


# Impact of household composition and satisfaction with family life on self-reported sexual health outcomes of high-school students in Hong Kong

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## ABSTRACT

**Background** The study aimed to examine the impact of household composition and satisfaction with family life on sexual behaviours among high school male and female students (aged 11–22 years) in Hong Kong.

**Method** High schools were randomly selected, and the final sample comprised 25 schools. Students were divided into two groups ('living with both biological parents' vs 'not living with both biological parents'). Students were asked to rate their satisfaction with family life on a five-point Likert scale in a self-administered questionnaire. Dependent variables were sexual experience, sexual harassment, sexting and nude chats. Multiple logistic regression was used to analyse the results.

**Results** 3907 students were included in the analysis. 202 students (5.2%) were sexually active. 505 students had ever (13.0%) sexually harassed others and 303 students (7.8%) had ever been sexually harassed by others. 58 students (1.5%) had ever had nude chats. 1005 students (25.8%) had sexted in the last 12 months. Students who lived with both biological parents were less likely to be sexually active, to sext and to have nude chats than those who did not. Students who had higher family life satisfaction were less likely to be sexually active, to sexually harass others, to be sexually harassed by others, to sext and to have nude chats than students who had lower satisfaction with their family life.

**Conclusions** Sexual health programmes and interventions should consider family functioning. Students who have low family satisfaction and those who do not live with both their biological parents should be targeted for sexual health interventions.

## Key messages

- We present the results of a large-scale and representative school-based survey in Hong Kong which found that sexting and sexual harassment by others is not uncommon.
- Compared with students who had a lower level of family satisfaction, those with a higher level of family satisfaction were less likely to be sexually active, sexually harass others, to be sexually harassed and to have nude chats and sext.
- Students who lived with both biological parents were less likely to be sexually active, and to sext and have nude chats than those who did not.

## INTRODUCTION

Cultural norms, social changes, family dynamics, and government policy in the macro- and micro-environment all serve to influence young people's sexual attitudes and expression of sexual behaviour.<sup>1</sup> The traditional nuclear family, a unit consisting of two married biological parents and their children, has been declining steadily in many contexts.<sup>2 3</sup> There have been a number of studies examining the effects of family structure on the sexual behaviour and sexual health of adolescents over the past two decades.<sup>4 5</sup> It is understood that adolescents in married, biological two-parent families are less likely to engage in unprotected sex and early sexual initiation compared with those from single-parent, cohabiting

step-father, or married step-father families.<sup>6</sup> Furthermore, the effect of family ‘connectedness’ (family or parental closeness, warmth, support and responsiveness) has been found to have a negative correlation on sexual risk-taking among adolescents.<sup>5,7</sup> A literature review further confirms that higher parental connectedness is associated with a decreased risk of adolescent pregnancy.<sup>8</sup>

Some theoretical frameworks can be used to explain the association between family satisfaction and sexual health outcomes. First, the multisystem framework developed by Kotchick suggests that there are three systems that affect adolescents’ sexual health outcomes. These are the self-system (such as biological, psychological and behavioural attributes), family-system (such as parenting support and supervision) and extra familial-system (such as social networks, norms and social values).<sup>9</sup> Based on the multisystem framework, family-system will influence sexual health outcomes directly and indirectly through the self-system. Second, according to the ecological theory by Bronfenbrenner,<sup>10</sup> family is a critical context for youth development.<sup>11</sup> The perceived social support from family members can promote the well-being and resilience of children,<sup>12</sup> which in turn helps mitigate against risk-taking and early sexual activities.<sup>13</sup> Third, in addition to providing support through a positive parent–child relationship and information by communication about sexual topics, parents also serve as role models for their children. Bandura’s<sup>14</sup> social learning theory emphasises the importance of modelling for the acquisition and maintenance of behaviours. Therefore, it is possible that adolescent sexual attitude and behaviours can be modelled through the transmission of parental behaviours and attitudes towards sex and sexual risk-taking.<sup>15</sup>

In Hong Kong, family structure has also witnessed similar transformations in the past three decades; for example, increasing heterogeneity is evident, with a rise in single-parent families and step-family structures on account of increased divorce and remarriage rates, and an increase in age at first marriage.<sup>16</sup> This is concomitant with a more accepting public attitude to such changing family types in recent decades.<sup>16</sup> Yet little is known about how these changes in family structure affect the culture and values of the children growing up in these non-nuclear families and their associated attitudes towards relationships and sexuality in the Asian context.

