quality of human resources. Early sex behavior leading to premature marriage may lead to an unstable family structure, and, hence, weakens the social structure. Furthermore, an unstable marital situation affects the education of the next generation which will be the natural resource for future social development. In addition to these considerations, these changing mores disturb the economic as well as social balance in society because of their demographic effect. For example, in the past few years, from 6-8% of all live births in the Taiwan Area were to women ages 15-19 (i.e., the group referred to internationally as "adolescents"). Although the overall fertility rate for those 15-19 is relatively low, that for the married women (623 per 1,000 in 1983)[13] is higher even than in the U.S. which many there regard as alarmingly high (see Table 2). Many of those pregnancies in Taiwan, of course, are unwanted and likely are the reasons for the high marital fertility (percent currently married has been about 5-6% for about ten years). Given

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[*]as espoused in earlier Confucian teaching of decorum, as reinforced in the concepts of female chastity developed in the twelfth century and current in the twentieth century in Taiwan.

Taiwan's present level of economic development there seems little reason for any of these births to 15-19 year olds to occur. If they were stopped the Natural Increase Rate in Taiwan would have dropped in 1983 from 15.7 to 14.4 per 1,000. See Table 3.

Premarital sex is relatively common: for those married women in the 20-24 year age group (born in 1955-59) it was 47.9% in 1980 (see Table 4).[12] Premarital pregnancy also is definitely on the rise. Taiwan sample surveys show a five-fold increase in incidence from 1965's 3.7% (to 12.9% in 1973) to 19.2% in 1980 (see Table 5). About two-thirds of married women with premarital pregnancy interviewed in 1980 felt that their first birth came too early.

It was in this context that the Taiwan Provincial Institute of Family Planning determined to carry out a survey of adolescent fertility and sexuality awareness, knowledge, attitude and behavior in 1983 and 1984.

INSTITUTIONAL SETTING

The Taiwan Provincial Institute of Family Planning has a long-time history of conducting island-wide knowledge, attitude and practice surveys of fertility and family planning. Prior to this survey, during the period from 1965-1985, it had fielded five large-scale sample surveys of married women ages 20-39 and two surveys of younger women (both married and unmarried ages 20-29). See Table 6. These surveys received funding and technical assistance not only from Government sources, but also from the Population Council and the University of Michigan. A useful

TABLE 3.   Demographic Effect of Eliminating All Births to Women Ages 15-19 in 1983

		No. Live Births	Crude Birth Rate	Crude Death Rate	Natural Increase Rate
1.	Actual	381,029	20.55	4.87	15.68
2.	Less 15-19	-24,416*	1.32	4.87	1.32
3.	Demographic Effect	356,613	19.23	4.87	14.36

*Includes 343 births to those younger than 15.

TABLE 4.   Premarital Sex Among Women 20-39:   1980*

	Birth Cohort/Age Group	% Having Premarital Sex
1.	1955-59/20-24	47.9**
2.	1950-54/25-29	30.2**
3.	1945-49/30-34	18.6**
4.	1940-44/35-39	13.5**

*Source: 1980 Island-wide Fertility Knowledge, Attitude and Practice Survey (n=3,859). Based on the question: "Before your marriage, did you have sexual intercourse with your future husband?"

**Statistically significant differences at the .001 level.

TABLE 5. Percent Having Premarital Pregnancy: 1965 vs. 1973 vs. 1980*

Age at Marriage	1965	1973	1980
Less than 20	3.7%	12.9%	19.2%
20 or older	5.7%	12.2%	15.8%
Total	4.7%	12.5%	17.1%

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*Source: Lin, HS,   p. 19. Data based on births occurring less than
7 months from date of marriage in Island-wide Fertility KAP surveys,
conducted by the Taiwan Provincial Institute of Family Planning in 1965,
1973 and 1980.

TABLE 6.   Family Size Preference and Family Planning Knowledge, Attitude (KA)
and Practice (KAP) Sample Surveys: 1965-1984

Year	No. Respondents	Married Women KAP (approx. 22-39)	Younger Women KA
1965	3,049	KAP I	
1967	4,145	KAP II	
1970	2,491	KAP III	
1971	1,984	--	KA I (unmarried and married 18-29)
1973	5,235	KAP IV	
1978	2,370	--	KA II (unmarried 18-29; married 25-36)
1980	3,608	KAP V	
1984	3,185	--	KA III (married and unmarried 15-29)

summary of trends in fertility, family size preferences, and family practice over the period 1969-80 may be found in Chang et al.[5]

During the period from December 1983 to May 1984 the Taiwan Provincial Institute of Family Planning (TPIFP) carried out three island-wide sample surveys to determine sexually-related awareness, knowledge, attitude and behavior: one of students in secondary schools,[4] one of factory workers, and another Island-wide stratified sample of all women ages 15-19, included among a survey of married and unmarried women ages 15-29. See Appendix I for a description. The last mentioned survey is the focus of this analysis.

