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Longitudinal Risk Factors of Selling and Buying Sexual Services Among Youths in Switzerland

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ABSTRACT

The aim of this study was to examine the longitudinal predictors of buying and selling sexual services among youths in a high-income country. We used data from Switzerland (target sample: $N = 1,675$ children, 52% male), where no prior studies have examined the trading of sexual services among representative samples of youths. Selling and buying sexual services were measured using novel, three-item measures at age 17. The predictors were measured at ages 13 and 15. In the regressions, multiple imputation was used to treat the missing values. Two-year point prevalence estimates of selling sexual services were 2.5% for females and 1.5% for males. Prevalence estimates of buying sexual services were 0.0% for females and 5.4% for males. Findings from logistic regressions revealed some support for prior findings from cross-sectional studies in high-income countries. New findings included evidence for prospective relations of having a disability, low generalized trust, and endorsing masculinity norms with trading sexual services. Follow-up models showed that the relations between pornography consumption and victimization with selling sexual services were gendered and stronger for females than for males.

Keywords: transactional sex; prostitution; compensated dating; sexuality

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INTRODUCTION

Trading sexual services among youth is increasingly recognized as a social and public health issue as it has been linked to various maladaptive outcomes. These include an increased risk of sexually transmitted diseases, violence, criminal behavior, substance abuse, and mental as well as physical health problems (Clatts, Goldsamt, & Gwadz, 2005; Dunkle et al., 2007; Haley, Roy, Leclerc, Boudreau, & Boivin, 2004; Moynihan et al., 2018). Youths are a particularly vulnerable group as they are more susceptible to risk-taking behavior, including risky sex, than adults. Youths have not yet reached cognitive maturity and often lack the ability to assess long-term consequences, potentially leading to negative effects on their physical and emotional health (Saphira & Oliver, 2002).

The selling and buying of sexual services among youths can take several forms. Whereas in some cases it is a form of commercial prostitution, in other cases it is more in line with what is called transactional sex, which is the informal trading of sexual services, experimental, and of low frequency (Fredlund, Svensson, Svedin, Priebe, & Wadsby, 2013; Svedin & Priebe, 2007). In this study, we focused on the selling and buying of sexual services in a high-income country.

Reviews suggest that prevalence estimates of selling and buying sexual services in high-income countries are low (Krisch, Averdijk, Valdebenito, & Eisner, 2019). Across representative studies in high-income countries, 1 to 7% of youths reported that they had sold sexual services at least once in their lives (e.g., Betzer, Köhler, & Schlemm, 2015; Edwards, Iritani, & Hallfors, 2006; Helweg-Larsen, 2003). Studies also suggest that involvement in trading sexual services is gendered. With the exception of two studies in Canada (Homma, Nicholson, & Saewyc, 2015; Lavoie, Thibodeau, Gagné, & Hébert, 2010), studies in high-income countries generally reported a higher involvement in selling sexual services among male than female youth (de Graaf, Meijer, Poelman, & Vanwesenbeeck, 2005; Mossige & Abrahamsen, 2007; Pedersen & Hegna, 2003). Although an increasing number of studies has examined the selling of sexual services in representative samples of youths, very few included the buying of sexual services. The studies that did have found gender-specific prevalence estimates of buying sexual services in high-income countries ranging from 1% among females to 6% among males (Cottler, Helzer, & Tipp, 1990; de Graaf et al., 2005; Lavoie et al., 2010).

Findings on representative samples of youth in high-income countries have linked selling sexual services to a number of correlates. For example, selling sexual services has been associated with involvement in other sexual activities, such as an early sexual debut and the consumption of pornographic contents (Pedersen & Hegna, 2003; Svedin & Priebe, 2007). In some studies, the use of legal and illegal substances has also been shown to be associated with selling sexual services, although other studies have not found the same (Betzer et al., 2015; Edwards et al., 2006; McNeal & Walker, 2016). For both males and females, selling sexual services has been linked to mental health issues including anxiety and depression (Edwards et al., 2006; Reid & Piquero, 2013), while it has also been described as a way to increase feelings of low self-worth and self-efficacy (Jonsson, Svedin, & Hydén, 2015). Studies on the relation between selling sexual services and the home environment report that not living in a nuclear family (i.e., with both parents) is linked to selling sexual services, though the relation with parenting styles is less clear (Fredlund et al., 2013; McNeal & Walker, 2016; Pedersen & Hegna, 2003). Furthermore, having been the victim of violent and/or sexual victimization has been associated with selling sexual services, as has the perpetration of (sexual) violence and property crime (Edwards et al., 2006; McNeal & Walker, 2016). No relations have been found between selling sexual services and socioeconomic and educational status in high income countries (Fredlund et al., 2013; Pedersen & Hegna, 2003; Svedin & Priebe, 2007). Finally, some anecdotal evidence suggests that having a disability, such as a developmental or intellectual disability, is related to selling sexual services (Kuosmanen & Starke, 2013), although this has not been tested widely in quantitative studies.