Besides, it should be noted that there is no mandatory sexual health curriculum in Hong Kong.<sup>17</sup> Individual schools have flexibility in tailoring their approach, content and delivery mode of sex education in accordance with their background, mission, ethos and resources. Unfortunately, the prioritising of teaching sex education has always given way to the pressing demands for academic excellence of their students. Insufficient support from schools means that

parents have an important role to play in providing their children with sex education in Hong Kong.

From a public health perspective, it is important to understand these evolving and often complex needs for sexual health education, in rapidly changing societies. School-based surveys related to sexual health can provide important baseline evidence to characterise the diverse aspects of sexuality and sexual health set against the intergenerational dynamics of changing family structures in order to inform public health priorities. Such surveillance data can contribute to the development of effective policy actions, age-appropriate and culturally acceptable sexual health services, and resource allocation for optimising sex education.<sup>18</sup>

### Study objective

The objective of the study was to examine the impact of household composition and satisfaction with family life on sexual health outcomes among high-school students in Hong Kong.

## METHODS

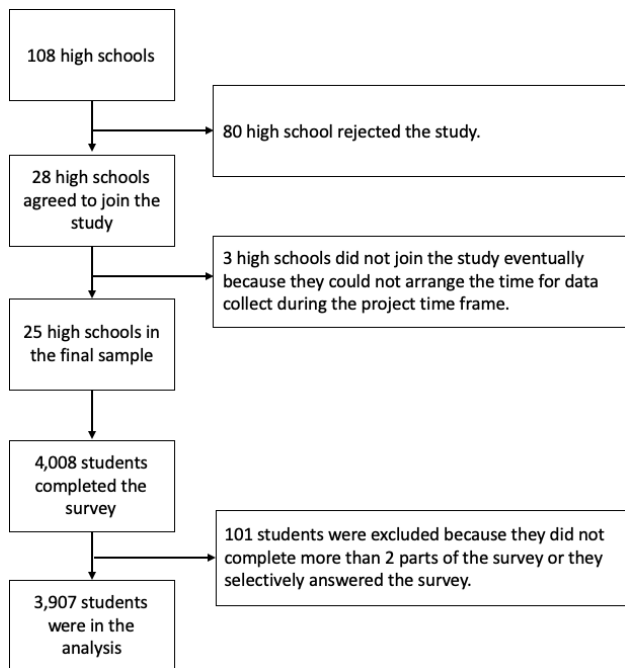
### Study design

This cross-sectional study was part of a serial surveillance using a representative school-based survey in Hong Kong. Data were collected from October to December 2016 by the Family Planning Association of Hong Kong (FPAHK).

### Participants and procedures

A stratified, two-stage, cluster sampling method was used. Schools in Hong Kong were randomly selected from a list of high schools provided by the Hong Kong Education and Manpower Bureau. A total of 108 high schools were in the sampling frame, and 25 high schools that agreed to participate in the study were included in the actual sample. All full-time male and female students from all classes from Forms 1 to 6 were surveyed. In the final sample the age range of participants was 11–22 years. Parents of students at the participating schools were informed about the survey in advance. Students could refuse to complete the survey if they did not want to participate in the study.

The paper-based survey was conducted via a self-administered questionnaire during classes between October and December 2016. The students were reassured about the anonymity and confidentiality of the survey. Students were not required to provide any identifiable information such as name and class number, and all the data were only handled by statisticians for the purpose of analysis. To avoid the possibility of influence being exerted, teachers were asked not to disturb their students during the survey. The surveys were collected by either teachers or staff from FPAHK on completion. [figure 1](#) shows the recruitment flow chart.



**Figure 1** Student recruitment flow chart.

**Ethics**

Ethics approval for this study was obtained from the Institutional Review Board of the University of Hong Kong/Hospital Authority West Cluster (HKU/HA HKW IRB), reference number UW 17–504.

**Study variables and outcomes**

The independent study variables were household composition and satisfaction with family life.

