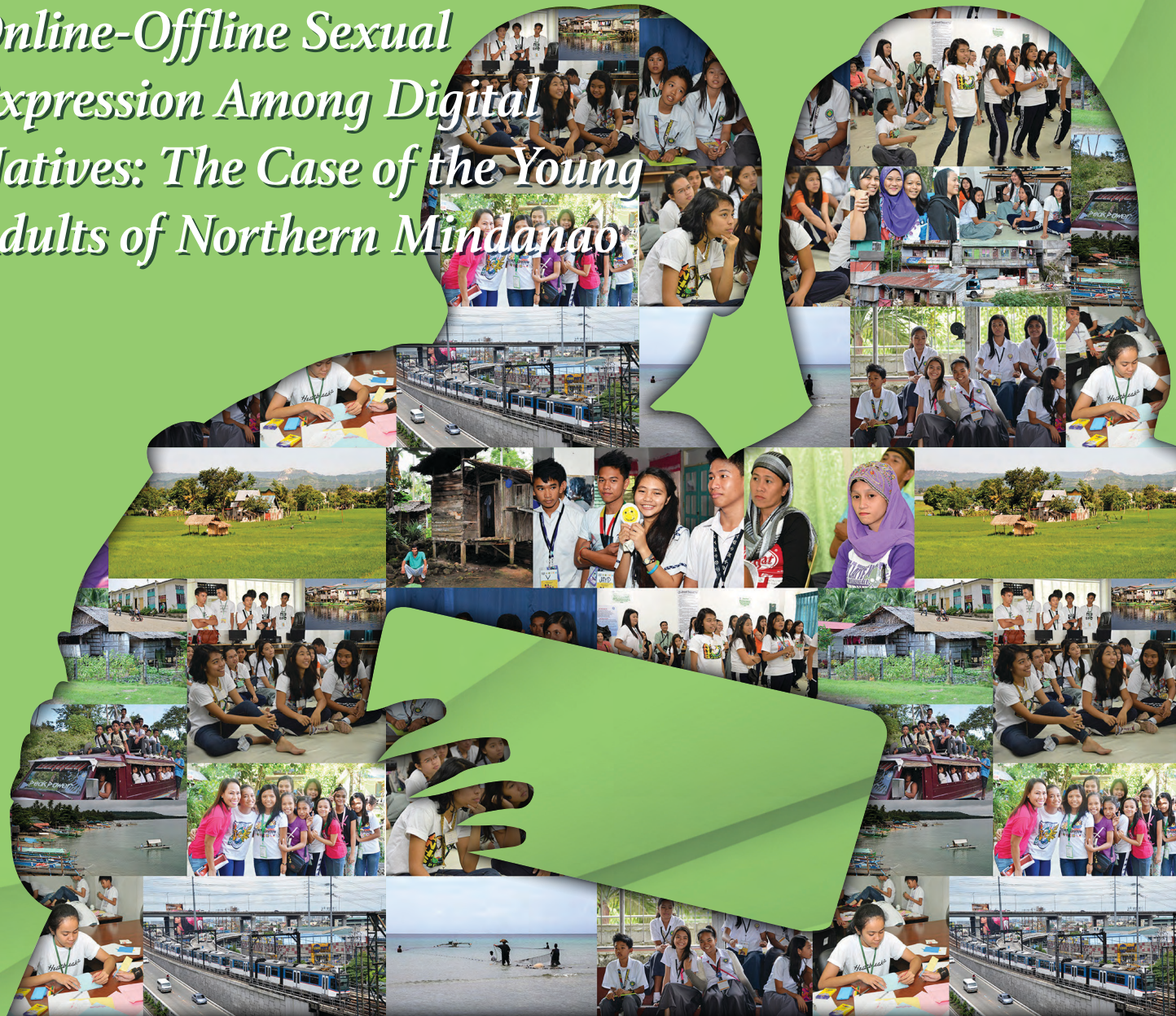


Post-Millennial Filipinos: Renewed Hope vs Risks

Further Studies of the 2013 Young Adult Fertility and Sexuality (YAFS) Study

*Online-Offline Sexual
Expression Among Digital
Natives: The Case of the Young
Adults of Northern Mindanao*



WORKING PAPER SERIES 2016-13
Violeda A. Umali

Online-Offline Sexual Expression Among Digital Natives: The Case of the Young Adults of Northern Mindanao

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EMAIL: mainmail@popcom.gov.ph
FACEBOOK: facebook.com/commissiononpopulation

Message from the Executive Director

Since the turn of the century over fifteen years ago, the Philippines has seen the rise of the millennial generation of young Filipinos who are currently shaping the political landscape in late 2016 as they take a committed stand on the issues of the day.

It is appropriate for those concerned with Philippine development work to now start looking at the next generation of Filipinos and the Commission on Population has had a tradition of producing studies concerning young people.

“Post-Millennial Filipinos: Renewed Hope vs Risks” compiles 17 regional papers based on the dataset of the 2013 Young Adult Fertility and Sexuality (YAFS) Study. These studies explore and discuss the emerging issues and concerns of the youth that need appropriate policy and program responses.



The latest YAFS comes more than a decade after the 2002 YAFS. The 2002 YAFS showed the concerns of the millennial Filipino much like the latest YAFS of 2013 marks the rise of the Filipinos born around the turn of the century and could foretell the shape of things to come for the 21st century young Filipino.

The post-millennial Filipino is focused on screens (smart phone, tablet and monitor) and the media is full of “hashtag-worthy” statements of 140 words.

The studies we are presenting continue to note and update matters such as sexual risk behaviors, early sexual involvement, teen pregnancy, reproductive health problems including sexually-transmitted infections as well as non-sexual risk behaviors such as smoking, alcohol abuse and drug use as well as suicide ideation and lifestyle.

We invite you to tune in to the latest findings about the post-millennial Filipino. It can only result in a more informed thread of interaction with the shapers of our country’s future.

A handwritten signature in black ink, appearing to read 'Juan Antonio A. Perez III'.

Juan Antonio A. Perez III, MD, MPH

Executive Director

Commission on Population

Background

The 2013 Young Adult Fertility and Sexuality (YAFS) Study is the fourth installment of a series of nationally representative cross-sectional surveys on Filipino youth aged 15-24 (for YAFS 1 and 2 and 15-27 for YAFS 3). The YAFS has yielded valuable information about young people's sexual and non-sexual behavior, education, labor force participation, family relationships, attitudes and values regarding certain issues concerning them, personal characteristics like self-esteem, and adverse conditions like suicidal ideation and depression symptoms, all of which are of pertinence to one's understanding of this significant sector of society. The 2013 YAFS or YAFS 4 in particular was a response to the need of updating information on the situation of today's young people. From YAFS 3 in 2002, there have been many important new developments in the environment where young people are situated that need to be studied as these affect not just their sexual and non-sexual risk taking behaviors but also their total well-being. For instance, the changes in communication and information technology such as the prevalent use of cellular phones and the internet and the new forms of communication that these have produced like social networking were not explored in the previous YAFS. The foregoing expansion in technology is presumed to have resulted to notable changes in the patterns and topographies of courtship, dating and relationships among young people. The upsurge in the incidence of HIV infection primarily among men who have sex with other men (MSMs) requires more recent reliable data on male sexual and non-sexual risk behaviors which is currently not available because regular survey rounds like the National Demographic and Health Surveys conducted every five years does not routinely include men. Moreover, with YAFS 4, core behaviors that have been monitored over time in YAFS 1, 2 and 3 were also updated. Among these are the sexual risky behaviors, such as the prevalence of early sexual involvement, teen pregnancy and reproductive health problems including sexually transmitted infections (STIs) as well as non-sexual risk behavior like smoking, drinking and drug use.

With the wealth of information yielded by the YAFS 4, the Commission on Population (POPCOM) in partnership with the Demographic Research and Development Foundation, Inc. (DRDF) came up with seventeen (17) regional papers (Regions 1-13, 4B, CAR, NCR and ARMM) that explore and discuss the emerging issues and concerns of the young people that need appropriate policy and program responses.

Online-Offline Sexual Expression Among Digital Natives: The Case of the Young Adults of Northern Mindanao

*Violeda A. Umali*¹

Abstract

This secondary analysis of the 2013 Young Adult Fertility and Sexuality Study data for the Northern Mindanao region sought to elucidate the Filipino youth's information and communication technology (ICT)–mediated (i.e., using the Internet or mobile phone) sexual practices and behavior by examining if and how (1) ecological factors are associated with the youth's use of ICTs for sex-related purposes, (2) online and offline sexual practices are linked, and (3) differences in levels of ICT use are associated with engagement in online and offline sexual practices. For the first and second tasks, in which respondents were classified according to their level of use of ICTs for sex-related purposes, results of the analyses indicated that (a) personal, peer, and community-level factors are more strongly associated than family factors with the youth's use of ICTs for sex-related purposes and (b) online and offline sexual practices and behavior are directly related. For the third task, which considered respondents' levels of ICT use in general, no clear-cut association with engagement in various types of sexual practices and behavior was found.

