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Parenting styles and emerging adult drug use in Cebu, the Philippines

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Abstract

Parenting style is a potent and malleable influence on emerging adult substance use. Most of the parenting-substance use literature has been conducted in Western populations and it is unknown whether findings are generalizable to other cultures and contexts. We extended the parenting-substance use literature to a cohort of emerging adults in the Philippines using the Cebu Longitudinal Health and Nutrition Survey. We assessed associations between mothers' and fathers' parenting styles (authoritative, permissive, authoritarian, and neglectful) reported by offspring at age 18 and odds of offspring-reported drug use three years later, adjusted for a range of offspring- and parent/household-level characteristics. Females were dropped from analyses due to low prevalence of drug users. We found that many emerging adults in Cebu reported having used drugs, particularly methamphetamine—a dangerous drug with high abuse potential. Authoritative

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The authors declare no conflicts of interest.

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(warm, firm) mothering was significantly associated with sons' reduced odds of drug use and neglectful fathering was related at a trend level with sons' increased odds of having tried drugs. Findings underscore the relation of parenting styles to emerging adults' drug use and add to the literature on cross-cultural variability in parenting styles.

Keywords

family; Southeast Asia; adolescent; culture; mental health; substance use

Introduction

Emerging adulthood–roughly ages 18–25 in many industrialized societies (Arnett, 2000)–is a period of heightened vulnerability to substance use as a result of biological, psychological, and social influences (Stone, Becker, Huber, & Catalano, 2012). While the etiology of substance use problems is complex and multifactorial, parenting styles have been identified as an important and potentially malleable influence on substance use in adolescence and emerging adulthood (Patock-Peckham, King, Morgan-Lopez, Ulloa, & Moses, 2011; Stone et al., 2012). In particular, family connectedness and attachment with parents, as well as parental discipline and monitoring, have been found to protect against emerging adult substance use (Backer-Fulghum, Patock-Peckham, King, Roufa, & Hagen, 2012; Stone et al., 2012). Most research on parenting influences on offspring substance use, however, has been conducted with samples in Western countries. Given cultural influences on parenting behaviors and norms (Deater-Deckard et al., 2011), it is not clear whether these findings are generalizable to other global contexts. Investigating the associations of parenting styles with emerging adult substance use in non-Western contexts has the potential to enhance our understanding of cross-cultural variability in parenting, as well as to inform the development of culturally-relevant prevention strategies for substance use in emerging adults.

One approach to studying parenting is to use the theory and typology of parenting styles that emerged from the work of Baumrind (1971) and Maccoby and Martin (1983). The theory underpinning these styles is that parental behavioral patterns can be conceptualized in terms of the degree and combination of two underlying dimensions—responsiveness/warmth and demandingness/control. Responsiveness/warmth includes affective warmth, positive regard, acceptance, and involvement. Demandingness/control encompasses behavioral demands, strictness, monitoring, and supervision. The four styles that emerge from combinations of these dimensions are: authoritative (high on warmth and control), permissive (high on warmth, low on control), authoritarian (high on control, low on warmth), and neglectful/uninvolved (low on both). Western psychological literature largely deems the authoritative parenting style optimal for offspring development and protective against offspring substance use. This link has been empirically supported and is also conceptually in line with the findings described above regarding the importance of both family connectedness and parental discipline to protect against emerging adult substance use (Backer-Fulghum et al., 2012, Patock-Peckham et al., 2011; Stone et al., 2012).

An emerging literature extending parenting research to more diverse populations investigates whether authoritative parenting is universally considered to be the optimal style. Some researchers have proposed that different parenting behaviors—distinct from the authoritative style—may be more beneficial, or at least less harmful, in settings where they fit better with cultural ideals and are perceived as more normative (Chao, 1994; Dwairy, 2004). For instance, in China, very strict parenting is interpreted more positively by offspring than it is in the US and, thus, may be more adaptive in that context (Chao, 1994).