Regarding buying sexual services, only a few studies—mostly, though not only, from middle- and low-income countries—have examined its correlates. For example, research from Canada suggests relations with the consumption of pornographic contents (Lavoie et al., 2010), whereas

studies from low- and middle-income countries in Sub-Saharan Africa show that substance use (Choudhry, Östergren, Ambresin, Kyagaba, & Agardh, 2014; Dunkle et al., 2007), violence perpetration (Dunkle et al., 2007), and, to some extent, higher socioeconomic status, at least in South Africa (Dunkle et al., 2007; Jewkes, Morrell, Sikweyiya, Dunkle, & Penn-Kekana, 2012), are associated with buying sexual services. Findings on the relation between buying sexual services and educational status have been mixed, with some studies in African contexts finding that low education was related to lower rates of buying sexual services (Dunkle et al., 2007), but other studies from Africa and Northern Europe not finding a relation (Choudhry et al., 2014; Fredlund et al., 2013). Finally, low levels of shame, low self-control, masculinity norms, and attitudes towards violence against women may be linked to buying sexual services as well, although such associations have rarely been studied (e.g., Xantidis & McCabe, 2000; Wamoyi, Fenwick, Urassa, Zaba, & Stones, 2011).

Gaps in the Current Research Base

Although much has been learned from these correlational findings, interpreting them is challenging as they stem largely from cross-sectional data, making it impossible to determine whether these correlates are predictors, consequences, or mere markers of a broader behavioral issue. For example, although substance use has been linked to selling sexual services, there is disagreement over the directionality of the relation. Substance use can be a consequence of selling sexual services because substances may numb the feelings of guilt and shame that can follow selling sexual services (van de Walle, Picavet, van Berlo, & Verhoeff, 2012). On the other hand, selling sexual services can also be a way to finance substance use and thus follow it. Longitudinal studies are necessary to help disentangle these options.

To our knowledge, only one prior study has examined the longitudinal predictors of buying and selling sexual services in a representative sample of youths. Kaestle (2012) used data from young adults participating in the U. S. National Longitudinal Study of Adolescent Health. Selling and buying sexual services were measured with one-item measures at age 22 (on average). Risk factors were measured either before or concurrently with trading sexual services. Findings showed that selling and buying sexual services were both related to being male, being of Latino or Black ethnic background, concurrent (retrospective) measures of child sexual abuse and running away, and prior shoplifting and low school satisfaction. Buying sexual services was related to concurrent measures of homelessness, and to prior marijuana consumption and low school connectedness.

Although the study by Kaestle (2012) is the first to provide evidence using longitudinal data and therefore provides important insights, there are three ways in which we sought to build on it and advance knowledge on buying and selling sexual services among youths. First, different from the study by Kaestle (2012), we used longitudinal data to test the relation of selling and buying sexual services with predictors that were all measured prior to involvement in trading sexual services. This way, we could determine temporal precedence of the predictors in relation to selling and buying sexual services, uniquely allowing us to clarify event sequence. This is important, because some correlates of trading sexual services may be consequences instead of predictors of it.

Second, different from most other studies (though there are exceptions, e.g., Jewkes, Nduna, Jama-Shai, Chirwa, & Dunkle, 2016), we used novel three-item measures for both buying and selling sexual services, whereby each item represents a different type of sexual activity. Although single-item measures can demonstrate acceptable validity, multi-item measures are considered to be preferable for broad and heterogeneous phenomena (Loo, 2002; Postmes, Haslam, & Jans, 2013). This is especially relevant for trading sexual services, where multi-item measures increase the likelihood that a wide range of manifestations and sexual activities is adequately captured.

Third, we aimed to advance the knowledge base by focusing on a sample of 17-year-olds from Zurich, Switzerland, where, to our knowledge, no studies have comprehensively examined involvement in buying and selling sexual services among representative samples of youths. One study used a 1-item survey question that assessed one aspect of trading sexual services among 15-year-olds, namely being forced or pressured into prostitution as a seller (Averdijk, Mueller-Johnson, & Eisner, 2011). Prevalence was found to be 0.2% among males and 0.3% among females. Furthermore, a recent study used an internet questionnaire and qualitative interviews to examine attitudes toward the selling and buying of sexual services among Swiss youth (Colombo, Carbajal, & Heeb, 2017). This study found that although most youths in the sample had negative attitudes towards trading sexual services, considering it to be problematic, the youths who had participated in trading sexual services felt more positive about it.

METHOD

Participants

Data were drawn from the Zurich Project on the Social Development from Childhood into Adulthood (*z-proso*). The target population of the study consisted of all 2,520 children who entered the first grade of school in Zurich, Switzerland, in 2004 (Eisner, Malti, & Ribeaud, 2011). From all 90 public primary schools, a sample of 56 was drawn. Because two interventions occurred at the school level, a cluster randomized sampling approach was used. The interventions did not affect social behavior (Averdijk, Zirk-Sadowski, Ribeaud, & Eisner, 2016; Malti, Ribeaud, & Eisner, 2011). The final target sample consisted of all 1,675 children (52% male) who enrolled in these schools.

The children's average age at their first interview was 7.45 years ($SD = 0.39$; 52% boys). We used data from Waves 5, 6, and 7 because this was when the main study variables were measured. At Wave 5 (completed in 2011), when the youths' mean age was 13.7 years ($SD = 0.37$), 82% of the youths from the original target sample participated. At Wave 6 (2013), when the average age was 15.4 years ($SD = 0.36$), 86% of the youths from the original target sample participated. At Wave 7 (2015), when the average age was 17.4 years ($SD = 0.37$), 78% of the original target sample participated. The youths completed a paper-and-pencil questionnaire of approximately 90 minutes' duration. Questionnaires were completed in a classroom-setting after school. The youths received a financial compensation worth the equivalent of 30 (age 13), 50 (age 15), and 60 USD (age 17).