Keywords: youth sexuality, online sexual expression, youth Internet and mobile phone use, Northern Mindanao youth

Background and context

Overview of the study

Digital natives, or those born after 1980, are an enigma to digital migrants (and non-migrants). Having grown up during the period of rapid growth of new information and communication technologies (ICTs), digital natives have gained access to massive volumes of information that generations before them have not been privy to. Moreover, ICTs have facilitated digital natives' vicarious exposure to different peoples, cultures, and norms. Not surprisingly, digital natives have acquired views, opinions, and notions about many facets of life—including norms about romantic relationships, sexuality, and intimacy—that are markedly different from those of their older counterparts.

¹ Professor, Department of Communication Research, College of Mass Communication, University of the Philippines Diliman (vaumali@up.edu.ph)

Digital natives have been the subject of numerous studies worldwide. Among other issues, the possible influence of ICTs on digital natives' sexual views and practices has been investigated from different perspectives (e.g., psychology, sociology, communication, and media studies). In the Philippines, such studies often involve small samples, cover limited geographic areas and population sectors, and employ a qualitative design. More extensive studies in terms of sampling design, geographic coverage, and analytic approach are therefore needed. Additionally, given the dynamic relationship between the digital natives' online and offline worlds, it is interesting to examine how the two are linked with respect to sexual practices and behaviors.

The present study aims to contribute toward addressing the abovementioned research gaps in the examination of the interrelationships between ICT access and use on the one hand and the youth's sexual expression on the other, through a secondary analysis of the 2013 Young Adult Fertility and Sexuality Study (YAFS4), with a specific focus on Northern Mindanao (Region X). Sexual expression is a broad term that encompasses "not only sexual activities we engage in, but ways we communicate and present ourselves to the world as a sexual being" (Silverberg, n.d., para. 1).

Northern Mindanao is a good case for analyzing the said interrelationships because, as the YAFS4 findings have revealed, this region (a) has a high proportion of youth who have read and watched pornographic materials (35.1% and 56.3%, respectively), visited sexually explicit websites (19.2%), and shared sexually explicit videos through the Internet or mobile phones (20.1%) and (b) has a high prevalence of premarital sex (33%; Demographic Research and Development Foundation & UP Population Institute, 2014).

Northern Mindanao profile

Northern Mindanao (Region X) is situated in the north-central part of Mindanao. It is bounded on the north by the Mindanao Sea, on the west by the Zamboanga Peninsula (Region IX), on the east by the CARAGA region (Region XIII), and on the south by the Davao Region and SOCCSKSARGEN (Regions XI and XII, respectively). Northern Mindanao is composed of the provinces of Bukidnon, Camiguin, Lanao del Norte, Misamis Occidental, and Misamis Oriental. It has nine cities, and Cagayan de Oro City serves as the regional capital. As of March 31, 2014, Northern Mindanao had 84 municipalities and 2,022 barangays (Philippine Statistics Authority, 2015a).

Northern Mindanao is the "economic leader in Mindanao registering the fastest average growth in GRDP [gross regional domestic product] at 5.8 percent over the last 10 years" (National Economic and Development Authority [NEDA] Region X, 2013, p. 16). Among the Mindanao regions, it has the highest gross domestic product per capita, the highest industrial and agricultural outputs, and the second highest service sector output (NEDA Region X, 2013).

The region has a total land area of 20,186 km² (2,049,602 ha), 36 percent of which (746,901 ha) is classified as agricultural land. Its economy is mainly agricultural. In 2013, the

agriculture, hunting, forestry, and fishing (AHFF) sector accounted for 24.3 percent of the regional economy. The top six commodities produced in Northern Mindanao are banana, pineapple, chicken, hogs, corn, and *palay*. These six commodities constituted 64.4 percent of the region's total agricultural output in 2013. In the same year, the region ranked first in the country in pineapple production, second in banana production, and third in chicken and corn production (CountrySTAT Philippines, n.d.).

Notwithstanding the significant role of the AHFF sector in Northern Mindanao, recent trends indicate that the region's "economic structure is gradually shifting to the services sector" (NEDA Region X, 2013, p. 16). The growing significance of the service sector can be seen in the 2012 statistics showing that this sector accounted for 42 percent of the regional economy and 46 percent of all employed persons in the region (NEDA Region X, 2013).

In 2014, Northern Mindanao's population aged 15 years and over totaled 3.049 million. The labor force participation rate was 69.4 percent, the highest in the country. The employment rate was 94.2 percent, higher than the national rate of 93.2 percent. However, the underemployment rate in the region for the same year was 25.7 percent, the second highest in the country (the national-level underemployment rate was 18.4%; Philippine Statistics Authority, 2014). Regional employment figures for 2013 showed that 40 percent of those employed worked in the agricultural sector; of these, 69.1 percent were males (CountrySTAT Philippines, n.d.). The average annual family income was, as of 2012, PHP190,000; the average annual family expenditure was PHP143,000. Poverty incidence and subsistence incidence among families registered at 32.8 percent and 15.9 percent, respectively (Philippine Statistics Authority, 2015a).

The literacy rate in the region is high at 96.2 percent in 2010, with females registering a slightly higher literacy rate (96.7%) than the males (95.8%). The school participation rate is high during the elementary years (91.2% in 2011) but decreases drastically in the secondary years (40.6%). The teacher-student ratio for both elementary and secondary schools was 1:36 in SY 2013–2014 (Philippine Statistics Authority, 2015a), slightly higher than the 2013 teacher-student ratio for primary schools of 1:31.4 (The Global Economy.com, 2015).

As of 2010, the region's total population stood at 4,284,594, with a growth rate of 2.1 percent. Of this population, 41.5 percent were urban residents, 51 percent were males, and 20.2 percent (866,299) belonged to the 15–24 age bracket. Those aged 15–19 years outnumbered those in the 20–24 age bracket (54.4% and 45.6%, respectively), and there were more male (51.1%) than female (48.9%) young adults (Philippine Statistics Authority, 2012).

The population density as of 2010 was 210 persons per km², and the average household size was 4.7. Trends show decreases in vital statistics such as the crude birth rate (27.6 in 2000–2005, 26.5 in 2005–2010, and 25.1 in 2010–2015), crude death rate (6.9, 6.3, and 6.0 for the same three periods), crude rate of natural increase (20.7, 20.2, and 19.1), and total fertility rate (3.7, 3.4, and 3.2). Life expectancy has increased and now stands at 66.9 years for males and 72.1 for females. The level of family planning adoption was 53.9 percent in 2011: 42.9 percent for modern methods and 11 percent for traditional methods (Philippine Statistics Authority, 2015b).

Given this study's focus on online communication, it is also important to look at relevant ICT indicators in the region. Telephone density in the region is quite low, at only 1.5 lines per 100 persons as of December 2013 (NEDA Region X, 2013). As of the second quarter of 2015, only 50.4 percent of the 122,213 equipped telephone lines in the region were subscribed (Philippine Statistics Authority, 2015a). In contrast, mobile phone use has been increasing, as evidenced by the rapid increase in the number of mobile phone sites in the region—from 579 in 2012 to 838 in 2013 and 1,032 in the second quarter of 2015 (NEDA Region X, 2013; Philippine Statistics Authority, 2015a). Internet subscription has also been increasing, albeit incrementally; the number of Internet subscribers was 24,248 in 2012 and 24,446 as of the end of 2014. ICT access is expected to improve further with the implementation of the Philippine Community eCenter (PhilCeC) project of the Information and Communications Technology Office of the Department of Science and Technology in the region. This project seeks to provide municipalities with shared Internet access facilities so that communities may have access to affordable ICT-enabled services. In 2013, the Northern Mindanao region had 67 cities and municipalities participating in the PhilCeC project, with a total of 101 eCenters established in these areas (NEDA Region X, 2013). The region's Regional Development Investment Program for 2011–2016 has also lined up several projects for the improvement and rehabilitation of telecommunication facilities in the area (NEDA Region X, 2011).

Finally, as regards the region's population program thrusts, NEDA X (2013) reported that Northern Mindanao's Population Management Program has “shifted and redirected its strategy from the Responsible Parenting Movement (RPM), which focuses on Responsible Parenting and Natural Family Planning, to a Population Management Program that supports the *Kalusugang Pangkalahatan* (KP) and 4Ps by improving the health seeking behavior and capacities of couples and individuals for modern family planning” (p. 68). The Regional Population Office (RPO X) implements in the region the four major programs of the Commission on Population: (1) Population and Development Integration, (2) Responsible Parenthood/Family Planning, (3) Gender and Development, and (4) Adolescent Health and Youth Development. For Adolescent Health and Youth Development, the main thrust is to protect the youth from risky sexual and non-sexual practices through educational and capability-building programs for the youth, their parents, and other stakeholders; the establishment of youth/teen centers; and other innovative projects that may be identified (Commission on Population Region X, 2015).

Research objectives

Set against the broad context of analyzing the links between ICT use and youth sexuality, this study aims to achieve the following:

- General
 - Delineate the role of ICTs—in particular, the Internet and mobile phones—in young adults' sexual expression
- Specific
 1. Compare and contrast the profiles of young adults with different rates of use of ICTs for sex-related purposes

2. Examine the interconnections between the youth's use of ICTs for sex-related purposes and their "offline" sexual practices and behavior
3. Explore if and how differences in the youth's use of the Internet and mobile phones are associated with engagement in online and offline sexual practices and behavior

Study framework

This study's analytic approach is anchored on the ecological framework and the co-construction model. The former informs the analysis of the factors linked with the youth's use of ICTs for sex-related purposes, while the latter guides the examination of the interrelationships between the youth's online and offline sexual practices.