Some findings support the notion that parenting styles other than the authoritative style may be associated with decreased risk for offspring substance use in some cultures. A study in Spain reported that permissive parenting was associated with beneficial outcomes, including reduced offspring drug use (Garcia & Gracia, 2009). Studies involving Brazilian (Paiva, Bastos, & Ronzani, 2012) and Palestinian-Arab (Dwairy, 2004) adolescents found authoritarian parenting to be on par with authoritative parenting in relation to several mental health measures, including substance use. Other studies have found that authoritative parenting, or a close approximation, remains most adaptive and is the most protective against substance use in diverse cultural contexts, including a study from Brazil (Piko & Balazs, 2012) and one including six African countries (Peltzer, 2009).

Researchers have also explored potential mediators and moderators of associations between parenting styles and offspring substance use outcomes. For instance, Hartman and colleagues (2015) found that emerging adults with authoritarian mothers were more likely to conceal personal information from their mothers, which led to increased alcohol use and alcohol-related problems. They also found that authoritative fathering was protective against both self-concealment and alcohol use and problems. Consistent with those findings, parent-child communication was found to protect against substance use in emerging adults (Luk, Farhat, Iannotti, & Simons-Morton, 2010). Another study found that both high levels of stress and low self-esteem were along the pathway from parenting to alcohol-related problems in emerging adults. Alcohol was often used as a coping mechanism to deal with high stress and low-self esteem following negative parenting experiences (Backer-Fulghum et al., 2012).

Gender of both the parent and the offspring appear to be important moderators of this association (Patock-Peckham & Morgan-Lopez, 2006). Social learning theory (Bandura & Walters, 1963) posits that the strongest influence on offspring comes from the parent of the same gender and this has been supported by research specifically on substance use (Patock-Peckham & Morgan-Lopez, 2006). Family interrelations are complex and further research is required to fully elucidate these associations. Adding to the complexity of these interrelationships is that gender norms and roles differ across cultural contexts. For instance a study on parenting styles and mental health of Palestinian-Arab adolescents in Israel found that parents were more likely to use the authoritarian style with adolescent boys than with adolescent girls and also that permissive parenting was more detrimental to boys than to girls in this context (Dwairy, 2004). Given these complexities, it is important to take gender of parents and offspring into account when extending this research to different cultural contexts.

Studies of parenting styles and offspring substance use in diverse populations are limited in number as well as methodology, as most are cross-sectional (Dwairy, 2004; Garcia & Gracia, 2009; Piko & Balazs, 2012; Peltzer, 2009), are not drawn from population-based samples (Dwairy, 2004; Garcia & Gracia, 2009; Piko & Balazs, 2012; Peltzer, 2009), do not examine emerging adults (Dwairy, 2004; Garcia & Gracia, 2009; Peltzer, 2009), include few covariates (Dwairy, 2004; Piko & Balazs, 2012), combine parents as a unit rather than examining their independent influences (Dwairy, 2004; Garcia & Gracia, 2009; Peltzer, 2009; Piko & Balazs, 2012), and do not assess all parenting styles (Piko & Balazs, 2012).

We extended the cross-cultural parenting-substance use research by investigating these associations in an understudied population—emerging adults in the Philippines. There is little research on the parenting-substance use link in the Philippines despite the widespread trafficking and availability of illicit drugs such as methamphetamine in the region as well as the growing demand (UN: INCB, 2013). While larger household surveys and drug seizure data have been collected in the region (McKetin et al., 2008; UNODC, 2009), there have not been studies specifically documenting the patterns and prevalence of drug use among emerging adults and also, to our knowledge, no studies examining the role of parenting on substance use.

In the Philippines, the family plays a central part in adolescents' lives and offspring often live with their parents into emerging adulthood (Medina, 2001). Filipino parents have traditionally raised their children to be obedient as a sign of honor and respect (Medina, 2001). There has been an emphasis on interdependence, *utang na loob* or 'internal debt' to parents for their sacrifices (Almirol, 1982), and *pakikisama*, or valuing harmony with others over personal best interest (Agbayani-Siewert & Revilla, 1995; Chao & Tseng, 2002). These values would suggest an important influence of consideration and respect for parents on offspring behaviors and decision-making, extending into adulthood.