For household composition, students were asked with whom they were currently living. The response was dichotomised to ‘living with both biological parents’ versus ‘not living with both biological parents’ in the subsequent data analysis.

For satisfaction with family life, students were asked to rate this on a five-point Likert scale with the following options: ‘very unhappy’, ‘unhappy’, ‘fair’, ‘happy’ or ‘very happy’ (categorical variable).

The dependent variables were sexual behaviours. Students were asked whether:

- ▶ They had ever engaged in sexual activities
- ▶ They had used condoms in the last 6 months (for those who had engaged in sexual activities only)
- ▶ They had ever sexually harassed others
- ▶ They had ever been sexually harassed
- ▶ They had ever engaged in nude chats
- ▶ They had received sexting messages in the last 12 months.

Other sociodemographic factors (including gender, age, sexual orientation, ethnicity and place of birth) were also collected.

**Statistical analysis**

First, descriptive statistics were used to portray socio-demographic characteristics, household composition, satisfaction with family life, and sexual behaviours of

all students. Logistic regression models were used to individually explore parental factors associated with sexual behaviours after controlling for certain socio-demographic factors. Adjusted odds ratios (aORs) and 95% confidence intervals (CIs) were calculated. A previous study in Hong Kong found that age, gender and sexual orientation (heterosexual vs bisexual/homosexual) were factors associated with risky sexual behaviours.<sup>19</sup> In the present study we therefore adjusted for these confounders. Pairwise exclusion of missing data was adopted. The analysis was conducted using SPSS version 23.0.

**RESULTS**

**Sociodemographics of the students**

The final sample comprised 25 high schools; 3907 students were included in the analysis, of whom 2243 (57.4%) were male students, and 3078 (79.5%) were heterosexual. Mean age of participants was 15.3 (SD 1.9) years. The vast majority (97.4%) of the students were of Chinese ethnicity and two-thirds (67.6%) were born in Hong Kong. The results are shown in [table 1](#).

**Household composition and satisfaction with family life**

For household composition, 2833 (73.0%) students were living with both biological parents, followed by those living with mother only (13.1%), father only (4.6%), mother and stepfather (2.8%), and living with father and stepmother (1.6%). As regards their satisfaction with family life, most students were satisfied with their family life (very happy 16.8%, happy 42.7%). The results are shown in [table 1](#).

**Sexual behaviours**

A total of 202 (5.2%) students were sexually active. Of the students who were sexually active, the mean age at first sexual experience was 15.1 (SD 2.0) years. In the overall study sample, 505 (13.0%) students reported that they had sexually harassed others, while 303 (7.8%) reported that they had been sexually harassed by others. Furthermore, 58 (1.5%) students reported that they had engaged in nude chats and 1055 (25.8%) had received sexting messages. The results are shown in [table 1](#).

**Impact of household composition on sexual behaviours**

Compared with students who were not sexually active, sexually active students were less likely to live with both biological parents. Similarly, those who sexually harassed others, received sexts and had nude chats were less likely to live with both biological parents. The results are shown in [table 2](#). After controlling for confounders, we found that students who lived with both biological parents were less like to be sexually active (aOR 0.67, 95% CI 0.49 to 0.92), to sext (aOR 0.81, 95% CI 0.69 to 0.95) and to have nude chats (aOR 0.44, 95% CI 0.26 to 0.76) than students who