The ecological framework takes off from the ecological systems theory formulated by Urie Bronfenbrenner in the 1970s. Bronfenbrenner's theory, which was originally formulated to analyze human development, has been applied to other social contexts, including the analysis of factors that could predispose or render an individual vulnerable to certain risks. This study adopted the ecological framework formulated by the World Health Organization. In this framework, four "ecological niches" are identified to exert possible influence on people's exposure to risks: the personal, interpersonal, community, and societal. At the personal level, individual characteristics constituted by both biological factors and personal history have to be taken into consideration. For the interpersonal factors, personal relationships with family members, friends and peers, and intimate partners are the dynamics that need to be considered. Community-level factors include, among others, the school and the young adults' immediate neighborhood. Finally, societal factors refer to cultural norms and socio-economic policies that affect access to ICTs and/or young adult sexuality (Ndiaye et al., 2013; Violence Prevention Alliance, 2015).

The co-construction model, as used in this study, subscribes to the argument of Subrahmanyam, Smahel, and Greenfield (2006) that it is not always appropriate to talk of media effects alone in the realm of ICTs. Rather, it is more proper to talk of co-constructions because ICT "worlds" are interactive environments that allow users to participate, or even intervene, in the content creation process. It will thus be instructive to look at the interaction between the online and offline sexual practices and behaviors of young adults from the point of view of co-construction (i.e., in terms of their correspondences and divergences, similarities and differences, continuities and discontinuities). Figure 1 depicts the study's analytic framework.

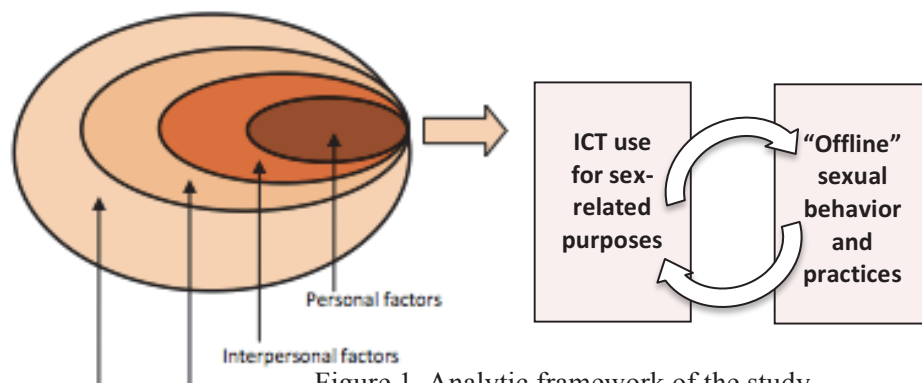


Figure 1. Analytic framework of the study

Note: The ecological framework is adapted from Violence Prevention Alliance (2015).

The Internet, mobile phones, and youth sexuality: Insights from the literature

Scholars and other stakeholders have a keen interest in the role of the Internet and mobile phones in youth sexuality—hence the significant number of studies on this phenomenon. Such studies range from descriptive studies examining how the youth use the Internet and/or mobile phones for sexual expression and exploration to analyses of the antecedents and consequences of the youth’s use of these communication technologies for sex-related purposes, and, to a lesser degree, the link between online and offline sexual behavior/practices. Notably, local studies on these topics are usually limited in scope in terms of specific issues addressed or samples used or both. Thus, local studies on ICTs and youth sexuality need to expand the breadth and depth of their investigation.

There is a pervasive perception that when it comes to sexuality-related concerns, the Internet and mobile phones are fraught with dangers for the youth (or anyone, for that matter). The Internet is often singled out for its pornographic content, which is widely perceived to proliferate on the web but is actually just a small portion of all content available online.² The media also tend to portray the Internet as a haven for pedophiles preying on unsuspecting young victims and for sex tourists exploiting victims of cyber trafficking, many of whom are minors. Concerns about “Internet addiction” and “sexting” among young people have also been raised by some stakeholders in youth development. These concerns are indeed all valid and must be addressed through proper interventions at various levels and contexts of young people’s lives. But the rich literature on ICTs and youth sexuality also points to the positive role of the Internet and mobile phones in the youth’s sexual expression and development.

For instance, several studies have found that the youth use these technologies “to aid in their understanding of sexuality and self” (Korenis & Billick, 2014, p. 98). The Internet in particular has been a useful source of sexuality-related information that is either difficult to access offline or too embarrassing for the youth to discuss in a face-to-face setting (see, e.g., Boies, Knudson, & Young, 2004; Daneback, Mansson, Ross, & Markham, 2012; Griffiths, 2000; Hare, Gahagan, Jackson, & Steenbeck, 2014; Kanuga & Rosenfeld, 2004; Louge, 2006; Ngo, Ross, & Ratliff, 2008; Ralph, Berglas, Schwartz, & Brindis, 2011). These online sources include not only the websites intended for (sexual) health education but also pornographic sites. Moreover, the sources include a range of social networking sites, not just the “conventional” websites.

In popular media, pornographic sites are invariably portrayed to be harmful to young people. Research has shown, however, that viewing sexually explicit Internet movies has enhanced young people’s sexual knowledge, boosted their self-acceptance and self-confidence, improved their body image, increased their satisfaction with sexual activity, made them more accepting of sexual diversity, and helped them cope with stress (Hare et al., 2014; see also Boies et al., 2004 and Daneback et al., 2012). But all these studies have noted that such benefits of pornography consumption apply mostly to more mature young adults. The younger ones are not as able as their older counterparts to properly process pornographic content; as such, the benefits that have been identified in no way justify the unregulated dissemination of sexually explicit materials.

² A systematic study of the million most popular websites in 2010 found that only about 4 percent of the sites were pornographic (Ruvolo, 2011).

Social networking sites are especially significant because their interactive features allow the youth to process information in more complex ways than what is possible in “static” websites; moreover, social networking sites enable the youth to play the dual roles of content consumer and producer. Thus, beyond information access, social networking sites provide the youth with a venue for sexual expression that, if handled properly, could promote sexual health and positive sexual development (Ralph, Berglas, Schwartz, & Brindis, 2011; Subrahmanyam et al., 2006). For marginalized sectors, the opportunities for sexual expression and exploration provided by the Internet could also be liberating and empowering (Austria, 2013; Macdonald, 2007; Stokes, 2007).

The Internet and mobile phones have also facilitated the building and maintenance of the youth’s romantic relationships. A local study (Solis, 2006, p. 1) found that “romantic relationships initiated and maintained through the unique attributes of the texting function [of the mobile phone] is indeed possible and capable of developing into higher levels of intimacy.” Another study involving young Thai women noted that using the Internet and mobile phones to find romantic partners could be advantageous for women because these platforms give the chance to “escape from the moral policing” of society (Boonmongkon et al., 2013). Several studies have also noted how the Internet has provided the LGBT community with wider options for relationship building (see, e.g., Austria, 2007; Macdonald, 2007); in the virtual world, it is easier for them to “meet up” and get to know potential partners without fear of getting stigmatized by the people around them.

The use of ICTs for relationship building has given rise to the phenomenon of “sexting”—the sending of sexually explicit material (messages and images) through the mobile phone or Internet. Sexting sometimes happens in the context of a romantic relationship; sometimes, it is used as a means for finding sexual partners. There is also a dark side to sexting—pedophiles and other online predators soliciting sexual photos from other online users, many of whom are young people.

Sexting is one of the most researched of the various ICT-related sexual practices of the youth alongside consumption of pornographic/sexually explicit online materials. The amount of studies devoted to this phenomenon is understandable, given that sexting is often associated with other risky behaviors and renders the youth vulnerable to exploitation.

One research track is focused on identifying the predictors of sexting. Because researchers have different interpretations of the scope of sexting—some limit it to the sending of nude pictures, while others interpret it to include sexual messages; some consider only mobile phones as the medium for sexting, while others include websites—the results are not easily comparable. One study that defined sexting as the sending of sexually suggestive messages and photos via mobile phones found a higher incidence of sexting among males, those in romantic relationships, and those with tendencies toward extraversion, neuroticism, low agreeableness, and problematic mobile phone use (Delevi & Weisskirch, 2013). Another study on sexting as the act of sending nude pictures through the mobile phone or email found that male and female youth are equally likely to have sent sexually explicit photos and/or messages, although females are more

likely than males to have been asked for such photos while males are more likely than females to ask for one (Temple, Paul, van den Berg, Le, McElhany, & Temple, 2012). Yet another study, which defined sexting as sending sexually explicit photos and messages through mobile phones and/or email, also found no significant difference between males and females in terms of the rate of sending/posting sexually explicit images and messages (Henderson, 2011). Another study, which “granulated” sexting according to content, medium used, and the young adults’ relationship context, found that sexting was highest in committed relationships (Drouin, Vogel, Surbey, & Stills, 2013). Perhaps the most important insight from these studies is that future research should, as Drouin et al. (2013) recommended, pay closer attention to the nuances of sexting and capture those nuances in the design of their study.