METHODS

Sample

The universe of our sample is comprised of about 3,000,000 women in child-bearing ages, 15-29, living in the non-aboriginal areas of Taiwan in 1984. The survey was based on a probability sample of 3,600 eligible women, interviewed in February through April 1984. Of the total sample women, about 3,185 or 86 percent were successfully interviewed. To assess reliability of the data, 5 percent of the interviewed women were selected for a post-enumeration survey of selected items.

Sample Selection

The sample was selected in three stages. The sampling frame was based on the administrative units in Taiwan. The first stage frame relates to four different types of administrative units grouped under the generic name of "township." These primary sampling units (PSU) consisted of precincts of the five major

cities (chu), entire small cities (shih), and urbanized and rural
townships (chen and hsiang). The PSUs were stratified into one of
the following criteria: (1) major type of administrative unit
(cities, urbanized townships, rural townships); (2) level of
education (high, medium, low percentage of women with junior high
school completed); and (3) total fertility rate (high, medium,
low). This stratification produced 27 strata of roughly equal
size.

The primary sampling units (townships) were selected across
the strata with probabilities proportional to the measure of size
in terms of number of married women 20-44 years of age within each
township. Before selection, the townships were listed according to
their stratum with a geographical ordering within each stratum.
The marital female population was then cumulated across the entire
list and the selection was made by systematic random sampling with
the interval of selection equal to the size of the smallest
stratum. This procedure resulted in the selection of 56 PSUs out
of the 331 non-aboriginal townships in Taiwan.* These 56 sample
townships were originally selected for the 1965 Taiwan KAP-I survey
using 1964 measures of size. In the 1980 KAP-IV survey, the
measures of size were updated to 1979 and the new selection was
made so as to retain as many of the original townships as possible,
utilizing the method developed by L. Kish and A. Scott (1971).[11]

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* There are 361 administrative units, referred to for convenience as
township, and encompassing all Taiwan, from which 30 mountainous
areas with largely aboriginal populations were excluded.

Application of this method required a change of only four townships
from the original list. For this survey, the sample townships are
the same as those of the 1980 KAP survey.

The basic administrative unit, blocks (lins) in selected
townships, served as clusters in the second stage. Again to insure
an adequate geographic distribution of the selected blocks, they
were listed according to their neighborhoods (lis) and the
neighborhoods were stratified geographically throughout the
township. The blocks within the selected townships were selected
with probabilities proportional to their population by cumulation
of block population across the selected township list and the
selection was made by systematic random sampling with the interval
of selection equal to the size of each selected township divided by
number of blocks being selected within that township. Finally,
three respondents were selected systematically from each selected
block.

$$P_i \times \left(\frac{L_j}{P_i \times 800 \times 3} \right) \times \left(\frac{3}{L_j} \right) = \left(\frac{1}{800} \right)$$

$$P_i = \frac{t_i}{n_h} \times t_h$$

Where: P_i = the probability of selection of a sample township;

L_j = the size of jth block (lin) in i^{th} township;

t_i = the number of eligible women in i^{th} township;

n_h = the number of eligible women in h^{th} stratum;

t_h = the number of selected townships in h^{th} township.

Sampling Frame

The household register of each sample township was used as the
frame for the preparation of lists of eligible respondents. When a
selected woman was found to be no longer living at the address
shown in the register, attempts were made to determine where she
was living by asking people then living at the address and others
in the neighborhood. When an address could be obtained, the
interview was obtained at the new address.

Data Collection

A corps of interviewers were trained to administer the
standardized questionnaire at the homes of the sample respondents.

Instrument

The survey questionnaire evolved from a series of three
previous Island-wide sample KAP Surveys of younger women (1971,
1978, 1984). These included fertility and contraceptive history
and behavior as well as economic and social correlates. This was
administered verbally by the interviewer. The module on sexually
related awareness, knowledge, attitude and behavior and perceived
unmet needs was developed particularly for this survey. It was
reviewed by related experts in both university and agency settings,
pretested among the audience to be reached, and revised. The
module was printed as a separate handout to be filled in by the
respondent to speed up the interview process and to provide at
least minimal privacy in responding. Additional questions were
added to the fertility and economic survey sections.

RESPONDENTS

As indicated earlier, 86 percent of the original probability sample were interviewed successfully. Of the 3,185, 1,011 were unmarried women ages 15-19 about whom this survey was particularly concerned. Some 90 percent of the sample drawn from this age group were successfully interviewed. It is worth noting that 52.9% of those unmarried 15-19 year olds were currently in school closely paralleling the official estimate of 51% of that single female 15-19 population in Taiwan presently (1984) in school.

A simple breakdown of the characteristics of these 1,011 unmarried younger women by age, school status, and whether living with parents or others is presented in Tables 7 and 8.

RESULTS

The findings have important implications for social planning in Taiwan and demonstrate that Governmental educational, social welfare and public health agencies could play a larger role in education of adolescents. The results which follow are grouped in a knowledge awareness, attitude and behavior continuum.