**Table 1** Sociodemographic characteristics of the study subjects (n=3907)

Characteristic	n (%)	Characteristic	n (%)
<b>Gender</b>		<b>Currently living with</b>	
Male	2243 (57.4)	Both parents	2833 (73.0)
Female	1664 (42.6)	Mother only	510 (13.1)
<b>Sexual orientation</b>		Father only	179 (4.6)
Heterosexual	3078 (79.5)	Mother and stepfather	110 (2.8)
Homosexual	57 (1.5)	Father and stepmother	64 (1.6)
Bisexual	205 (5.3)	Others	185 (4.8)
Don't know	531 (13.7)	Did not answer	26
Did not answer	36	<b>Satisfaction with family life</b>	
<b>Mean age (SD) (years)</b>	15.3 (1.9)	Very unhappy	55 (1.4)
<b>Age (years)</b>		Unhappy	220 (5.7)
11	2 (0.1)	Fair	1283 (33.4)
12	354 (9.3)	Happy	1642 (42.7)
13	412 (10.8)	Very happy	645 (16.8)
14	618 (16.2)	Did not answer	62
15	663 (17.3)	<b>Having sexual experience</b>	
16	722 (18.9)	No	3674 (94.8)
17	589 (15.4)	Yes	202 (5.2)
18–22	462 (12.1)	Did not answer	31
Did not answer	85	<b>Age at first sexual experience (n=171)*</b>	
<b>Ethnicity</b>		15.1 (2.0)	
<b>Ethnicity</b>		<b>Sexually harassing others</b>	
Chinese	3779 (97.4)	No	3377 (87.0)
Non-Chinese	100 (2.6)	Yes	505 (13.0)
Did not answer	28	Did not answer	25
<b>Place of birth</b>		<b>Being sexually harassed</b>	
Hong Kong	2589 (67.6)	No	3580 (92.2)
Elsewhere	1242 (32.4)	Yes	303 (7.8)
Did not answer	76	Did not answer	24
<b>Current school level</b>		<b>Nude chats</b>	
Forms 1+2	961 (24.6)	No	3824 (98.5)
Forms 3+4	1471 (37.7)	Yes	58 (1.5)
Forms 5+6	1475 (37.8)	Did not answer	25
		<b>Sexting</b>	
		No	2884 (74.2)
		Yes	1005 (25.8)
		Did not answer	18

\*Of the 202 students with sexual experience, 31 did not reveal their age at first sexual experience.  
SD, Standard deviation.

did not lived with both biological parents. The results are shown in [table 3](#).

#### Impact of satisfaction with family life on sexual behaviours

Compared with students who were not sexually active, sexually active students were less likely to be satisfied with their family life. Similarly, those who were sexually harassed by others, sexually harassed others,

sexted and had nude chats were less likely to be satisfied with their family life, respectively. The results are shown in [table 2](#). After controlling for confounders, we found that students who were very happy with their family life were less likely to be sexually active (aOR 0.31, 95% CI 0.13 to 0.71), to sexually harass others (aOR 0.42, 95% CI 0.21 to 0.85), be sexually harassed (aOR 0.32, 95% CI 0.15 to 0.71) and to sext

**Table 2** Distribution of independent variables and confounders across dependent variables

variables	Sexual experience (n (%))		Being sexually harassed (n (%))		Sexually harassing others (n (%))		Sexting (n (%))		Nude chats (n (%))	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
<b>Living with both biological parents</b>										
No	961 (92.3)	80 (7.7)*	954 (91.5)	89 (8.5)	884 (84.7)	160 (15.3)*	742 (71.3)	299 (28.7)†	1017 (97.6%)	25 (2.4)*
Yes	2691 (95.8)	118 (4.2)	2602 (92.5)	212 (7.5)	2471 (87.9)	341 (12.1)	2123 (75.2)	699 (24.8)	2783 (98.9%)	31 (1.1)
<b>Satisfaction with family life</b>										
Very unhappy	45 (81.8)	10 (18.2)*	45 (81.8)	10 (18.2)*	42 (76.4)	13 (23.6)*	33 (61.1)	21 (38.9)*	51 (94.4)	3 (5.6)†
Unhappy	195 (89.4)	23 (10.6)	196 (89.5)	23 (10.5)	161 (73.5)	58 (26.5)	140 (64.2)	78 (35.8)	213 (97.3)	6 (2.7)
Fair	1205 (94.9)	65 (5.1)	1163 (91.2)	112 (8.8)	1095 (85.9)	179 (14.1)	919 (72.0)	357 (28.0)	1252 (98.3)	22 (1.7)
Happy	1558 (95.5)	73 (4.5)	1512 (92.8)	117 (7.2)	1448 (88.9)	180 (11.1)	1238 (75.7)	397 (24.3)	1612 (99.0)	17 (1.0)
Very happy	613 (95.6)	28 (4.4)	603 (93.8)	40 (6.2)	575 (89.3)	69 (10.7)	504 (78.3)	140 (21.7)	635 (98.6)	9 (1.4)
<b>Gender</b>										
Male	2096 (94.4)	125 (5.6)	1977 (88.9)	246 (11.1)*	2046 (92.1)	176 (7.9)*	1574 (70.6)	655 (29.4)*	2176 (97.9)	47 (2.1)*
Female	1578 (95.3)	77 (4.7)	1603 (96.6)	57 (3.4)	1331 (80.2)	329 (19.8)	1310 (78.9)	350 (21.1)	1648 (99.3)	11 (0.7)
<b>Sexual orientation</b>										
Bisexual/homosexual	754 (95.9)	32 (4.1)	723 (91.9)	64 (8.1)	671 (85.4)	115 (14.6)	582 (73.7)	208 (26.3)	772 (98.1)	15 (1.9)
Heterosexual	2887 (94.5)	168 (5.5)	2828 (92.4)	233 (7.6)	2677 (87.4)	385 (12.6)	2277 (74.3)	786 (25.7)	3018 (98.6)	42 (1.4)
<b>Age (years)</b>										
Mean (SD)	15.2 (1.9)	17.1 (1.5)‡	15.2 (1.9)	15.7 (1.8)‡	15.2 (1.9)	15.8 (1.8)‡	15.2 (2.0)	15.3 (1.8)	15.3 (1.9)	15.8 (1.9)§