Other studies investigated the link between sexting and other sexual behaviors or risky behaviors. A common finding is that sexters are more likely than non-sexters to be engaged in other sexual practices, including risky ones, as well as in other risky behaviors. Specifically, compared to non-sexters, those who sext have been found to be more likely to be dating (Temple et al., 2012), have engaged in sex (Temple et al., 2012), have had multiple sex partners (Benotsch, Snipes, Martin, & Bull, 2013; Henderson, 2011; Temple et al., 2012), have engaged in unprotected sex (Benotsch et al., 2013), have been diagnosed with sexually transmitted diseases (Benotsch et al., 2013), and have consumed alcohol or drugs before sex (Benotsch et al., 2013; Temple et al., 2012). One study has found, however, that sexting was not significantly associated with having multiple sex partners and engaging in unprotected sex (Gordon-Messer, Bauermeister, Grodzinski, & Zimmerman, 2013).

The abovementioned analyses of the link between sexting and other sexual behaviors shed light on the link between the young adults’ online and offline sexual practices and activities. In the context of sexting, at least, high involvement in sexting corresponds to greater engagement in a host of offline sexual practices. A similar pattern with regard to consumption of Internet pornography was found by Braun-Corville and Rojas (2009). Results of their study showed that “adolescent exposure to sexually explicit Web sites is associated with high-risk sexual behaviors such as anal sex, multiple sexual partners, and substance use during sex” (p. 160). Hare et al. (2014), however, cautioned against a sweeping conclusion that the consumption of Internet pornography leads to problematic offline sexual practices and behavior. As their study found, the young adults themselves declared that viewing sexually explicit Internet movies had both positive and negative influence on their overall sexual health. Finally, one study that looked into the relationship between 3D Internet³ sexuality and real-life sexuality found that 3D Internet participants “viewed their sexuality in the two realms as largely independent” (Gilbert, Gonzalez, & Murphy, 2011, p. 118).

The large body of research on ICTs and youth sexuality has revealed a scenario that has both positive and negative dimensions. The trends and patterns established so far need to be validated in the Philippine context; as mentioned, research on the phenomenon is not as

³ Interactive virtual spaces “where users, in the form of avatars (3D digital representations of the self), can work, learn and engage in social interaction” (Gilbert, Gonzalez, & Murphy, 2011, p. 108). The most popular example of 3D Internet is Second Life (secondlife.com).

developed locally as it is in other countries. The current study endeavors to contribute to addressing the research gap and to identifying future directions for research on ICTs and youth sexuality in the country.

Data and methods

This study is a secondary analysis of the YAFS4 data for Region X. YAFS is a research program of the UP Population Institute and the Demographic Research and Development Foundation. Started in 1982, YAFS is a series of national surveys on the Filipino youth. The study covers a wide range of topics about the Filipino youth: YAFS examines not only the youth's sexual and non-sexual risk behaviors but also their socio-demographic profile, attitudes and values, family and peer relationships, media consumption, and participation in societal institutions. Given the scope of the survey in terms of topics covered and sampling design, YAFS findings are being used as a basis for health and other intervention programs for the Filipino youth.

YAFS4, as its name indicates, is the fourth and latest in the survey series. While fundamentally similar in scope to the previous YAFS surveys, YAFS4 also contains new items that have been added to better capture the current circumstances of the youth. These items are the questions on the youth's health and lifestyle and their consumption of and experiences with using new communication technologies.

Sample and data

All the respondents from Region X ($N = 1,387$) are included in this secondary analysis of the YAFS4 data. The respondents came from 65 barangays and 975 households. Data gathering for this region was conducted by the Research Institute for Mindanao Culture of Xavier University. Data collection was done using face-to-face interviews. Three sets of data were generated: for the community, household, and individual respondents. This secondary analysis uses only the individual datafile. Unweighted data were used in the analysis.

Operationalization of variables

Following the study's objectives and analytic framework, several variables in the YAFS Region X datafile were used as descriptors of the respondents' (a) ecological contexts, (b) ICT use for sex-related purposes, and (c) offline sexual behavior and practices.

In this study, only the first three **ecological contexts** were taken into consideration: (1) personal, (2) interpersonal, and (3) community. Societal factors were not included because they do not have corresponding questions in the YAFS dataset.

The specific variables chosen as indicators of the respondents' *personal characteristics* (referred to as "personal factors" in the ecological framework) are sex, age, education, marital

status, and gender orientation. Since the study looks at ICT use, two other variables were added in the analysis of personal characteristics: how long the respondents use the Internet in a week (in minutes) and cost of mobile phone use in a month (in pesos).

The *interpersonal factors* were classified into two: (a) family circumstances and (b) relationship with peers. For *family circumstances*, the variables selected were the number of siblings, parents' living arrangement, self-assessed relationship with parents, person/s who raised the respondents up to age 18 years, parents'/guardians' likelihood of approving certain activities that the respondents would like to engage in, and family dynamics as reflected in different situations involving the respondents and their parents/guardians. For *relationship with peers*, the variables selected were if respondents have close friends, most frequent activity engaged in with friends, if respondents have online friends, if respondents have textmates, and number of unmarried friends who have engaged in premarital sex.

The *community situation* was operationalized in terms of two variables: urban-rural stratum and respondents' province of residence.

To delineate **ICT use for sex-related purposes**, the following variables were used: if respondents have ever watched pornographic movies or videos on cell phones or computers, ever visited websites with sexually explicit content, ever sent or received sex videos through the Internet or cell phone, ever engaged in phone sex, ever had sex with someone met through the Internet or texting, and ever recorded self or partner having sexual intercourse.

Finally, for **offline sexual practices and behavior**, the two main categories of variables used were (1) exposure to pornography (if respondents have ever read pornographic materials, age when respondents first read pornographic materials, and frequency of reading pornographic materials in the last three months) and (2) respondents' non-ICT-mediated sexual practices (premarital sex experience and if respondents have engaged in FUBU relationships, casual sex, or commercial sex as payor or payee).

To facilitate data analysis, some variables were created by generating index scores. These variables are as follows:

a) Level of general ICT use – This variable was created in three steps. In Step 1, the variable on minutes of Internet use was converted to categories. In Step 2, the variable on mobile phone expenses per month was converted to three categories of mobile phone use. In Step 3, the categories of level of ICT use were set. The details of the scoring scheme are shown below:

Variable	Scoring Scheme
Step 1: Minutes of Internet use	a) Non-user (0) = 0 minutes of Internet use per week b) Low user (1) = up to 420 minutes of Internet use per week c) High user (2) = more than 420 minutes of Internet use per week
Step 2: Mobile phone expenses per month ⁴	a) Non-user (0) = does not use mobile phone b) Low user (1) = mobile phone expenses of up to 120 pesos per month c) High user (2) = mobile phone expenses of more than 120 pesos per month
Step 3: Level of general ICT use	a) Non-user (0) = 0 for both Internet and mobile phone use b) Low user (1) = 1 for both Internet and mobile phone use c) Moderate user (2) = combination of low and high levels of Internet and mobile phone use (i.e., either code 1 for Internet and 2 for mobile phone OR code 2 for Internet and 1 for mobile phone use) d) High user (3) = 2 for both Internet and mobile phone use

b) Level of parental control – This variable was created from the items about the likelihood of parents/guardians approving of particular activities that young adults could engage in. Eight situations were presented, and respondents were asked to rate each parent/guardian separately. The eight activities are as follows: (1) going out of town with friends, (2) staying out late, (3) staying overnight at a friend’s house, (4) going to a party at short notice, (5) going out on a single date, (6) having a boyfriend/girlfriend before age 18, (7) living away from home, and (8) going out at night with friends. Respondents were given a score of 1 for each item that their parents/guardians would approve of and 0 if otherwise. For respondents with only one parent/guardian, the sum of the scores was obtained. For respondents with two parents/guardians, the average of the total scores for the two parents/guardians was computed. As such, for all respondents, the index score ranges from 0 to 8, with lower scores indicating higher levels of parental control (i.e., 0 = strongest parental control and 8 = weakest parental control).

c) Level of family cohesion – This variable was created from five items about family dynamics (Q#B28 a–c and e–f),⁵ wherein each item has a 5-point response scale with “Almost always” and “Almost never” as end points. The score for this variable thus ranges from 5 to 25, with 25 representing the highest family cohesion.

d) Level of use of ICTs for sex-related purposes – Scores were assigned to the respondents’ answers to the six items that look into the youth’s use of ICTs for sex-related purposes. Yes-No items were scored 1 and 0, respectively. Items that asked about the type of ICTs used (computer/Internet and/or cell phone) were scored 2 if the respondent checked both computer/Internet and cell phone, 1 if the respondent checked computer/Internet or cell phone

⁴ It is acknowledged that using expenses as the indicator of the extent of mobile phone use has limitations, given the unli-text and/or call promos of service providers. However, it can also be reasonably assumed that the youth will generally avail of these promos, and the heavier mobile phone users will choose the more expensive promos as these give them longer use time for their mobile phones.

⁵ Q#B28 reads as follows: *I would like to know about your family life from birth up to 18 years old. Would you say that a) Family members are supportive of each other, b) It is easier to discuss problems with people outside the family than with my family members, d) Discipline is fair in our family, e) In our family, everyone shares responsibilities, and f) Family members eat together at least once a day.* The item “c) *In our family, everyone goes his/her way*” was not included in this study’s analysis because it is not an indicator of family cohesion.

only, and 0 if the respondent does not use any of the two ICTs. The score for this variable ranges from 0 (non-use of ICTs for sex-related purposes) to 8 (very high use of ICTs for sex-related purposes).