Previous research in the Philippines found that parenting styles predicted adolescent educational attainment (Hindin, 2005) and that problematic family dynamics (e.g., parental domestic violence) predicted adolescent depressive symptoms (Hindin & Gultiano, 2006). Hindin (2005) found that permissive parenting was the most common style in Cebu and that adolescent males were more likely to complete secondary school if they had authoritative or permissive mothers than if they had authoritarian or neglectful mothers. Since that study found the permissive style to be the most prevalent and equally beneficial to offspring educational attainment as the authoritative style, both the permissive and authoritative styles may protect against substance use in this context. Both of these styles involve high parental warmth and closeness, which may protect against offspring drug involvement, especially given the cultural values of interdependence and consideration for parents, which may be particularly strong in offspring who feel close to their parents.

In the current study, we examined the prevalence and patterns of illicit drug use among a cohort of emerging adults in Cebu, Philippines. We then investigated the associations between maternal and paternal parenting styles and offspring drug use. Consistent with previous studies on parenting of emerging adults in the Philippines (Hindin, 2005; Hock et al., in prep), we hypothesized that the permissive and authoritative styles would be

associated with a reduced odds of drug use while the authoritarian and neglectful styles would be associated with an increased odds of drug use. We also hypothesized that males would report more drug use than females and that, in line with social learning theory, the parent of the same gender would have the strongest influence on offspring.

Methods

Site

The study was conducted in the Republic of the Philippines—a country in Southeast Asia that is an archipelago of 7,107 islands (CIA World Factbook, 2015). It is the 12th most populous country in the world, with an estimated population of about 100 million people (CIA World Factbook, 2015). Approximately 44% of the population lives in urban areas with a 1.32% annual rate of urbanization (CIA World Factbook, 2015). The study location, Metropolitan Cebu, is situated on the island of Cebu and is the second largest metropolitan area in the Philippines after Manila. Further details of the study's inception, rationale, and location are described elsewhere (Adair and Popkin, 2001).

Participants

Our sample came from the Cebu Longitudinal Health and Nutrition Survey (CLHNS) (Adair et al., 2011). This birth cohort was initiated in 1983 with cooperation and approval from the Cebu Department of Health. Study participants came from all social classes and diverse living conditions including high-density urban neighborhoods, lower density suburban areas, and rural areas of varying isolation (Adair et al., 2011).

CLHNS researchers used a single-stage cluster sampling procedure to randomly select 17 urban and 16 rural districts ('barangays') from among the 243 Metropolitan Cebu districts in the 1980 census. All pregnant women from approximately 28,000 households in the selected barangays were invited to participate. Fewer than 4% declined, resulting in a baseline sample of 3,327 women. To be eligible, women had to give birth between May 1, 1983 and April 30, 1984, which resulted in a sample of 3,080 women (Adair et al., 2011). Six follow-up surveys have been conducted since baseline (1983–1984, 1991–1992, 1994–1995, 1998–1999, 2002, and 2005). Surveys were conducted in the local language, Cebuano, and were back-translated into English.

The current study includes emerging adults who reported on their mothers' and fathers' parenting styles in 2002 and their own risk behaviors, including drug use, in 2002 and in 2005. Complete data on parenting styles and risk behaviors were available in 2002 for 1860 emerging adults (879 females, 981 males). Of those, 1723 (93%) also reported their drug use in 2005. We assessed potential bias from subject attrition between baseline and follow-up and found that those who dropped out reported more risk behaviors, were older, less educated, and were more likely to report neglectful mothering ($p<0.05$). They did not differ on gender, birth order, parents' education, household assets, mother's church attendance, general health, person responsible for their upbringing, household quarreling frequency, or father's parenting style. Since those who dropped out were worse off in several baseline categories, our results may be biased towards the null.

Measures

Parenting styles—In 2002, emerging adults were asked, ‘How close do you think you are to your mother (refer to biological mother)?’ and ‘How close do you think you are to your father (refer to biological father)?’ Possible responses were close, not close, no response/don’t know, or not applicable. Offspring were also asked ‘Do you think your mother is strict (refer to biological mother)?’ and ‘Do you think your father is strict (refer to biological father)?’, with possible responses of yes, no, no response/don’t know, or not applicable.

We generated four parenting styles that approximated those of Baumrind (1971) and Maccoby and Martin (1983). Categories were constructed from emerging adult responses, such that parents that were both close and strict were categorized as ‘authoritative,’ parents that were close and not strict were categorized as ‘permissive,’ parents that were strict and not close were categorized as ‘authoritarian,’ and parents that were neither strict nor close were categorized as ‘neglectful.’ This measure was used in previous CLHNS studies (Hindin, 2005; Hock et al., in prep).