\*P value <0.01 by  $\chi^2$  test.†P value <0.05 by  $\chi^2$  test.

‡P value &lt;0.01 by independent t-test.

§P value &lt;0.05 by independent t-test.

SD, Standard deviation.



**Table 3** Multiple logistic regression models to explore the impact of household composition and satisfaction with family life on sexual health outcomes

Household composition and satisfaction with family life	Sexually active*		Sexually harassed others†		Being sexually harassed‡	
	aOR (95% CI)	P value	aOR (95% CI)	P value	aOR (95% CI)	P value
Living with both parents (vs not living with both parents)	0.67 (0.49 to 0.92)	0.012	0.83 (0.67 to 1.03)	0.089	0.91 (0.70 to 1.19)	0.507
Satisfaction with family life		<0.001		<0.001		0.010
Unhappy vs very unhappy	0.65 (0.27 to 1.57)	0.342	1.22 (0.60 to 2.50)	0.586	0.54 (0.23 to 1.25)	0.149
Fair vs very unhappy	0.26 (0.12 to 0.57)	0.001	0.55 (0.28 to 1.07)	0.078	0.40 (0.19 to 0.84)	0.015
Happy vs very unhappy	0.25 (0.12 to 0.56)	0.001	0.43 (0.22 to 0.83)	0.012	0.32 (0.15 to 0.67)	0.003
Very happy vs very unhappy	0.31 (0.13 to 0.71)	0.006	0.42 (0.21 to 0.85)	0.015	0.32 (0.15 to 0.71)	0.005

Household composition and satisfaction with family life	Sexting‡		Nude chats†	
	aOR (95% CI)	P value	aOR (95% CI)	P value
Living with both parents (vs not living with both parents)	0.81 (0.69 to 0.95)	0.009	0.44 (0.26 to 0.76)	0.003
Satisfaction with family life		<0.001		0.030
Unhappy vs very unhappy	0.88 (0.47 to 1.63)	0.684	0.52 (0.12 to 2.18)	0.370
Fair vs very unhappy	0.59 (0.34 to 1.04)	0.070	0.30 (0.09 to 1.07)	0.063
Happy vs very unhappy	0.49 (0.28 to 0.86)	0.013	0.17 (0.05 to 0.61)	0.006
Very happy vs very unhappy	0.43 (0.24 to 0.77)	0.005	0.29 (0.07 to 1.12)	0.073

aOR, Adjusted odds ratio; CI, Confidence interval.

\*Age was adjusted in the model.

†Age and gender were adjusted in the model.

‡Gender was adjusted in the model.

aOR, adjusted odds ratio; CI, Confidence interval.