Measures

Trading Sexual Services

Currently, no standardized measurement instrument for trading sexual services exists. Studies typically measure selling and buying sexual services by assessing accepting or giving money or gifts in return for sexual favors. We adhered to good practice by defining trading sexual services as sexual interactions that are motivated by the expectation to receive material rewards in exchange for sexual favors, but, different from prior studies, we included three items to cover several types of sexual activities to capture the broad spectrum of trading sexual services.

Selling sexual services was measured at age 17 through three items: “Has anyone given you money or valuables to see, photograph, or film you naked?”, “Has anyone given you money or valuables to touch you on intimate body parts, or to be touched by you on intimate body parts?”, and “Has anyone given you money or valuables to have oral, anal, or vaginal sex with you?” The reference period was the past two years. Answering options were 0 (“never”), 1 (“once”), and 2 (“multiple times”). Responses were dichotomized to 0 and 1 due to low frequency, where the latter category represented selling sex at least once.

Buying sexual services was measured through the same questions as selling sexual services, only from the buyer’s perspective. Correlations between the individual items making up selling and buying sexual services are shown in Table 1.

Table 1. Correlations between survey items for selling and buying sexual services at ages 15-17

	Selling Sexual Services			Buying Sexual Services		
	See, photo-graph, or film naked	Touch intimate body parts	Oral, anal, or vaginal sex	See, photo-graph, or film naked	Touch intimate body parts	Oral, anal, or vaginal sex
Selling:						
See, photograph, or film naked	--	--	--	--	--	--
Touch intimate body parts	.46**	--	--	--	--	--
Oral, anal, or vaginal sex	.35**	.50**	--	--	--	--
Buying:			.12**	--	--	--
See, photograph, or film naked	.12**	.12**				
Touch intimate body parts	.08**	.16**	.16**	.67**	--	--
Oral, anal, or vaginal sex	.03	.08**	.12**	.30**	.52**	--

** $p < .01$ * $p < .05$ (two-sided).

Predictors

All predictors were measured at age 15 unless noted otherwise.

Socioeconomic status (SES) was measured at age 13 and, for those who did not participate at age 13, at age 15. It was based on an International Socio-Economic Index of occupational status (ISEI) derived from the caregivers’ professions (Ganzeboom, de Graaf, & Treiman, 1992). The highest ISEI score of the two caregivers comprised the final variable.

Non-Swiss origin was measured using a dichotomous variable with 0 signifying having at least one parent who was born in Switzerland and 1 signifying having two parents who were born outside of Switzerland.

Nuclear family was a dichotomous variable with 0 indicating that the youth did not live with two biological or adoptive parents and 1 indicating that the youth did.

Low education. A variable was constructed that reflected the school level that the youths attended. Categories ranged from high (1, "Academic high school or equivalent") to low education (4, "Special needs class").

School commitment. Four items measured the youth's school commitment (e.g., "I do all my homework"). Answer categories ranged from 1 ("fully untrue") to 4 ("fully true") ($\alpha = .64$).

Early sexual debut. Early sexual debut was measured at ages 13 and 15 by asking the youths whether they had had sex with a romantic partner in the past two years. These questions were asked using an Event History Calendar to facilitate recall.

Pornography consumption. Participants were asked how often they had watched adult pornographic movies or pornographic contents on the internet. Answer categories ranged from 1 ("never") to 7 ("daily"). The final score returned the mean across these two items.

Delinquency. The youths reported the past-year prevalence of 14 different types of delinquency, such as stealing, driving without a license, drug dealing, vandalism, robbery, and assault. The scale was adapted from Wetzels, Enzmann, Mecklenburg, and Pfeiffer (2001). We computed a variety scale (Bendixen, Endresen, & Olweus, 2003; Sweeten, 2012).

Substance use. Eight self-report items measured the past-year consumption of tobacco, alcohol, strong liquor, marijuana, ecstasy, amphetamines, cocaine, and psychedelics in the past 12 months. Answer categories on a 6-point scale ranged from 1 ("never") to 6 ("daily"). We computed a variety scale.

Anxiety and depression. The youths reported on their anxiety and depression using the Social Behavior Questionnaire (Tremblay, Loeber, Gagnon, Charlebois, Larivee, & LeBlanc, 1991). Eight items were included (e.g., "I was sad without knowing why"). Responses varied from 1 ("never") to 5 ("very often"). We averaged the items ($\alpha = .84$).

Suicidal ideation. One item asked the youths about suicidal ideation in the past month (i.e., "I thought about killing myself").

Optimism. Four items measured the youths' feelings of optimism (e.g., "I'm happy"). The scale was self-developed by the *z-proso* team. Responses on the items ranged from 1 ("fully untrue") to 4 ("fully true") ($\alpha = .75$).