A. Peer Awareness

Awareness by unmarried women 15-19 of sexual activity among peers was relatively high compared to actual practice: 25.7% knew of an unmarried friend who had become pregnant; 9.6% knew of an unmarried friend who had used or was using contraception. Awareness increased with age: the percent of awareness at age 19 was double that of age 15. For awareness of unmarried pregnant persons it ranged from 13.1% at age 15 to 33.9% at age 19. For

TABLE 7.   Unmarried Women 15-19 by Age by School Status

			School Status			
	No.	%	% School Grads	% Attended School	% in School	% Not Known
15	212	21.8	29.7	9.0	60.8	0.5
16	219	21.7	31.5	8.2	59.8	0.5
17	190	18.8	22.1	11.1	66.3	0.5
18	205	20.3	45.9	8.8	44.9	0.5
19	185	18.3	60.5	8.4	30.6	1.1
Total	1,011	100%	37.5%	9.0%	52.9%	0.7%

Table 8.   Unmarried Women 15-19 by Type of Residence

	No.*	%
With Parents/Relatives	675	61.8
School Dormitory	110	10.1
Rent w/Classmate/Friend	236	21.6
Rent and Live Alone	72	6.5

*May stay at more than one place.

awareness of a peer using contraception: from 7.2% at age 15 through 14.5% at age 19.

The extent to which peer influence contributed to individual behavior or behavior to awareness is not known. There, however, is considerable evidence that in most societies peer behavior is a model for individual adolescent behavior and probably for sexuality. Unfortunately, our survey did not measure the effects of the mass media which are projecting sexual images as norms among youth in music, TV and movies which are accessible to all in Taiwan. One of the side effects of westernization among youth may be the creation of an acceptance atmosphere which may contribute to sexual experimentation. Relating this awareness directly to sexual activity, however, remains difficult.

B.   Knowledge

A 14-item quiz on knowledge about reproduction and contraception was given. A panel of experts had chosen this inventory of knowledge as a reasonable indicator of an informed person on those subjects. The mean number of correct answers was 8.3 (S.D. ± 2.7). For married it was 8.7 (S.D. ± 2.5); for unmarried 8.3 (S.D. ± 2.7). Scores tended to increase with age: e.g., a mean score of 7.7 for unmarried age 15 through 8.7 for those age 19. See Table 9. Some 23.8 percent were unable to answer correctly half of the 14 questions, 0.7 percent answered none correctly; 0.2% all correctly.

The percent of persons correct on individual items ranged from 84.6% on item 1 ("Most females have the ability to become pregnant

TABLE 9.   Mean Knowledge Scores by Year of Age by Marital Status

	$\overline{n}$ Unmarried	$\overline{n}$ Married	Total
15	7.7 (2.7)	8.00 (0)	7.7 (2.7)
16	8.1 (2.9)	5.0 (2.0)	8.1 (2.9)
17	8.5 (2.4)	7.0 (2.1)	8.5 (2.4)
18	8.6 (2.8)	8.4 (2.1)	8.6 (2.8)
19	8.7 (2.6)	9.7 (2.4)	8.8 (2.6)

once they menstruate") through only 29.7% on item 4 ("The
contraceptive pill must be taken before intercourse to prevent
pregnancy"). See Table 10. It is interesting to compare these
scores with those in a separate survey of female high school
students (done earlier in 1983) of the same age group. In-school
female students had a higher mean score of 9.0 (S.D. + 2.7); 25.3%
were unable to answer correctly half of the 14 questions.[4]

Although the level of awareness of the existence of specific
contraceptives is high among unmarried women 15-19, ranging from
only 5.5% not knowing about any contraceptive through 78.9% not
knowing about coitus interruptus (see Table 11), specific knowledge
levels about where to get methods such as the oral contraceptive
and condom are low. For example, although 94.5% indicate that they
know of the orals, only 83.9% know where to get them, and only
25.9% knew that they were used daily. See Table 12. A similar
pattern exists for the condom with 82.5% knowing of it but only
67.0% knowing where to get it and only 32.0% knowing that it is put
on the penis before intercourse. Furthermore, only 31.9% and 26.7%
respectively knew that unmarried persons their age could get the
methods at a local government health station. As would be
expected, specific knowledge levels increase with age. See Table
13.