(aOR 0.43, 95% CI 0.24 to 0.77) than students who are very unhappy with their family life. Similarly, after controlling for confounders, students who were happy with their family life were less likely to be sexually active (aOR 0.25, 95% CI 0.12 to 0.56), to sexually harass others (aOR 0.43, 95% CI 0.22 to 0.83), be sexually harassed (aOR 0.32, 95% CI 0.15 to 0.67), to sext (aOR 0.49, 95% CI 0.28 to 0.86) and to have nude chats (aOR 0.17, 95% CI 0.05 to 0.61) than students who are very unhappy with their family life. The results are shown in [table 3](#).

## DISCUSSION

In our study we found that satisfaction with family life was a protective factor for sexual harassment. Students who had a higher level of satisfaction with family life were less likely to sexually harass others and to be sexually harassed by others, respectively. Moreover, students who lived with both biological parents and those who had a high level of satisfaction with family life were less likely to engage in nude chats and sexting. A previous study also found that in comparison to adolescents with low sexual risk, adolescents who were at higher sexual risk were less likely to perceive positive levels of parental support.<sup>9</sup> There were some possible explanations. First, students who had a higher level of family satisfaction were more likely to have better family functioning as well as better relationships with their family members.

Therefore, students were more willing to have an open conversation about sexual health with their family, and vice versa. In contrast, if students are not satisfied with their family life, it is likely that they do not have a good relationship nor good communication with their parents. It is suggested that communication between adolescents and parents is particularly important for the transmission of information regarding sexuality and appropriate risk reduction strategies for adolescents.<sup>9</sup>

Many social workers and educators in Hong Kong criticise sex education in schools as being incomplete and insufficient, and as a result students are not able to learn to protect themselves. Insufficient support from schools means that parents have an important role to play in providing their children with sex education in Hong Kong. Second, it is suggested that families in which there are major struggles and families where parents are unable to provide the adolescents with attention and support often experience difficulty monitoring and controlling teenagers and tend to be less involved in their children's decision-making. The consequence is that young people might develop more permissive attitudes towards sex and engage in risky sexual behaviours.<sup>20</sup> Last, but not least, some theoretical frameworks such as Kotchick's multisystem framework and Bronfenbrenner's ecological theory, which have been mentioned earlier, can be used to explain the association between family satisfaction and sexual health outcomes.

The prevalence of sexting was relatively high in the present study, with the estimated prevalence of receiving sexts being 25.8%. This finding accords with a recent meta-analysis of 20 studies that found the mean prevalence of receiving sexts to be 27.5% among youths.<sup>21</sup> The high level of sexting is probably due to the increasing ownership of smartphones in recent years, and the popularisation of social media that transforms how new friends are formed through immediate and private communication.<sup>21</sup> Such findings have been found to correlate with some negative outcomes; for example, the Pennsylvania Youth Risk Behaviour Survey found that high-school students who reported sexting were more likely to participate in risky sexual behaviours and experience negative mental health outcomes.<sup>22</sup>

### Limitations

First, sexual health remains a highly sensitive topic in Hong Kong, which could have skewed replies and led to a tendency to provide more conservative answers. Some sexual behaviours such as sexting and having nude chats are not socially acceptable in the widespread local context so the true prevalences could be even higher than those reported. Therefore, although anonymity and confidentiality were emphasised during data collection, the possibility of underreporting should be acknowledged. Second, all outcomes such as sexual behaviours were self-reported, which might lead to bias. Our findings should be interpreted with caution. Nonetheless, previous studies support the reliability of self-reported sexual behaviours.<sup>23</sup> Third, even though random sampling was adopted to invite high schools to participate in this study, it is possible that high schools that are very conservative about sexual health would have declined participation, leading to self-selection bias. Fourth, we used paper questionnaires to collect data. It is possible that survey methods affect how students answer the questions. Further studies should be conducted to explore whether survey methods (eg, electronic vs paper questionnaire) affect students' response.

To conclude, we found that students who were more satisfied with their family life were less likely to be sexually active, to sexually harass others, to be sexually harassed by others, and to participate in sexting and nude chats. Furthermore, students who lived with both biological parents were less likely to be sexually active and to participate in sexting and nude chats. Our findings suggest that family is a protective factor for risky sexual behaviours. In addition to providing mandatory sexual health education in high schools, we propose that sexual health programmes and interventions should also consider family functioning and processes.

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