Self-efficacy. We included five items measuring self-efficacy on a 4-point scale from 1 ("fully untrue") to 4 ("fully true") (e.g., "If there are difficulties, I find ways or means to overcome them," $\alpha = .63$) (Wetzels et al., 2001).

Parenting. We included three scales from the Alabama Parenting Questionnaire (APQ; Shelton, Frick, & Wootton, 1996), namely supervision (e.g., “Your parents ask you what you were up to in your free time”, $\alpha = .72$, 4 items), erratic punishment (e.g., “Your parents threaten to punish you but subsequently do nothing”, $\alpha = .52$, 3 items), and corporal punishment (e.g., “Your parents slap you”, $\alpha = .75$, 4 items).

Running away. One item asked the participants whether they had run away from home in the past year.

Violent victimization. Victimization was measured through a self-report questionnaire that asked respondents about six types of violent victimization by youths in the preceding 12 months: robbery, serious assault with a weapon, serious assault without a weapon but with injury, sexual assault, simple assault, and sexual harassment. Four of the items were originally measured on a count scale (robbery, assault with weapon, assault without a weapon, and sexual assault), whereas the other two (simple assault and sexual harassment) were part of a peer victimization questionnaire that used a frequency scale from 1 (“never”) to 6 (“(almost) every day”) (Olweus, 1993). All items were recoded into a dichotomy of 0 (“did not experience violence”) and 1 (“experienced violence”) and summed into a variety score. Because a few youths experienced a disproportionate number of violent incidents, we checked whether capping victimization at 3 affected results. It did not.

Disability. A six-item disability scale asked the participants about visual or hearing impairments or lower limb, upper limb, cognitive, or communicative disabilities (adapted from CDC, no date). Answers were recorded as a dichotomy (“no” versus “yes”) and a variety scale was computed.

Low self-control. Ten items assessed low self-control (adapted from Grasmick, Tittle, Bursik, & Arneklev, 1993) (e.g., “I often act on the spur of the moment without stopping to think”). Answer categories on a 4-point Likert scale ranged from 1 (“false”) to 4 (“true”) ($\alpha = .75$).

Generalized trust. Three items adapted from the World Values Survey Questionnaire (available online at http://www.worldvaluessurvey.org/index_html) were used to measure generalized trust (e.g., “Most people can be trusted”). Answers were recorded on a four-point Likert scale from 1 (“fully untrue”) to 4 (“fully true”) ($\alpha = .78$).

Shame and guilt. The shame and guilt scale included three items (e.g., “When I lie, I am often ashamed of it afterwards”) (Wikström, Oberwittler, Treiber, & Hardie, 2012). Answers were recorded on a four-point Likert scale from 1 (“fully untrue”) to 4 (“fully true”) ($\alpha = .72$).

Masculinity norms. Three items assessed the extent to which youths endorsed violence as a necessary means to defend themselves or those around them (e.g., “A real man should be able to strike when he’s insulted”) (Enzmann, Brettfeld, & Wetzels, 2004). The scale was derived from Nisbett and Cohen (1996). Answers were given on a 4-point scale from 1 (“entirely untrue”) to 4 (“entirely true”) ($\alpha = .73$).

Attitudes towards violence against women. A self-developed, three-item scale measured attitudes towards violence against women. The items read as follows: “Women have only themselves to blame when they are beaten by their husband/male partner”, “A man is allowed

to beat his wife/female partner if she doesn't do what he wants", and "If a woman insults her husband/male partner, he is allowed to beat her". Answer categories ranged from 1 ("fully untrue") to 4 ("fully true"). We computed a mean score across the items ($\alpha = .66$).

Statistical Analyses

Our analysis proceeded in three steps. In the first, we computed prevalence estimates of selling and buying sexual services. In this step, we included all youths who provided information on selling and buying sexual services at age 17. In the second step, we used logistic regression to estimate the relation between the longitudinal predictors and selling and buying sexual services. No evidence for overdispersion was found. In our logistic regressions, we included only those youths who participated at ages 13, 15, and 17, when the study variables, i.e., the predictors and outcomes, were measured ($N = 1,197$; 71.5% of the target sample). Across all datapoints, 0.8% was missing. We used multiple imputation by chained equations with ten imputations using the *mice* package in R to handle the missing data in the regressions (van Buuren & Groothuis-Oudshoorn, 2011). In the third step, we added interactions between each of the predictors and gender to the logistic regressions to examine whether the relations depended on the youths' gender and hence to further examine the gendered nature of trading sexual services.

RESULTS

Prevalence

The prevalence of selling and buying sexual services is shown by item in Table 2. Regarding selling sexual services, 2.5% of females and 1.5% of males reported that they had sold sexual services in the previous two years (i.e., at ages 15-17). Overall, 1.0% had been seen, photographed, or filmed naked in return for money or valuables, whereas 1.0% had been touched in intimate body parts, and 1.2% had oral, anal, or vaginal sex.

Regarding buying sexual services, none of the females had bought sexual services, whereas 5.4% of males had. In total, 0.8% of males had paid money or valuables to see, photograph, or film another person naked, whereas 1.7% had touched someone in intimate body parts, and 5.2% had oral, anal, or vaginal sex in return for money or valuables.