For data analysis, a combination of univariate, bivariate, and multivariate statistical tests were used. For univariate analyses, means and standard deviations were also computed where applicable. Bivariate tests included the chi-square, independent samples t-test, ANOVA, and correlation tests to determine the significance and/or extent of the relationship between the ecological factors and the respondents' use of ICTs for sex-related purposes. Bivariate analyses were also conducted to determine how online and offline sexual practices and behavior are linked. For multivariate analysis, logistic regression was used to find out how the different ecological factors influence the respondents' use of ICTs for sex-related purposes.

Results

The presentation of the results follows the sequence specified in the study's analytical framework. The first to be discussed are the findings for each of the three key concepts: ecological factors, online sexual practices and behavior, and offline sexual practices and behavior. Subgroup comparisons have been drawn to shed better light on the profile of respondents who get involved in different types of online and offline sexual practices/behavior. An analysis of the age of initiation into selected sexual practices is also presented; the additional details yield further insights regarding the extent to which youth from Northern Mindanao are involved in the said practices. Guided by the arguments of the ecological framework, bivariate and multivariate findings regarding which personal, interpersonal, and community factors are significantly associated with online sexual practices/behavior are discussed next. Finally, in line with the co-construction theory, the links between online and offline sexual practices/behavior are elaborated on.

Profiling the Northern Mindanao youth

The respondents' ecological contexts

In terms of personal characteristics, slightly more than half (51.6%) of the respondents were female; 15- and 17-year-olds constituted the biggest proportions of the sample (14.6% and 14.3%, respectively), and those aged 15–19 years (62.9%) outnumbered those in the 20–24 age bracket (37.1%). The average age of the respondents was 18.6 years. Four out of ten respondents were high school undergraduates, and almost three out of ten were high school or vocational school graduates. More than three fourths (78.2%) of the respondents had never been married.

Four out of ten respondents were non-users of the Internet, while 58.8 percent were Internet users. Among the latter, the shortest duration of use per week was five minutes, while the longest duration was 120.5 hours. The respondents registered an average rate of Internet use of 235.36 minutes or approximately four hours. The modal length of Internet use was one hour,

which was reported by 20.5 percent of the respondents. Overall, of the total sample, 52.1 percent were low users of the Internet (i.e., up to 402 minutes or seven hours of Internet time per week) and only 6.7 percent were high users (i.e., logged on to the Internet for more than seven hours).

There were more mobile phone users than Internet users among the Region X youth: 74.8 percent of them had access to mobile phones, as compared to 58.8 percent who had access to the Internet. The extent of mobile phone use, as indicated by the amount spent on this activity per month, ranged from a low of PHP20 to a high of PHP1,060. The average mobile phone expense per month was PHP141.15, while the modal amount was PHP120 (reported by 18.7% of respondents). Of the total sample, 53.6 percent were low users of mobile phones (i.e., with monthly expenses up to PHP120) and 21 percent were high users (i.e., with monthly expenses exceeding PHP120).

Following the coding scheme earlier described for creating the variable *level of general ICT use*, it was determined that almost half of the respondents (49.9%) were moderate users of ICTs, 31.3 percent were low users, and only 2.8 percent were high users. Non-users of ICTs made up 15.9 percent of the sample.

Regarding the respondents' family circumstances, the key findings are as follows:

- a) Most of the respondents came from large families, with 78 percent of them declaring that they had three or more siblings (biological, step, and/or adopted). Around one tenth (13.0%) of them had eight or more siblings. The respondents had, on the average, 4.6 siblings.
- b) In almost eight out of ten (77.1%) cases, the respondents' parents were still living together. Those whose parents had separated constituted 8% of the sample, while 14.9 percent had one or both parents deceased.
- c) Generally, the respondents got along well with their parents. Specifically, 72.3 percent of the respondents declared that they got along well with their father always or most of the time. Their relationships with their mothers appear to be even better, with 85.1 percent of the respondents saying that they got along well with their mothers always or most of the time.
- d) Most of the respondents (89.1%) were raised by both parents. In instances wherein this was not the case, the most frequent setup (4.0%) was being raised by the mother only.
- e) The likelihood that parents or guardians would give their permission for the respondents to engage in certain activities is quite low. Overall, only about one fourth of parents/guardians would approve of the eight activities enumerated to the respondents. Going out of town with friends garnered the highest approval (40.4% for the first person who mostly raised the respondent and 37.3% for second person), while those that would require the youth to stay out late or miss a night at home had the lowest rate of approval (18% for first person and 16% for second person).

Given the relatively low levels of approval for the aforementioned activities, the level of parental control, which was computed using the scoring scheme described in the previous section, was quite high. The biggest proportion (26.2%) of the respondents scored 0 for parental control—this means both the first and second person who mostly raised the respondent would most likely *not* give the latter permission to engage in any of the eight activities listed. None of the respondents scored 8; as such, none of them would be given permission by both the first and second person for all eight activities, and only 2.2 percent garnered a score of 7. The mean parental control score of the sample was 1.88, which confirms the high level of parental control among Northern Mindanao youth.

Overall, the respondents described their family situation positively—family members showed strong support for each other, high receptiveness to sharing of responsibilities, and responsiveness to taking at least a meal a day with the entire family. On the flipside, more respondents said that it is easier to discuss problems with other people than with family members (37% vs. 24%) and that family members tend to go their own way (52% vs. 19% saying otherwise). Nonetheless, the level of family cohesion was quite high among the sample. Overall, the mean family cohesion score was 19.2 (out of the highest possible score of 25).

As regards relationships with peers, the data show the following:

- a) The respondents were more involved in offline (face-to-face) than online peer relationships. This is evident in the findings that most (89.4%) of them had close friends with whom they met regularly; in contrast, only about one fourth (27.5%) and one third (38.6%) had purely online friends and textmates, respectively.
- b) As reported by the respondents, about half of their unmarried friends had engaged in premarital sex. Specifically, 48.4 percent said that they had unmarried female friends who have had premarital sex; the corresponding proportion for unmarried male friends was 51.4 percent.
- c) Overall, the respondents and their peers were mainly engaged in wholesome activities. The top activity that they did was *kwentuhan*/chatting/telling stories (39.9%). Other activities were not as popular, as evidenced by the much lower proportion of respondents citing the second top activity of playing basketball (mentioned by only 9.2% of the respondents), as well as the next activities in the top five of the respondents' list of activities: strolling/*libot* (9.1%), eating/food trip (5.6%), and *inuman*/drinking liquor (3.4%).

For community factors, findings revealed that three fourths (75.7%) of the respondents were based in rural areas.

Online sexual practices and behavior

Of the total sample, 57.5 percent have ever watched pornographic/X-rated movies or videos. Of the various media that could be used for watching these materials, mobile phones were used by 31.2 percent of the respondents, while desktop computers/laptops/iPads/tablets were used by 8.4 percent.

In comparison with viewership of pornographic videos/movies, visits to websites with sexually explicit content are less common among the respondents, with only 20.8 percent saying that they have engaged in the latter act.

Overall, 21 percent of the respondents have sent or received sex videos through the Internet or mobile phones. Significantly fewer respondents have engaged in phone sex (10.5%), and the prevalence of other online-mediated sexual practices is lower: 4.3 percent for sex with someone they met through the Internet or texting and 0.9 percent for recording themselves or their partner in sexual intercourse.

As mentioned, an index score was generated using the abovementioned indicators of online sexual practices and behavior, which has been labeled as the respondents' *level of use of ICTs for sexual purposes*. Based on the score that they got, the respondents were classified into non-users, low users, and moderate to high users of ICTs for sexual purposes. The proportions of respondents falling into each category were 54.1 percent, 34.1 percent, and 11.8 percent, respectively. Thus, the majority of Region X respondents have not tried using ICTs for sexual purposes. Nonetheless, the proportion that has done so is still quite high at 45.9 percent.

Profiling the respondents who have engaged in online sexual practices and behavior, crosstabulations revealed that watching sexually explicit movies/videos was much higher among males than females (78.9% vs. 37.4%; $\chi^2 = 243.68$, $p < .000$). The rate of viewership was also significantly higher among older (67.5%) than younger (51.6%) young adults, as well as those with higher (63.9% for those with high school/vocational diploma, 62.5% for those with college+ education) than lower educational attainment (53.8% for high school undergraduates and 49.2% for those with less than high school education). Never- and ever-married respondents exhibited almost the same rate of viewership of sexually explicit movies and videos (57.0% and 59.4%, respectively).

Visits to websites with sexually explicit content were more common among males (39.0%) than females (6.6%), older (25.7%) than younger (18.1%) respondents, and more educated (22.9% for high school/vocational graduates, 26.6% for those with college+ education) than less educated respondents (20.0% for those who did not reach high school, 14.7% for those who had some high school education). The frequency of visits to websites with sexually explicit content was higher among never-married (21.9%) than ever-married respondents (15.8%), but the difference was not statistically significant.

Subgroup analyses further revealed that sending or receiving sex videos was significantly higher among males than females (32.5% vs. 10.5%; $p < .000$), older than younger respondents (24.6% vs. 19.1%; $p < .05$), never-married than ever-married respondents (22.6% vs. 16.0%; $p < .05$), and more educated than less educated respondents (12.4% for those with elementary education and below; 17.0% for high school undergraduates; 26.7% for high school/vocational graduates; 28.6% for those with college education or higher; $p < .000$).