Two of these findings lend themselves to educational
interventions by the Government: (1) the relatively low knowledge
scores on the reproduction and family planning knowledge inventory;
and (2) the fact that although the unmarried 15-19 are aware of the

TABLE 10. Percent of Unmarried Respondents 15-19 Answering Knowledge
Inventory Questions Accurately*

	RIGHT ANSWER
1. Most females have the ability to become pregnant once they menstruate.	84.6%
2. If the male semen does not get inside the female vagina, a woman cannot get pregnant.	79.5%
3. Whether a pregnancy will result in a male or female child is determined by the male sperm.	69.7%
4. The contraceptive oral pill must be taken before intercourse to prevent pregnancy.	29.7%
5. Most males are physiologically unable to make a woman pregnant until they are about 16 years of age.	29.9%
6. The easiest time for a woman to become pregnant is the middle week just between her two menses.	56.4%
7. The function of the condom is to prevent sperm from going into the female vagina.	79.4%
8. A woman will menstruate for a few months after she becomes pregnant.	81.7%
9. All contraceptives are about 100% effective in preventing pregnancy.	63.9%
10. The organ to produce sperm is the penis.	33.1%
11. The male sperm can stay alive in a woman for about two or three days.	42.6%
12. Both condoms and oral contraceptives may be purchased at most drugstores.	75.1%
13. If a woman makes love only once, the chances of her becoming pregnant are very slim.	58.4%
14. If a woman's menstruation is irregular, she is not likely to become pregnant.	47.3%

*Respondents were asked to mark which items were "correct" and which
"incorrect."

TABLE 11.   Awareness of Contraceptives: Unmarried Women 15-19

Don't Know About:

1.	Any contraceptive	5.5%
2.	Oral contraceptive	5.5%
3.	Condom	17.9%
4.	Rhythm	32.4%
5.	Coitus interruptus	78.9%
6.	Basal temperature	63.2%

TABLE 12.   Specific Knowledge About O.C. and Condom Among Unmarried Women 15-19

		O.C.	Condom
1.	Know of method	94.5%	82.5%
2.	Know where to get method	83.9%	67.0%
3.	Know how to use method	25.9%*	32.0%**
4.	Know unmarried can get method at health station	31.9%	26.7%

*Know that O.C. is used daily.

**Know that condom is put on penis before intercourse.

TABLE 13. Percent Knowing How to Use Condom and Oral Contraceptive by Age by Marital Status

	Know How To Use Condom		Know How To Use Orals	
	Unmarried (827)	Married (38)	Unmarried (798)	Married (38)
15	96.8	100	32.9	0
16	95.9	100	40.1	0
17	98.1	100	31.6	33.3
18	97.8	100	39.2	22.2
19	96.9	100	44.1	63.2
15-19	97.1	100	37.6	44.4

TABLE 14. Young Women's Experience with Middle School Coverage of Related Curricula

	Reproduction %	Family Planning %
1. Not taught	3.3	15.4
2. Students told to read content by selves	7.6	2.9
3. Briefly taught	62.7	56.4
4. Carefully taught	26.4	25.3
Total	100.0	100.0

two contraceptives they would be likely to use, they appear not to
know where to get or how to use them.

One method for intervention is through the organized school
system. At the time of this survey 52.9% were in school and 37.5%
had graduated. Although reproduction and family planning are
included in the present school curriculum, of those age 19,[*] only
89.1% indicated that they had been taught about reproduction and
81.7% about family planning. See Table 14. Only 26.4% said that
they had been carefully taught about reproduction and 25.3% about
family planning. The attitude toward teaching these subjects in
school is quite favorable. See Table 15.

These low levels of knowledge and the fact that these women
have not received adequate education in the classroom is a problem
that needs correction. Educational authorities need to take
appropriate action to be certain that what the school curriculum
calls for to be taught actually is covered by the teachers.[**]
Developing specific learning objectives for the curriculum and
incorporating information into examinations might assure both
increased student and teacher attention to these topics. There also
is a need to consider integrating a family life curriculum which
incorporates, at a minimum, modules on responsibility for sexuality.

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[*] the age of graduation from high school for most students.

[**] Reproduction, pregnancy and related physiology are covered in
biology, health education and first aid courses. Family planning
is integrated into health education courses.

TABLE 15. Attitude to Teaching Fertility-Related Subjects to Unmarried
Youth in School

		Agree	Disagree
1.	Relationship between male + female + ways of making friends	91.5%	7.7%
2.	Reproduction + Physiology	89.3%	8.5%
3.	Contraceptives	78.9%	17.7%
4.	Venereal disease	85.5%	10.5%
5.	Sexual knowledge	82.1%	13.6%
6.	Abortion	70.9%	25.9%

TABLE 16. Permissibility of Sexual Intercourse Among Unmarried 15-19 by
Age by Type of Partner (for Unmarried Female)

		% Agree Permissible					
		15	16	17	18	19	Total
1.	Casual Person	0.2	0.1	0.1	0.2	0.0	0.6%
2.	Person Fond of	0.4	0.2	0.1	0.1	0.2	1.0%
3.	Person She Loves	0.5	0.4	0.2	0.5	0.4	2.0%
4.	Engaged Partner	1.0	1.9	0.9	1.2	1.3	6.2%

Overall, 86.2% of the unmarried 15-19 wanted more information about reproduction, family planning and contraception. A significant majority indicated that government medical and public health agencies as well as teachers should be responsible for providing it. Education about the options for an unwanted pregnancy, emphasizing prevention of pregnancy and the community resources available are important in both the public health and school and social service agency sectors.