Longitudinal Risk Factors of Selling and Buying Sexual Services

Logistic regressions of selling and buying sexual services on the longitudinal predictors were estimated. Due to the low prevalence of selling and buying sexual services, one separate model was run for each predictor. Descriptive statistics of each of the predictors are shown in Table 3. Due to the gendered nature of selling sexual services, each of the models included two variables: the predictor itself and gender. Thus, 24 models were estimated. Furthermore, since only the males in the study had bought sexual services, we included only the males in our regressions on buying sex. Results are shown in Table 4.

Table 2. Two-year point prevalence of selling and buying sexual services at ages 15-17

	Selling Sexual Services			Buying Sexual Services		
	Females	Males	All	Females	Males	All
See, photograph, or film naked	10 (1.6%)	3 (0.5%)	13 (1.0%)	0 (0.0%)	5 (0.8%)	5 (0.4%)
Touch intimate body parts	7 (1.1%)	6 (0.9%)	13 (1.0%)	0 (0.0%)	11 (1.7%)	11 (0.9%)
Oral, anal, or vaginal sex	7 (1.1%)	8 (1.2%)	15 (1.2%)	0 (0.0%)	34 (5.2%)	34 (2.6%)
Total	16 (2.5%)	10 (1.5%)	26 (2.0%)	0 (0.0%)	35 (5.4%)	35 (2.7%)
N (cases with non-missing values)	642	652	1,294	642	652	1,294

For selling sexual services, analyses of the youths' socioeconomic backgrounds revealed that a low SES, a non-Swiss origin, and a low level of education increased the likelihood of selling sexual services. Early sexual debut, anxiety and depression, and low self-efficacy were also associated with selling sexual services. Furthermore, having been the victim of violence, having a disability, and endorsing masculinity norms increased the likelihood of selling sexual services. On the other hand, predictors related to risky behavior and parenting were not associated with selling sexual services.

For buying sexual services, a low level of education, an early sexual debut, and pornography consumption increased the likelihood of buying sexual services. Also, delinquency, substance use, corporal parental punishment, and having a disability were associated with buying sexual services. Finally, having low trust and endorsing masculinity norms increased the likelihood of buying sexual services. In contrast, internalizing issues were not related to buying sexual services.

Estimation of Interactive Effects with Gender

In a next step, we included interaction terms between each of the predictors and gender in the models for selling sexual services to examine the conditioning influence of gender on the association between the predictors and selling sexual services. Prior to computing the interaction terms, continuous predictors were centered at their means to reduce nonessential collinearity due to scaling (Dalal & Zickar, 2012). It was found that the associations of selling sexual services with pornography consumption and victimization were conditional on gender (Table 5). Plots allowing interpretation of these interaction terms are shown in Figs. 1 and 2. Fig. 1 shows that at low levels of pornography consumption, the differences between females and males in selling sexual services were small. However, high levels of pornography consumption amplified the difference between females and males. That is, the prospective relation between pornography consumption and selling sexual services was larger for females than for males.

Fig. 2 shows that female and male youths had a similar likelihood of selling sexual services at low levels of victimization. However, at high levels of victimization, the differences were amplified, and females had a higher likelihood of selling sexual services than males.

Table 3. Descriptive statistics of the predictors (N = 1,197)

	M	SD	Range (non-binary variables only)
SES	46.71	19.44	16.00-90.00
Non-Swiss origin	0.48	0.50	n.a.
Nuclear family	0.72	0.45	n.a.
Low education	2.12	0.78	1.00-4.00
School commitment	2.59	0.57	1.00-4.00
Early sexual debut	0.17	0.37	n.a.
Pornography consumption	2.29	1.80	1.00-7.00
Delinquency	1.14	1.80	0.00-13.00
Substance use	1.97	1.52	0.00-4.00
Anxiety and depression	2.36	0.78	1.00-5.00
Suicidal ideation	1.30	0.70	1.00-5.00
Optimism	3.29	0.53	1.00-4.00
Self-efficacy	2.89	0.40	1.20-4.00
Parental monitoring	3.19	0.63	1.00-4.00
Erratic parental punishment	2.30	0.70	1.00-4.00
Corporal parental punishment	1.15	0.34	1.00-3.00
Running away	0.09	0.29	n.a.
Victimization	0.59	0.87	0.00-5.00
Disability	0.18	0.45	0.00-4.00
Low self-control	2.27	0.43	1.00-3.90
Generalized trust	2.42	0.58	1.00-4.00
Shame and guilt	2.72	0.67	1.00-4.00
Masculinity norms	2.44	0.74	1.00-4.00
Attitudes towards violence against women	1.16	0.35	1.00-4.00

Note. "Range" shows the actual measured minimum and maximum values, not the theoretically possible minimum and maximum values.