As regards the other sexual practices that were less commonly observed among the respondents, descriptive crosstabulations revealed that the incidence of these practices tends to be higher among males, older respondents, the better educated, ever-married respondents, and urban residents (see Table 1).

Table 1. Engagement in phone sex, sex with Internet/text friend, and recording self/partner while having sex

Characteristics	% who have engaged in		
	Phone sex	Sex with Internet/text friend	Recording self/partner having sex
Male	17.5	8.1	0.9
Female	4.1	0.8	0.8
Younger (15–19)	8.0	2.2	0.2
Older (20–24)	15.1	8.1	2.0
Elementary or lower	6.3	4.6	0.0
High school undergraduate	8.2	2.2	0.5
High school/vocational graduate	15.5	6.6	1.9
College or higher	12.1	5.7	0.8
Never married	9.7	3.5	0.6
Ever married	14.0	7.3	2.0
Urban	11.6	6.3	1.5
Rural	10.3	3.8	0.7
Total (N = 1,387)	10.6	4.4	0.9

Offline sexual practices and behavior

Overall, 36.6 percent of the respondents have read pornographic materials. Subgroup comparisons revealed that reading pornographic materials was significantly higher among males than females (48.4% vs. 25.6%), those in the 20–24 age bracket than those aged 15–19 years (44.2% vs. 32.2%), and those with higher than lower educational attainment (44.8% for college+ and 47.2% for high school/vocational graduates vs. 28.7% for high school undergraduates and 28.8% for those with less than high school education). There was not much difference between never- and ever-married respondents in terms of reading pornographic materials (36.0% vs. 38.9%). Among the respondents, the prevalence of sexual activities outside of romantic relationships was low: 5.5 percent for casual sex, 3 percent for FUBU relationships, 1.7 percent for paid sex as client (payor), and 2.3 percent for paid sex as payee. Descriptive crosstabulations

for these sexual practices revealed that the level of involvement in these activities was higher among males, those aged 20–24 years, the better-educated youth, ever-married respondents, and urban residents (see Table 2).

Meanwhile, premarital sex experience (31.9% for the entire sample) was significantly higher among male than female (35.3% vs. 28.8%), ever-married than never-married (74.9% vs. 19.9%), 20–24-year-old than 15–19-year-old (58.1% vs. 16.5%), and more educated (37.5% for college+ and 48.2% for high school/vocational graduates) than less educated (19.2% for high school undergraduates and 31.1% for those with elementary or lower education) respondents. Differences in premarital sex experience were least dependent on the sex of the respondents. Moreover, in terms of educational attainment, the high school undergraduates had the lowest rate of premarital sex experience.

Table 2. Engagement in casual sex, FUBU relationships, and paid sex

Characteristics	Casual sex	% who have engaged in		
		FUBU relationships	Paid sex - Payor	Paid sex - Payee
Male	10.9	5.7	3.4	4.6
Female	0.4	0.4	0.0	0.1
Younger (15–19)	3.4	1.7	3.1	1.1
Older (20–24)	9.0	5.1	0.8	4.3
Elementary or lower	4.5	2.8	2.8	4.5
High school undergraduate	3.3	1.9	1.0	1.6
High school/vocational graduate	9.2	4.0	2.4	2.9
College or higher	5.7	4.0	1.2	1.6
Never married	4.8	2.7	1.2	2.7
Ever married	7.9	4.0	3.3	2.7
Urban	7.1	2.4	1.8	2.4
Rural	5.0	3.2	1.6	2.3
Total (<i>N</i> = 1,387)	5.5	3.0	1.7	2.3

Initiation into online and offline sexual practices

It is important to know how early (or how late) young adults are initiated into various sexual practices because this helps ascertain the extent of the youth's vulnerability to the untoward consequences of being involved in the said practices. Thus, the next set of analyses looks into the age at which the respondents started to engage in the different sexual practices they reported having experienced. Differences in age of initiation among subgroups of respondents were also examined.

The analyses include only the following variables: readership of pornographic materials, viewership of pornographic movies/videos, engagement in commercial sex as payor and as payee, and premarital sex experience. For the other sexual activities, the age of initiation was not included in the YAFS.

A handful of respondents started reading pornographic materials at a very young age, with one respondent reporting being a reader of pornographic materials as early as the age of five. But a number of respondents were at the other extreme, having started reading pornographic materials when they were in their 20s. The oldest reported age of initiation to pornographic materials was 23 years. The average age for the total population was 15.8 years. Comparatively, the age at which the respondents started patronizing pornographic content was significantly earlier for males, those in the 15–19 age bracket, never-married respondents, and high school undergraduates. Respondents from urban and rural areas did not significantly differ in their age of initiation to reading pornographic materials (see Table 3)

Table 3. Mean age of initiation into various sexual practices

	Reading porn	Viewing porn	Paid sex as payor/client	Paid sex as payee	Premarital sex
Total population	15.8	16.0	18.4	17.5	18.0
Males	15.3 ^a	15.4 ^a	18.4	17.5	17.8
Females	16.4	17.1	NA	18.0	18.3
15–19-year-olds	14.8 ^a	14.8 ^a	16.9 ^a	16.5	16.7 ^a
20–24-year-olds	17.0	17.5	19.1	18.0	18.7
Never married	15.5 ^a	15.6 ^a	17.8	17.4	17.9
Ever married	16.6	17.2	19.1	18.0	18.1
Elementary or lower	16.3	16.1	18.4	17.5	17.8
High school undergraduate	15.0 ^a	15.2 ^a	18.0	18.2	17.4 ^a
High school/ vocational graduate	16.0	16.5	19.1	17.0	18.3
College or higher	16.2	16.5	16.7	17.2	18.4
Urban	15.6	15.7	18.8	17.8	17.7 ^a
Rural	15.8	16.0	18.2	17.4	18.2

Note. NA = not applicable.

^aThe subgroup's age of initiation is significantly lower/earlier than that for the other subgroup/s of a particular variable.

When it comes to viewership of pornographic movies or videos, extreme cases were similarly noted; that is, a number of respondents started out young (with six respondents reporting that they started watching when they were 7 years old) and a few were “late bloomers” (with four respondents saying that they started watching only when they were 24 years old). The average age for the entire population is 16.0 years. Consistent with the findings for readership of

pornographic materials, viewership of the same content in movies or videos differed significantly according to sex, age, marital status, and education, with males, 15–19-year-olds, never-married respondents, and high school undergraduates starting at an earlier age than their peers. Age at first viewership did not differ significantly between urban and rural residents.

Turning to engagement in commercial sex as payor/client, only male respondents have engaged in this activity. The youngest age of initiation reported was 16 years, while the oldest was 22 years. The average age of their first engagement in commercial sex as the client is 18.4 years. Those in the younger age group had a significantly younger age of initiation than those in the older age group. However, age of initiation did not differ significantly according to marital status, educational attainment, and place of residence.

Engagement in commercial sex as payee started a year earlier for the respondents (average age = 17.5 years) as compared to their engagement in commercial sex as the payor/client (average age = 18.4 years). The age of initiation ranged from 15 to 21 years. Among the 32 respondents who reported having been paid for sex, only one was female; as such, there was no test for significant difference between males and females. On the other hand, between younger and older respondents, those never- and ever-married, those with different educational attainment, and urban and rural residents, the age of initiation into commercial sex as payee did not differ significantly.

Overall, the average age of sexual initiation of those who have premarital sex experience is 18.0 years. The youngest age reported was 12 years, and the oldest was 24.8 years. There is no significant difference between males and females or between never- and ever-married respondents in this regard. There is a significant difference in age of initiation, however, between the younger and older age groups, among subgroups of educational attainment, and between urban and rural residents. Younger ages of first premarital sex were reported by younger respondents, those who did not finish high school, and urban residents.

Ecological factors associated with online sexual practices and behavior

For the analysis of the association between ecological factors and the respondents' online sexual practices and behavior, the created variable *level of use of ICTs for sex-related purposes* was used as the dependent variable. Bivariate analyses (t-test and ANOVA) comparing mean scores for subgroups showed the following:

a) All personal factors except marital status had a significant relationship with use of ICTs for sexual purposes. Use was higher among males (1.50 vs. 0.33 for females), older (20–24 years old) respondents (1.07 vs. 0.80 for younger respondents), and better-educated respondents (1.16 for college+, 1.14 for high school/vocational graduates, 0.73 for high school undergraduates, 0.57 for those with elementary or less education). Never-married respondents had a mean score of 0.92, while their ever-married counterparts scored 0.82.

b) Only two family-level factors—parental control and family cohesion—were significantly linked with the use of ICTs for sex-related purposes. Parental control and ICT use had a positive correlation ($r = .307$, $p < .01$), which indicates that the higher the parental control, the lower the respondents' tendency to engage in ICT-mediated sexual activities.⁶ Family cohesion showed a weak but nonetheless significant ($r = -.067$, $p < .05$) correlation with ICT use (i.e., the weaker the family cohesion, the greater the likelihood that the youth would be using ICTs for sex-related purposes). Thus, both variables seem to act as deterrents to ICT-mediated sexual practices and behavior.⁷

c) All indicators of peer relationships had a significant association with the use of ICTs for sexual purposes. Those with regular interactions with peers, whether they are face to face (yes = 0.94 vs. no = 0.57) or with “virtual” friends (yes = 1.25 vs. no = 0.97), showed higher rates of ICT use for sex-related purposes. ICT use also tends to increase together with the number of friends with premarital sex experience that the respondent has (for female friends, none = 0.65, a few = 1.07, many = 1.35; for male friends, none = 0.44, a few = 1.14, many = 1.56).

d) Turning to community-level factors, the use of ICTs for sexual purposes was significantly higher in urban (1.07) than rural (0.84) areas.