For the family planning agencies, a shifting of resources to concentrate on younger persons, e.g., ages 15-19, by setting specific measurable educational and behavioral objectives seems worth considering. Allocating more of the field worker personnel resources to this specific age group on an experimental basis seems justified.

B. Attitude Toward Male and Female Premarital Intimacy

Whatever in-school or out-of-school education that takes place needs to be based on factual information about the attitude of young people toward male and female intimacy. A scale of permissiveness toward holding hands, kissing, love touching and sexual intercourse was developed for this survey, based upon similar models by Reiss.[14] Each respondent was asked to indicate to what degree these intimate actions were permitted (a 5-point Likert scale) either for unmarried young men or women. The respondent's opinion was solicited about carrying on these intimate activities with each of four different types of partners. These partners were described as: (1) "a casual male" (or female); (2) a

male (or female) she (or he) was "fond of"; (3) a boy friend she
loves (or girl friend) (described as "a friend of the opposite sex
with deeper emotional attachment than a regular friend"); and (4) a
male (or female) she (or he) is engaged to.

The survey results show that the degree of permissibility is
affected by the kind of intimacy involved and the type of partner
concerned. Although some 93.8% of unmarried 15-19 agreed that it
was permissible for an unmarried female to hold hands with her
engaged partner, only 6.2% agreed that it was permissible for them
to have sexual intercourse. This permissibility drops to only 0.6%
if the partner is a "casual person." See Table 16.

The extent to which the present degree of permissibility
toward sexual activities is low or high is open to interpretation.
If attitudes eventually lead to action, though, then increased
activity in this cohort 15-19 seems likely, particularly when
couples feel that they are "in love," (about which women express
far more permissiveness than with other categories of partners
other than "engaged"). This concept of being "in love" needs to be
defined to distinguish it more clearly from being "fond of" an
individual if it is to be incorporated into setting educational
objectives related to permissiveness and sexual responsibilities.

The degree of permissibility also varies with the age of the
respondents as well as whether they are married or not. For
example, those age 19 express the highest degree of permissibility,
particularly for sexual intercourse by engaged couples. This

pattern of increased permissiveness by age also holds for kissing and love touching. See Table 17.

Married women are considerably more favorable toward sexual intercourse than unmarried of the same age. See Table 18. Married women, of course, represent only about 4% of the total age group 15-19 and their high rate of premarital intercourse (75.6%) may indicate that they represent a special group in relation to early sexual activity (as likely do most of those who marry in this age group). They also necessarily are a small number of cases in relation to the unmarried in a sample of this size (41 vs. 1,011).

A. Behavior

Last but not least important is sexually related behavior. Of all single women 15-19 in the survey (1,011), 1.7% have experienced sexual intercourse, 2.5% petting and 8.8% kissing. Those who were in school at the time of the survey (53.6%) generally are less likely to have kissing, petting or sexual intercourse experience. See Table 19.

Experience with sexual intercourse for the unmarried tends to increase with age (from 1.5% of those age 15 to 4.5% of those age 19). See Table 19. Those who rent and live alone or who live in a factory dorm are considerably more likely to have had sex intercourse than those who live with parents or relatives or in a school dormitory. This, however, is somewhat an artifact of age since those living alone tend to be older. See Table 20.

TABLE 17. Unmarried Women (15-19): Degree of Permissibility for Love Touching and Kissing with Different Types of Partners

		Love Touch	Kissing
1.	Casual Person	1.6%	1.8%
2.	Person Fond of	4.1%	21.3%
3.	Person She Loves	10.2%	46.0%
4.	Engaged Partner	26.2%	68.9%

TABLE 18. Unmarried and Married Women (15-19) Difference in Permissibility
of Sexual Intercourse

a) Percent Agree Permissible for an Unmarried Female With:

	Respondent Status		
	Unmarried	Married	Total
	(I,011)	(41)	(1,052)
1. Casual Person	0.6	2.4	0.7
2. Person Fond of	1.0	2.4	1.0
3. Person She Loves	2.0	4.9	2.1
4. Engaged Partner	6.2	22.0	6.8

b) Percent Agree Permissible for an Unmarried Male With:

	Respondent Status		
	Unmarried	Married	Total
	(1,011)	(41)	(1,052)
1. Casual Person	0.7	0	≈0.7
2. Person Fond of	0.9	2.4	1.0
3. Person She Loves	1.5	4.9	1.6
4. Engaged Partner	5.7	19.5	6.3

TABLE 19.   Percent of Unmarried Women With Sexually Related Experience by Age

		15	16	17	18	19	Total
1.	Kissing	4.4	5.1	7.0	12.1	16.5	8.8
2.	Petting	2.0	0.9	1.6	3.1	5.1	2.5
3.	Sexual Intercourse	1.5	0	1.1	2.1	4.5	1.8
4.	Used Contraception	1.0	0	1.1	1.0	2.7	1.1
5.	Have Close Friend of Opposite Sex	14.4	18.2	23.9	28.5	32.2	23.1

TABLE 20.   Percent Having Sexual Intercourse by Type of Residence

1.	Living with Parents/Relatives	1.3%
2.	School Dormitory	0 %
3.	Factory Dorm	4.0%
4.	Rent and Live Alone	8.8%
	Total	1.8%

A similar pattern of increased experience with age appears for kissing as well as having a close friend of the opposite sex and for petting for those above 17.