Table 4. Regressions of selling and buying sexual services on the predictors

Model	Age 13-15 predictors	Selling Sexual Services at Ages 15-17 (N = 1,197)		Buying Sexual Services at Ages 15-17 (Males only, N = 602)	
		b	Odds Ratio	b	Odds Ratio
	<i>Socio-economic background</i>				
1	SES	-0.036**	0.964	-0.016†	0.984
2	Non-Swiss origin	1.477**	4.380	0.380	1.462
3	Nuclear family	0.262	1.300	-0.077	0.926
4	Low education	1.012**	2.751	0.875**	2.398
5	School commitment	-0.392	0.676	-0.281	0.755
	<i>Sexual behavior</i>				
6	Early sexual debut	1.004*	2.731	1.200**	3.319
7	Pornography consumption	0.168	1.183	0.250**	1.284
	<i>Risky behavior</i>				
8	Delinquency	0.110	1.116	0.281**	1.325
9	Substance use	0.191	1.210	0.474**	1.606
	<i>Mental health</i>				
10	Anxiety and depression	0.679**	1.972	-0.089	0.915
11	Suicidal ideation	-0.100	0.904	n.a. ^a	n.a.
12	Optimism	-0.508	0.602	0.190	1.210
13	Self-efficacy	-1.110*	0.330	-0.371	0.690
	<i>Parenting / Home environment</i>				
14	Parental monitoring	-0.299	0.741	-0.448†	0.639
15	Erratic parental punishment	0.222	1.248	0.326	1.385
16	Corporal parental punishment	0.280	1.323	0.819*	2.268
17	Running away	0.621	1.861	0.507	1.661
	<i>Vulnerability</i>				
18	Victimization	0.565**	1.759	0.191	1.211
19	Disability	0.859**	2.361	0.755**	2.128
20	Low self-control	0.245	1.278	0.778†	2.178
	<i>Attitudes</i>				
21	Generalized trust	-0.053	0.948	-0.989**	0.372
22	Shame and guilt	-0.379	0.685	-0.464†	0.629
23	Masculinity norms	1.122**	3.072	0.857**	2.356
24	Attitudes towards violence against women	0.022	1.023	0.506	1.659

** $p < .01$ * $p < .05$ † $p < .10$ (two-sided).

Note. b = unstandardized regression coefficient. 24 separate logistic regression models were estimated due to low prevalence in the outcome variables. For selling sexual services, each model included one predictor plus gender. For buying sexual services, each model was run only for males, due to no prevalence among females.

^a Not estimated due to no prevalence of males who bought sexual services and had suicidal ideations.

DISCUSSION

Trading sexual services among youths has become an issue of concern in public health research because it has been linked to various maladaptive consequences (e.g., Clatts et al., 2005; Moynihan et al., 2018). In this study, we examined trading sexual services in a sample of youths in Switzerland.

Our findings showed that the prevalence of selling sexual services in our sample was 2% and that the prevalence of buying sexual services was 2.7%. These rates are comparable to those found in other high-income countries (Krisch et al., 2019). Statistics by gender showed that the prevalence of buying sexual services was zero among female youths and 5.4% among male youths. These findings are in line with the few prior studies that have been done on buying sexual services in high-income countries (Cottler et al., 1990; de Graaf et al., 2005; Kaestle, 2012; Lavoie et al., 2010).

Regarding selling sexual services, prevalence estimates were higher among the females (2.5%) in our sample than among the males (1.5%). Although two studies in Canada also found higher rates among females (Homma et al., 2012; Lavoie et al., 2010), most studies in high-income countries have found the opposite, namely a higher involvement of males compared to females. A potential explanation for this difference is that the three-item measure that we used likely resulted in a higher reporting of types of selling sexual services that did not involve sexual intercourse. More specifically, our data showed that the higher prevalence of selling sexual services among females was primarily due to higher rates of being seen, photographed, or filmed naked, which is especially relevant against the background of modern (social) media. This underscores the importance of using multi-item measurement instruments so that the broad spectrum of trading sexual services can be examined.

Our findings on the correlates of selling sexual services corroborated prior findings to some extent. For example, similar to prior studies, we found that low SES, immigrant origin, an early sexual debut, low levels of self-efficacy, and victimization were related to selling sexual services. Comparatively new findings were that having a disability and endorsing masculinity norms increased the likelihood of selling sexual services. Having a disability has been identified as a risk factor for sexual victimization (Averdijk et al., 2012), potentially because disabilities may render individuals vulnerable to people who are looking to take advantage of them. Also, disabilities may make people vulnerable psychologically, leading to comfort- and support-seeking from others. Regarding the finding that masculinity norms are related to selling sexual services, it has been suggested that patriarchal gender relations, where men hold power and control and women have a more subordinate and dependent role, underlie the trading of sexual services. Our findings suggest some support for this idea.

Different from prior research, low education was related to selling sexual services. Perhaps selling sexual services in Switzerland is more confined to lower socioeconomic classes than in other countries. Also in contrast to prior research, risky behaviors, including delinquency and substance use, were found to be unrelated to selling sexual services. A potential explanation for this finding is that instead of being predictors for selling sexual services, these factors may be consequences of selling sexual services. Delinquent behavior and substance use can be a way to cope with chal-

Table 5. Logistic regressions of selling sexual services on interactions between gender and each predictor