To sum up, bivariate analyses indicate that among ecological factors, personal characteristics and peer relationships wield stronger influence on the youth's use of ICTs for sex-related purposes; family and community factors are less likely to influence the said activity. To further understand how these factors are linked with sex-related ICT use, multiple (stepwise ordinary least squares) regression analysis was conducted, wherein all ecological factors with a significant association—based on bivariate analyses—with level of ICT use for sex-related purposes (Y) were considered. The final model (Table 4) shows that the following factors have the greatest impact on the youth's predisposition for using ICTs for sex-related purposes:

- Being male
- Having many unmarried male friends with premarital sex experience
- Being a high school undergraduate
- Being in a family with a low level of parental control
- Having exclusively textmate friends
- Having unmarried female friends with premarital sex experience

These factors account for 39 percent of the variations in the youth's use of ICTs for sex-related purposes. Sex is the most important predisposing factor for engaging in ICT-mediated sexual activities. Peer relationships are stronger predisposing factors than family circumstances, and community factors do not significantly affect such predisposition.

⁶ To reiterate, the scoring scheme for parental control is such that 0 = strongest parental control and 8 = weakest parental control.

⁷ For the other family-level factors, the mean scores of subgroups are as follows: (a) number of siblings: 0–3 = 0.91, 4–7 = 0.89, 8 or more = 0.89; (b) if parents are still living together: yes = 0.87, no = 1.04; (c) how well R and father get along: all the time = 0.92, most of the time = 0.88, sometimes = 0.78, not at all = 0.69; and (d) how well R and mother get along: all the time = 0.91, most of the time = 0.93, sometimes = 0.72, not at all = 1.12.

Table 4. Final model: Stepwise ordinary least squares regression analysis of ecological factors influencing level of use of ICTs for sex-related purposes

Factors	Unstandardized coefficients		Standardized coefficients	t	Sig
	B	SE	Beta		
(Constant)	0.1	0.1		1.007	.314
Sex (ref = female)	1.387	0.101	0.475	13.744	.000
Number of unmarried male friends with premarital sex experience (ref = none)	0.52	0.12	0.163	4.334	.000
Highest level of schooling (ref = elem or less)	-0.362	0.1	-0.118	-3.621	.000
Level of parental control (scores)	0.087	0.026	0.114	3.357	.001
If R has purely textmate friends (ref = none)	0.308	0.091	0.107	3.39	.001
Number of unmarried female friends with premarital sex experience (ref = none)	0.237	0.111	0.077	2.144	.032

Exploring the links between online and offline sexual practices and behavior of young adults in Northern Mindanao

The discussion of the possible links between the online and offline sexual practices and behavior of Filipino young adults, using YAFS4 respondents from Northern Mindanao as the specific case, needs to start with two caveats that should always be considered when deliberating on the results:

The first caveat is substantive in nature: Several studies have shown that “highly wired” youth are not in any way worse off than their less-wired counterparts when it comes to involvement in risky sexual practices. Contrary to what “technology pessimists” have been saying, more time spent online does not translate to greater predisposition to greater involvement in nonconventional or riskier sexual experiences. While there are young people who fall prey to online predators, such instances are actually the exception rather than the norm.

The second caveat pertains to methodological limitations that clearly caution against generalizing the findings of the analysis to the larger population. On the one hand, the proportion of Region X respondents who have engaged in “less conventional” sexual practices (i.e., casual sex, FUBU relationships, and paid sex) is small, even as the proportion might be bigger than the national average. On the other hand, only a handful of respondents scored high on the variable “use of ICTs for sexual purposes.” This could be a function of the measures used to determine the level of use of ICTs for sexual purposes, which are in turn a function of the variables/indicators available in the YAFS dataset. Since the YAFS was not purposely designed to measure ICT use

among the youth, either in general terms or specific to sex-related concerns, the variables used for this study's analysis of the ICT dimension of young people's lives are not exhaustive.

Overall, this study's analysis of the possible relationship between the youth's online and offline sexual practices and behavior has found that the two are directly related.

Using the level of ICT use for sex-related purposes as the grouping variable, with respondents grouped into non-users, low users, and moderate/high users, the consistent result is that the proportion engaging in offline sexual practices and behavior is significantly higher among those with higher levels of ICT use. As Table 5 shows, the pattern is consistent across different types of offline sexual practices: Non-users of ICTs for sex-related purposes have the lowest proportion, low users come next, and moderate/high users have the highest proportion of respondents engaging in the readership of pornographic materials, casual sex, FUBU relationships, paid sex, and premarital sex.

Table 5. Involvement in "offline" sex practices, by level of use of ICTs for sex-related purposes

Offline sex practices	Level of ICT use for sex-related purposes			
	Total sample	Non-user	Low	Moderate-high
Ever read pornographic materials	36.6	19.5	49.2	78.0
	$\chi^2 = 240.285, p < .000$			
Ever engaged in casual sex	5.5	1.1	5.2	25.8
	$\chi^2 = 154.944, p < .000$			
Ever had FUBU relationships	3.0	0.8	2.6	14.5
	$\chi^2 = 82.577, p < .000$			
Ever engaged in paid sex as payor (client)	1.7	0.3	1.3	8.8
	$\chi^2 = 59.467, p < .000$			
Ever engaged in paid sex as payee	2.3	0.4	2.2	11.9
	$\chi^2 = 74.889, p < .000$			
Ever had premarital sex	31.9	21.6	35.9	64.2
	$\chi^2 = 115.769, p < .000$			

Note. Figures represent percent saying "yes" to each offline sex practice.

Using engagement in offline sexual practices as the grouping variable, the mean scores for the use of ICTs for sex-related purposes are consistently significantly higher for those who reported having experience in a particular offline sexual practice than those who said otherwise (see Table 6 for the comparative mean scores).

Table 6. Use of ICTs for sex-related purposes by engagement in offline sexual practices

Offline sex practices (OSPs)	Engaging in OSPs		Not engaging in OSPs	
	n	Mean ICT use	n	Mean ICT use
Ever read pornographic materials	492	1.61	853	0.49
	$t = 14.731; p < .000$			
Ever engaged in casual sex	73	2.82	1272	0.79
	$t = 9.037; p < .000$			
Ever had FUBU relationships	41	2.73	1304	0.84
	$t = 6.426; p < .000$			
Ever engaged in paid sex as payor (client)	22	3.14	1323	0.86
	$t = 5.363; p < .000$			
Ever engaged in paid sex as payee	32	3.38	1313	0.84
	$t = 6.426; p < .000$			
Ever had premarital sex	424	1.49	921	0.63
	$t = 10.075; p < .000$			

It should be pointed out that these results should not in any way be taken as evidence that the youth who are “more wired” are more prone to risky sexual behaviors. At best, the results indicate that online and offline sexual practices tend to occur together, suggesting that young people who are sexually curious are likely to explore various forms of sexual expression both in the physical and virtual worlds. What would be interesting to find out in future research is which of the two “platforms” (offline vs. online) comes first in the digital natives’ explorations. It could also be the case that the two platforms alternate (i.e., the progression of offline and online sexual activities is primarily a function of the activities themselves and not of the platform where they are taking place).

Exploring the association between level of general ICT use and engagement in various sexual practices

The level of general ICT use, a composite of the respondents’ duration (in minutes) of Internet use per week and expenses (in pesos) for mobile phone use per month, was found to be mainly moderate among the Northern Mindanao youth. To reiterate, results show that 49.9 percent of the respondents were moderate users of ICTs, 31.3 percent were low users, and 15.9 percent were non-users. Only 2.8 percent of the respondents registered a high level of ICT use.

In examining how the level of ICT use is associated with the respondents' offline and online sexual practices and behavior, the categories "moderate" and "high" users of ICT were merged given the relatively fewer number of respondents in the latter category. As such, for the bivariate analyses, there were only three categories of ICT use: non-user, low user, and moderate/high user.

Focusing first on offline sexual practices and behavior, chi-square tests revealed that the level of general ICT use was significantly associated with the readership of pornographic or sexually explicit materials, engagement in casual sex, and involvement in premarital sex. In all cases, the proportion engaging in these sex practices is lowest for non-users and highest for moderate/high users.⁸ On the other hand, the level of ICT use did not have a significant association with engagement in FUBU relationships and in commercial sex, both as payor and payee. It must be reiterated that only a few respondents engaged in the latter three sexual practices: 3 percent for FUBU relationships, 1.7 percent for commercial sex as payor, and 2.3 percent for commercial sex as payee.

As regards online sexual practices and behavior, it was found that the level of ICT use was significantly associated only with engagement in phone sex. Moderate/high users were more likely to have engaged in phone sex (14.1%) than the low users (8.9%). (Non-users of ICTs were, for obvious reasons, not included in the analyses.)