Of the 1.8% of all unmarried women 15-19 who had had sexual intercourse, 6.2% had experience using contraception (representing 1.1% of all single women ages 15-19). Only one of the eighteen who said they had sexual intercourse, indicated that she had become pregnant and she had an induced abortion. Mean age at first intercourse was 18.6 (S.D. $\pm$ 1.6).

For married women ages 15-29 (1,325), premarital sexual experience is extensive: 75.6% indicated that they had had their first sexual intercourse before marriage. An important consideration is whether premarital sex took place before or after engagement: 43.9% indicate that it was before their engagement and 31.7% after engagement. This means that 58.1% of those who had sexual intercourse before marriage had experienced it prior to their engagement. See Table 21.

Of those ages 20-24 and 25-29, two older cohorts of married women interviewed in the survey, the rates of sexual intercourse before marriage are considerably lower: 53.4% for 20-24 and 39.9% for 25-29.

For all married women 15-29, 31.9% indicated they were pregnant before marriage. 16.1% had had sexual intercourse before engagement. Another 29.4% had had sexual intercourse after engagement for a total of 45.5% prior to marriage. Those ages 15-

TABLE 21.   Premarital Sexual Intercourse by Age Cohorts 15-29

	Before Engagement	After Engagement	After Marriage
15-19 (41)	43.9%	31.7%	22.0%
20-24 (431)	21.8%	31.6%	46.2%
25-29 (853)	11.8%	28.1%	59.8%
Total 15-29 (1,325)	16.1%	29.4%	54.2%

*Includes 0.4% indicating they had not yet had sexual intercourse.

19 had had sexual intercourse at a rate about double that of the 20-24 age cohort and quadruple that of the 25-29 group.

The extent to which this difference represents a trend toward increasing pre-engagement sexual intercourse or is an artifact of the age at marriage or a reflection of a change in length of engagement is unclear. It does appear, however, that younger women, and presumably men, are becoming increasingly independent of existing family norms which reinforce delaying sexual intercourse til marriage or at least til engagement ceremonies take place.

Some 18.0% of all married women have ever used contraception. Of those having sex before marriage, 14.7% had used contraception. Of those having sex before engagement, it was 14.1%. For those after engagement, it was 15.4%. For those who had their first sexual intercourse after marriage, 20.3% had used contraception.

Since only three of the unmarried were engaged and one of these indicated that they had had sexual intercourse, no observations of sexual behavior are made here. Of these 18 women who indicated that they had had sexual intercourse (none of whom were engaged), 47% were age 19 and 23.5%, age 18.

It is difficult to determine the likely effect of a number of independent variables acting upon whether unmarried persons had had sexual intercourse, primarily due to the small number in the survey. It is possible, however, to analyze those married women who had had sexual intercourse prior to marriage in terms of the influence of such independent variables as education, husband's education, age at marriage, age at interview, working pattern

before marriage, and living arrangements before marriage. A

multivariate analysis using multiple classification analysis

(MCA) [1,8-9] is used. See Table 22. The importance of age and age

at marriage, of course, can be seen in the table.

RELIABILITY AND VALIDITY

    It is natural to raise questions about the validity of

responses of unmarried younger women in an interview situation with

a relative stranger and in the context of a somewhat traditional

society, particularly on answers related to sexuality, sexual

intercourse, pregnancy, contraception and induced abortion. How

does one determine whether the interviewee actually is telling the

interviewer what she really believes, knows, feels or did? To help

increase validity, firstly, the questions concerning knowledge,

attitude and practice on these topics were printed on a separate

form the respondent checked answers to (the questions on other

subjects were asked verbally). In addition, secondly, there were a

number of items which could be compared for internal consistency.

Thirdly, a reliability reassessment of a 5% sample of respondents

(covering some 13 questions) was given shortly after the first

interview. Fourthly, the results of the survey may be compared

with those of the recently conducted survey of those unmarried

females 15-19 who were in school during late 1983 and early 1984. [4]

    Regarding the first approach, the separate questionnaire, this

seems, from feedback of the interviewers to have been useful in

some cases. It, however, does not pretend to anonymity.