Model	Age 13-15 predictors	Selling Sexual Services at Ages 15-17 (N = 1,197)	
		b	Odds Ratio
	<i>Socio-economic background and school</i>		
1	SES x Gender	-0.018	0.982
2	Non-Swiss origin x Gender	1.302	3.677
3	Nuclear family x Gender	n.a. ^a	n.a. ^a
4	Low education x Gender	0.192	1.211
5	School commitment x Gender	0.270	1.310
	<i>Sexual behavior</i>		
6	Early sexual debut x Gender	-0.913	0.401
7	Pornography consumption x Gender	-0.770**	0.463
	<i>Risky behavior</i>		
8	Delinquency x Gender	-0.293	0.746
9	Substance use x Gender	-0.467	0.627
	<i>Internalizing issues</i>		
10	Anxiety and depression x Gender	-0.302	0.740
11	Suicidal ideation x Gender	-0.260	0.771
12	Optimism x Gender	0.149	1.161
13	Self-efficacy x Gender	-0.547	0.579
	<i>Parenting / Home environment</i>		
14	Parental monitoring x Gender	-0.750	0.472
15	Erratic parental punishment x Gender	-0.002	0.998
16	Corporal parental punishment x Gender	0.155	1.167
17	Running away x Gender	-0.501	0.606
	<i>Vulnerability</i>		
18	Victimization x Gender	-0.846*	0.429
19	Disability x Gender	-0.303	0.739
20	Low self-control x Gender	-1.630†	0.196
	<i>Attitudes</i>		
21	Generalized trust x Gender	0.269	1.308
22	Shame and guilt x Gender	0.345	1.412
23	Masculinity norms x Gender	0.600	1.823
24	Attitudes towards violence against women x Gender	-0.263	0.769

** $p < .01$ * $p < .05$ † $p < .10$ (two-sided).

Note. b = unstandardized regression coefficient. Each model controlled for both components of the interaction term (i.e., gender and the particular risk factor that makes up the interaction term with gender).

^a Not estimated due to no prevalence of males who sold sex and did not live in a nuclear family.

Figure 1. Selling sexual services by level of pornography consumption and gender.

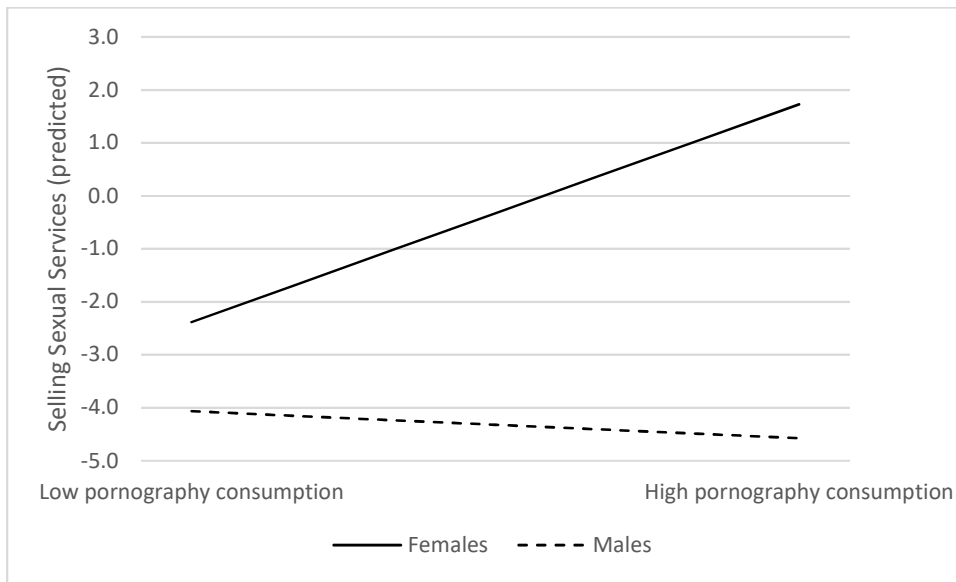
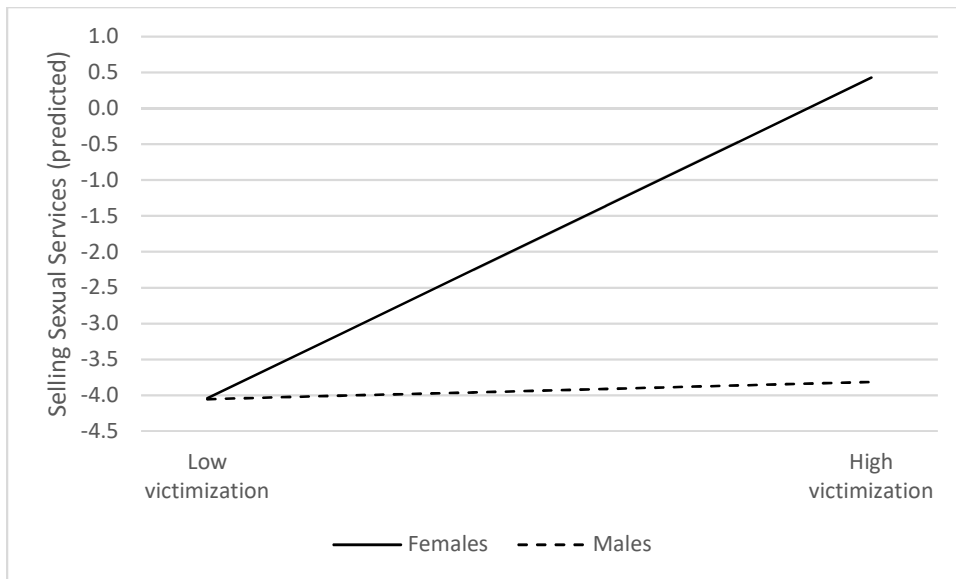


Figure 2. Selling sexual services by level of violent victimization and gender.



lenging or difficult experiences (Averdijk, van Gelder, Eisner, & Ribeaud, 2016; Turanovic & Pratt, 2013), rather than a cause. Future longitudinal research that further teases out the temporal patterns between these behaviors and selling sexual services seems warranted.