For the rest of the online sexual practices and behavior (i.e., watching pornographic movies or videos, visits to websites with sexually explicit content, sending or receiving sex videos, having sex with someone met through Internet or texting, and recording self or partner while having sex), no significant association with the level of ICT use was found. In other words, higher levels of general ICT use do not translate into greater engagement in these online sexual practices and behavior.⁹

Discussion

This study's analysis of Northern Mindanao youth's ICT-mediated sexual practices and behavior revealed that the main sex-related online activity that the youth have engaged in is the consumption of pornographic/sexually explicit materials. Access to these materials through the mobile phone is more common than access through computers, which is not surprising given that mobile phones in general are more portable and more affordable than personal computers. Next to viewing pornography, sexting and visiting sexually explicit websites are the other ICT-mediated sexual activities that the youth have been involved in, although the proportion of respondents who reported having done the latter two activities is only about half of the proportion who have

⁸ For the total sample, non-users, low users, and moderate-high users of ICTs, respectively, the proportions are as follows: (a) ever read pornographic materials = 36.6 percent, 25.9 percent, 38.9 percent, and 38.7 percent; (b) ever engaged in casual sex = 5.5 percent, 2.7 percent, 3.7 percent, and 7.4 percent; and (c) involvement in premarital sex = 31.9 percent, 25 percent, 30.2 percent, and 35.1 percent.

⁹ For the total sample, low users, and moderate-high users of ICTs in general, respectively, the proportions are as follows: (a) Ever watched pornographic movies/videos = 57.5%, 56.7%, and 60.8%; (b) Ever visited websites with sexually explicit content = 12.2%, 12.8%, and 15.5%; (c) Ever sent or received sex videos = 21.0%, 23.5%, and 25.5%; (d) Ever had sex with someone met through the internet or texting = 4.3%, 4.6%, and 5.3%; and (e) Ever recorded self or partner having sex = 0.9%, 0.7%, and 1.2%.

viewed pornographic movies/videos. Even fewer respondents have tried other ICT-mediated sexual activities such as phone sex, having sex with someone they only met through the Internet or text, and recording themselves and/or their partner in sexual intercourse. Thus, it appears that Filipino youth are not as into online sexual practices as the youth are in other countries (particularly Western countries). But as Internet connectivity continues to expand and smartphones increasingly become more affordable, one could only surmise that ICT-mediated sexual activities among the youth and other sectors of the population will most likely rise over the coming years.

Findings of this study indicate that sex—more specifically, being male—is the strongest predisposing factor to sex-related online activities. Across all types of online sexual activities, more males than females reported having had some experience. One could argue that this is reflective of societal gender norms. Thus, as gender norms shift/relax, sex differentials could disappear. Studies conducted in other countries have found that male and female youth do not significantly differ when it comes to sexting (Henderson, 2011; Temple et al., 2012). One study found that more women than men reported using the Internet for sexual purposes (Daneback et al., 2012).

The influence of education on engagement in ICT-mediated sexual practices needs further exploration. Bivariate analyses revealed that education is not always a significant predisposing factor; when it is, the usual pattern is that more educated respondents were more likely than less educated respondents to use ICTs for sex-related purposes. Stepwise ordinary least squares regression analysis showed that education is a significant factor; however, it is the high school undergraduates who were more predisposed to ICT-mediated sexual practices than other education groups. This finding suggests that access to high school education already exposes the youth to an environment that is conducive to online sexual expression and exploration (i.e., that high school education is the threshold for such activities). Another way of looking at the results is that those with less than high school education are most likely those that have left school for good, whereas high school undergraduates are still in school and will most likely continue to higher levels of schooling. As such, the latter's socio-economic profile is also very likely to be different from those who have not gone to high school at all.

Peer factors were found to be stronger predisposing factors to ICT-mediated sexual activities than family factors. In particular, those who have unmarried male and female friends with premarital sex experience, as well as exclusively textmate friends, are more likely to get involved in online sexual activities. This finding not only confirms the weight of peer influence on young people's actions and activities, but also sheds light on how online and offline sexual activities are linked (which shall be discussed in greater detail later). But one family factor—parental control—was seen to be a deterrent factor for the youth's engagement in online sexual practices. Thus, parental supervision remains a crucial protective factor against sexual risk-taking among young people.

Similar to what other studies have found, the present study found a positive relationship between the respondents' online and offline sexual activities. That is, young people who have had

experience in using the Internet or the mobile phone for sex-related purposes are also more likely to have engaged in non-ICT mediated forms of sexual expression such as readership of pornographic materials, premarital sex, and other types of sexual relationships. This does not mean, however, that use of ICTs for sex-related purposes predisposes the youth to engage in various forms of sexual expression and experimentation. In fact, this study has also shown that young people with different levels of general ICT use do not always significantly differ in terms of their extent of experience/involvement in sexual practices and behavior. Furthermore, causality was not tested in this study, and the most prudent interpretation of the results is that young people who are sexually curious or adventurous will access all means of expression/exploration available to them, whether these are online or offline. This means that stakeholders in youth sexual well-being should not see offline and online sexuality issues as separate and compartmentalized but as a continuum that simultaneously needs to be understood and addressed.

This study was able to shed light on how the youth's online and offline sexual activities are linked, primarily in terms of engagement in more risky sexual practices. What this study has not delineated is the possible positive link between the two, as other studies have done. Several studies have shown that online sexual practices that society might consider "questionable" could still be beneficial to young adults. Pornography could be a useful source of information/insights on how to handle oneself in sexual encounters, and role playing in social media sites and 3D Internet could help a young person process his/her sexuality issues in a safer manner than in the physical world.

Summary and recommendations

Several policy and program recommendations that would help promote sexual health and well-being among the youth can be gleaned from the study's findings.

Most of the respondents reported having good relationships with their fathers and mothers. Likewise, parental control was found to be an important deterrent against engagement in online sexual practices. Parents' participation in programs to mitigate youth engagement in sexual practices and behaviors should therefore be strengthened. In particular, the implementation of the Parents' Education Program on adolescent responsible sexuality using the Commission on Population's Learning Package on Parent Education, in collaboration with the Department of Education and the parents', teachers' and community associations, should be strengthened.

Peer influence is a strong determinant of young people's decisions and actions regarding sexuality-related matters. If channeled correctly, peer influence could therefore be a crucial factor in promoting youth sexual health. It is therefore recommended that stakeholders continuously work with local government units in the establishment and maintenance of school- and community-based teen centers, as well as in the conduct of peer educators training, to respond to the information and reproductive health needs of adolescents and young people. Stakeholders could tap into the youth's favorite activity of *kwentuhan*/chatting/telling stories as a means of sharing and discussing sexuality-related information/concerns on a peer-to-peer level.

The results of this study's analyses suggest that access to ICTs facilitates the youth's involvement in—and does not predispose them to—different ways of exploring and expressing their sexuality. However, this does not render the necessity of online literacy programs for the youth any less urgent. Regardless of how ICT access is linked with young people's sexual expression, the importance of educating them about the hazards of the virtual world and how they could protect themselves from those hazards remains paramount.

Corollary to the above recommendation, it must be reiterated that programs on youth sexual health should simultaneously address online and offline sexuality issues. The study found that online and offline sexual activities are directly related (i.e., they are likely to occur together because young people who are sexually curious and/or adventurous try different avenues for sexual exploration that are accessible to them).

The analysis of ecological factors revealed that personal characteristics, peer relationships, and type of community are significantly linked with engagement in various forms of online sexual practices and behavior. Specifically, such practices and behavior are more likely to manifest among males, those aged 20–24 years, the better-educated youth, those who have purely online friends or textmates, those with many friends with premarital sex experience, and urban residents. Family-level factors were generally not significantly linked with the use of ICTs for sex-related purposes. Initiatives for online literacy could therefore prioritize the youth with the abovementioned profile.

Data on the age of initiation into certain sexual practices indicate that initiation is earliest for the consumption of pornographic materials (approximately 16 years old), followed by engagement in commercial sex as payee (17.5 years), involvement in premarital sex (approximately 17.8 years), and engagement in commercial sex as payor (18.4 years). These findings are crucial inputs regarding the timing of sexuality education and other interventions aimed at promoting the sexual health of the youth. The issue of timing of sexuality education gains more importance when one considers the finding that some respondents had their first exposure to pornography when they were just 5–7 years old. This situation points to the need for a harmonized Adolescent Health and Youth Development Plan to be jointly formulated by the Commission on Population, the Department of Health, and other partner agencies, and the implementation of Administrative Order No. 2013-0013: National Policy and Strategic Framework on Adolescent Health and Development.

The consumption of pornography—whether in print, video, or online format—is the main sex-related activity among the Northern Mindanao youth. This finding underscores the difficulty of regulating the distribution of and access to pornographic content, but it still needs reiterating that measures must be taken by the family, local government, media distributors, and other stakeholders to limit young people's access to the said materials. Moreover, the role of the youth in the circulation/distribution of these materials needs to be looked into in light of this study's findings that about one fifth of the Northern Mindanao youth have either sent or received sexually explicit videos through the Internet or the mobile phone. In the YAFS, the acts of sending and receiving are lumped together; it would be instructive to have separate data for these two and to

find out exactly what types of materials are being circulated (i.e., whether these involve people known to the youth).

Future studies could also break down sexting into various dimensions based on the medium used, content exchanged/shared, and relationship with the person to whom the sext is sent/from whom it is solicited. Finally, as previously mentioned, future research could also equally look into the benefits and hazards of various types of ICT-mediated sexual activities.

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