    The second method of internal consistency is probably a better

TABLE 22. Multiple Classification Analysis of the Effects of Independent
Variables on Experience with Sexual Intercourse Prior to
Marriage (MW15-29)

Explained Variables	N	Premarital Sex Unadjusted	Premarital Sex Adjusted
Wife's Education:			
None	35	0.457	0.416
Primary	457	0.468	0.424
Junior high	324	0.478	0.442
Senior high	372	0.440	0.498
College or university	80	0.338	0.486
NA	0	0.0	0.0
Husband's Education:			
None	10	0.400	0.433
Primary	389	0.473	0.474
Junior high	270	0.530	0.498
Senior high	398	0.430	0.425
College or university	201	0.368	0.416
NA	0	0.0	0.0
Wife's Age at Marriage (years):			
14-18	262	0.584	0.540
19-20	294	0.514	0.491
21-22	333	0.426	0.433
23-25	324	0.355	0.391
26+	55	0.273	0.352
NA	0	0.0	0.0
Husband's Age at Marriage (years):			
16-22	241	0.589	0.529
23-24	342	0.480	0.470
25-26	348	0.422	0.440
27+	324	0.364	0.398
NA	13	0.385	0.407
Wife's Work Pattern before Marriage:[a]			
No work	35	0.514	0.492
Work at home--no money	167	0.401	0.418
Work at home--for money	50	0.500	0.526
Work away from home	1016	0.459	0.455

TABLE 22. Multiple Classification Analysis of the Effects of Independent
Variables on Experience with Sexual Intercourse Prior to
Marriage (MW15-29) (continued)

Explained Variables	N	Premarital Sex Unadjusted	Adjusted
Wife's Living Arrangements while Working:[b]			
No non-home work	252	0.437	0.437
Home/relative	44	0.386	0.427
Dormitory	532	0.492	0.484
Other	440	0.425	0.431
Wife's Employer:[c]			
No work for pay	638	0.489	0.486
Self/family/relative	217	0.424	0.422
Someone else	413	0.416	0.422
NA	0	0.0	0.0
Wife's Age at Interview:			
15-19	31	0.742	0.624
20-24	388	0.536	0.490
25-29	849	0.406	0.432
Total	1268		
R^2	0.06		

[a]
Work away from home took precedence in coding; paid work at home took second
precedence.

[b]
Living away from home (dormitory or other) took precedence in coding.

[c]
Employment by someone other than self, family or relative took precedence.

indicator of reliability than validity and, in general, consistency was fairly clear throughout individual interview schedules.

The third, the reliability reassessment reinterview provides measures of both aggregate and individual consistency. It, however, almost necessarily, was subject to methodological problems in administration. These problems include the following among others. First, the "re-interview" took place from 4-8 weeks after the original one so that time may have affected certain answers. Secondly, the "re-interview" differed from the initial one in that it was conducted verbally and only a small number of questions were asked again (13 multiple item questions). The flow pattern of questions, of course, differed. In the initial assessment, the questions on attitude and knowledge about sexually related matters were answered in writing by the respondents. Other questions in the first interview were asked verbally. Although the questions asked were identical in each of the two assessments, the interviewers were different.

These differences in administration may obscure the measurement of reliability of the initial interview. On the other hand, the results confirm that reliability on factual questions is high for individual consistency. And for attitudinal questions related to sexuality, the individual consistency (although lower than for facts) is higher than a recent national survey in the U.S.[16] See Table 23.

One measure of aggregate consistency is the comparison of survey results to those of the previously conducted sample survey

TABLE 23. Index of Individual Consistency of Responses Between Initial
          Questionnaire and Reliability Reassessment Interview: Unmaɪ
          15-19.

		Index of Individual Consistency
1.	Highest Level of Education	0.95
2.	Age Female Should Be Before Having Sex	0.25
3.	Acceptability of Unmarried* Woman Kissing Boyfriend	0.73
4.	Acceptability of Engaged* Woman Having Sexual Intercourse with Fiancee	0.61
5.	Knowledge About Chances of Becoming Pregnant if Making Love Once	0.36

*Degree of acceptability was collapsed into two categories from the ori
5-point scale.

of students in high school and in factory settings.[4] The age-
specific (15-19) behavior of these three groups of unmarried women
demonstrates considerable similarity across items and tends to
confirm that, at the least, the similar questions used brought
admission of similar level of experience at similar age levels.
This, of course, does not establish validity necessarily.   See
Table 24.

All in all, the investigators felt comfortable with the
validity of the survey findings in general.   There, however, was
some feeling that reporting of actual sexual intercourse, pregnancy
and pregnancy outcome (particularly induced abortion) may have been
under-reported by the 15-19 unmarried women.