Our analyses on buying sex (which were performed on males only) indicated that low education, an early sexual debut, and pornography consumption were related to buying sexual services. In contrast to selling sexual services, corporal parental punishment predicted buying sexual services, which may indicate that a lack of emotional support in the home may lead youths to seek it through buying sexual services, which can provide a feeling of emotional intimacy and connection for buyers (Chu, 2018). Also, substance use and delinquency were related to buying sexual services, potentially showing that a general preference for risk may underlie buying sexual services as well (Campbell, 1998; Earle & Sharpe, 2007). These results are in line with prior research.

Relatively new were the findings that having a disability, having low generalized trust, and endorsing masculinity norms predicted buying sexual services. Disabilities can form an obstacle for entering sexual relationships; thus, buying sexual services may satisfy sexual and social needs that are otherwise difficult to meet. Similarly, having little trust in others can hold people back from entering intimate relationships, and one way to get access to sexual experiences can be to buy them. With regards to masculinity norms, the past few decades have seen major changes in traditional gender roles, which have led to changes in power structures in intimate relationships, with women becoming more independent, sexually autonomous, and powerful. According to some reports, this has led some males to feel powerless and insecure regarding their masculinity, motivating them to re-enact hegemonic masculinity by strengthening sexual prowess and seeking the opportunity to choose and buy sexual services and sexual partners (Chu, 2018).

In a final step of the analyses, we examined whether the relations of the predictors with selling sexual services were contingent on gender, and we found that two of them were. Specifically, females who consumed high amounts of pornographic contents and who experienced high victimization were especially likely to sell sexual services compared to males. This is in line with other research, though in different fields, that has shown that females have different coping strategies to respond to, for example, victimization compared to males (Eisner et al., 2018).

Our study was based on a sample from Switzerland, where (voluntary) prostitution has been legal since 1942. However, sex work by minors is not legal, and it is a criminal act to pay for sex with those under the age of 18. Against this background, our findings beg the question of the motives underlying sex trading.

Prior reports have described adolescents who sell sexual services as a heterogeneous group regarding their underlying motives, ranging from emotional reasons to curious sexual exploration and pleasure seeking (Fredlund et al., 2018). Our results suggest some support for this (although we did not directly examine motives for selling sexual services). On the one hand, trading sexual services may be part of the growing notion of “plastic sexuality,” which has been described as openness to sexual experimentation, pleasure, and autonomy (Giddens, 1992). Different from only decades ago, sexual experiences increasingly revolve around recreation, entertainment, and pleasure, and experimentation is no longer hampered by notions that the aim of sex is

reproduction and that sex is tied to love and romantic relationships. Our findings that selling and buying sexual services are associated with an early sexual debut and pornography consumption may speak to the idea of plastic sexuality.

On the other hand, for selling sexual services specifically, our results also showed that vulnerable groups, including those who have mental health problems, have been victimized, and have a disability, are more likely to sell sexual services. These factors may point towards emotional motives for entering the sex trade, which, in turn, have been linked to negative risk factors, such as sexual abuse and the use of sex as self-injury (Fredlund et al., 2018). Emotional motives may in some cases also be linked to being pushed or forced into selling sexual services by others (Bovenkerk & Van San, 2011), which is particularly damaging for sellers. This underscores the importance of outreach and treatment programs to the most vulnerable of youths, to support them in developing coping skills, promote resiliency, ameliorate the effects of traumatic experiences, and prevent later negative and maladaptive consequences.

Our study had several limitations. First, the number of youths who traded sexual services in our sample was small. The low prevalence estimates prevented us from estimating regressions with all included predictors. Thus, we could not examine whether (apart from gender) other predictors acted as mediating or suppressing variables in our regressions, for which reason future longitudinal research on larger samples than ours would be helpful. Second, our measures for trading sexual services were self-reported and, like any self-reported measures, they are subject to recall bias and social desirability, which can reduce the reporting of selling and buying sexual services. We, therefore, regard our prevalence statistics as conservative estimates. Third, there were some gaps in our data in terms of the types of predictors measured. Most notably, although we included data about violent and sexual victimization in adolescence, we did not have data on sexual abuse in early childhood.

Notwithstanding these limitations, our study was based on exceptional and rich longitudinal data from a large sample of youth in Switzerland, where no encompassing prior research on the topic is known. In using these data, we aimed to contribute to extant knowledge about the selling and buying of sexual services. Different from prior research, our longitudinal data uniquely enabled us to disentangle the temporal sequence between the predictors and trading sexual services, and also included more stable and encompassing three-item measures for selling and buying sexual services. Our findings showed some support for findings from prior, cross-sectional studies in high-income countries. However, they also included several new findings, including evidence for relations between disability, trust, masculinity norms, and trading sexual services, as well as evidence for gendered relations between pornography consumption, victimization, and selling sexual services. Future research that further disentangles temporal relations between predictors, outcomes, and consequences is encouraged.

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