COMMENTS AND RECOMMENDATIONS

This survey shows that Taiwan's unmarried women 15-19:   (1)
lack certain basic knowledge about contraception, reproduction and
sexuality; (2) are sometimes not being taught what they are
supposed to be or as adequately as they ought to be in their middle
and senior high academic courses; (3) are not much aware about
where to get contraceptives and how they work; (4) have attitudes
toward petting and sexual intercourse which could lead to behavior;
(5) still say they prefer traditional solutions for unwanted
pregnancy (e.g., 81% that you marry the person making you
pregnant); (6) want to learn more about reproduction, family
planning, contraception and the nature of male and female intimate
relationships; (7) have relatively low rates of experience with

TABLE 24. Age-Specific Sexually Related Behavior: Three Surveys (School, Factory, Younger Women): Unmarried Women 15-19 (1984)

Experience	15			16			17			18			19			Total		
	S*	F*	Y*	S	F	Y	S	F	Y	S	F	Y	S	F	Y	S	F	Y
Kissing	6.3	5.9	4.4	10.3	16.3	5.1	14.4	15.3	7.0	22.9	17.3	12.1	32.1	22.1	16.5	13.8	16.2	8.8
Petting	3.2	1.8	2.0	5.1	7.9	0.9	8.4	7.3	1.6	13.8	8.2	3.1	23.9	12.5	5.1	8.0	8.1	2.5
Sex Intercourse	1.2	1.2	1.5	2.0	3.8	0	3.5	4.4	1.1	5.9	4.3	2.1	13.9	7.0	4.5	3.5	4.4	1.8
Used Contraception	0.6	0	1.0	1.0	0	0	1.3	1.6	1.1	2.1	1.8	1.0	6.0	1.0	2.7	1.5	1.0	1.1
Have Close Friend of Opposite Sex	28.7	21.3	14.4	31.5	28.0	18.2	34.4	27.3	23.9	41.2	24.7	28.5	47.4	29.3	32.3	34.1	26.5	23.1
Pregnant	0.3	0		0.2	0	0	0.1	0	0	0	0	0	0	0.4	0.5	0.1	0.1	0.1
Induced Abortion	0.3	0	0.5	0.1	0	0	0.1	0	0	0	0	0	0	0	0.5	0.1	0	0.2
Mean Age of First Intercourse	14.7	18.0	16.5	15.9	17.6	0	16.9	17.5	0	17.0	17.7	20.0	17.9	19.4	20.3	16.8	18.2	19.5

*S = School
*F = Factory
*Y = Younger Women

sexual intercourse; (8) look to schools and public health agencies to be more active learning resources.

For married women 15-29, premarital sexual intercourse is extensive: 75.6%. Some 31.9% indicated that they were pregnant before marriage. Of those having sex before marriage, only 14.7% had used contraception. Knowledge levels about reproduction and contraception although higher than for the younger unmarried still seems lower than ideal.

Both in school and out of school education about reproduction, contraception and the nature and responsibility of intimate male and female relationships are needed. In-service training of teachers, curriculum development, materials preparation at the schools are needed. For out of school settings, the public health and other social service sectors need to target their family planning educational objectives at this unmarried 15-19 age group.

It is particularly important to note that the women surveyed felt that they needed help and wanted it from Government education and public health agencies. The responsibility to act is clear.

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APPENDIX 1. RECENT RELEVANT RESEARCH: TAIWAN

There have been a number of smaller scale surveys related to adolescent sexuality and fertility in Taiwan. In 1983, the Taiwan Provincial Institute of Family Planning (TPIFP) with National Science Council sponsorship and the help of a resident advisor from the U.S., began work on getting an Island-wide overview of the problem and its dimensions.

Three major Island-wide sample surveys were carried out from December 1983 to May 1984:

   (1) of secondary school students, primarily ages 15-19 (both male and female);

   (2) of single factory workers ages 15-19 (male and female); and

   (3) of a representative sample of all younger women ages 15-19.

A standardized inventory of Awareness, Knowledge, Attitude and Behavior related to sexuality and pregnancy was adopted for each of the three studies. More specific questions about contraceptives (how they work, where to get them) were included in "2" and "3" above. A detailed fertility history, along with economic and other social background, is included in "3". All women, married or unmarried, ages 15-29 were included in "3".

Background of the three studies follows:

1. School

   Sample: 7,831 students ages 15-19 (two-stage equal
   Sample: 7,831 students ages 15-19 (two-stage equal
            cluster).

   Methodology: Anonymous written questionnaire
                 administered in classrooms in 57 schools.

   Response Rate: Virtually 100%.

Problems: Political obstacles to classroom access.

2. <u>Factory</u>

Sample: 3,371 male and female workers (97% unmarried;
85% female) (purposive stratified).

Methodology: Written questionnaire completed in factory
setting.

Response Rate: 42%

Problems: Sampling difficulties related to insufficient
data about universe;
Logistics of setting;
Low response rate.

3. <u>Younger Women</u>

Sample: 3,185 married and unmarried women ages 15-29
(including 987 single ages 15-19) (random
stratified sample of all women 15-29).

Methodology: Standardized interview schedule
administered in home setting in 56 sample
townships.

Response Rate: 86%

Problems: Low response on some sexuality-related
questions;
Reliability assessed by 5% re-
interview on selected items;
Costly to field but piggybacked onto
planned younger women KAP Survey.

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