To assess the measure’s convergent validity, we examined correlations between parenting styles and other parenting behaviors reported on the questionnaire. Overall, items correlated as expected, increasing confidence in the measure. For example, emerging adults endorsing parenting styles involving warmth (authoritative, permissive) were more likely to report confiding in their parents and emerging adults who endorsed parenting styles involving strictness (authoritative, authoritarian) were more likely to report parenting behaviors demonstrating strictness, such as not being allowed to go to discos.

Drug use—Emerging adults were asked if they had ever taken drugs in 2002 and in 2005. If yes, they were asked which drugs were tried, age first tried, who had initiated them, and frequency of current use. Our outcome of interest was ever versus never used drugs by age 21. We chose to include descriptive information about substance use and initiation, beyond covariates included in regression models, in order to more fully present the nature and extent of substance use in this emerging adult Cebuano population and provide context for the study.

Risk behaviors—In addition to drug use, emerging adults were asked about ever smoking, drinking, and engaging in sexual intercourse. We created a “risk behaviors” variable that summed the number of these (0–4, including drug use) tried by baseline (2002).

Covariates—Participants’ socio-demographic characteristics, general health, and person responsible for emerging adult’s upbringing were assessed via emerging adult self-report. Additional covariates (mother’s frequency of church attendance, mother’s depressive symptoms, and household assets) were assessed via mother’s self-report. Household assets were operationalized as the number on a list of items that the mother reported were owned by her household. The assets score increased if the house had electricity, if the family owned the house, and if the house was constructed from a strong material. This assets measure was constructed and validated in a prior study (Gipson, Gultiano, Avila, & Hindin, 2012). We chose to take into account the person(s) responsible for the emerging adult’s upbringing (e.g., both parents, mother alone, father alone) in assessing each parent’s influence on the

offspring. We included mothers' frequency of church attendance as a proxy for religious involvement, given that religion is important in this population with approximately 95% of Cebuanos practicing Roman Catholicism (Province of Cebu Official Website, 2015). In addition, religious practice is relevant for both parenting practices (including strictness) (Gershoff, Miller, & Holden, 1999) and emerging adult substance use (Palamar, Kiang, & Halkitis, 2014). Mothers' depressive symptoms are also known to influence both their parenting (Lovejoy, Graczyk, O'Hare, & Neuman, 2000) as well as emerging adult offspring substance use outcomes (Stone, Becker, Huber, & Catalano, 2012).

Analyses

Analyses were conducted in two phases. First, we analyzed 2005 data to quantify what percentage of emerging adults had tried drugs by age 21, which drugs they had tried, mean age of onset, who had initiated them, and frequency of use. Since few females reported using drugs (5%), we dropped females from subsequent analyses. In the second phase, we used logistic regression analyses to assess associations between 2002 parenting styles and odds of having tried drugs by 2005. We identified potential confounders for regression models using *t*-tests, Wilcoxon rank-sum tests, chi-squared statistics, and Fisher's exact tests. Covariates were selected on the basis of statistical and theoretical grounds. We fit three models: a base model, adjusted for 2002 risk behaviors; a partially-adjusted model (Model I), in which we also included emerging adult age, last grade completed, general health in 2002; and a fully-adjusted model (Model II), in which we added parental and household characteristics. All models accounted for clustering by 2002 barangay. Analyses were conducted using Stata Version 11.0 software (StataCorp, 2011).

Results

Participant characteristics

In 2002, male and female emerging adults did not differ by general health, parents' education, household assets, mother's church attendance, mother's depressive symptoms, or person responsible for their upbringing. On average, females reported more grades completed and more depressive symptoms than males ($p<0.001$) (Table 1).

Mothers' and fathers' parenting styles reported in 2002 differed significantly by offspring gender ($p<0.001$). Permissive parenting was the most commonly reported by both males and females but the percentage of males with permissive mothers (70.3%) and fathers (58.7%) was higher than females (53.8% and 33.7%, respectively). Females were more likely to report strict (authoritative, authoritarian) mothering and fathering styles than were males.

Drug use prevalence and gender differences

In 2005 there were significant gender differences in drug use, with 359 males (39.7%) and 42 females (5.1%) reporting ever trying drugs ($p<0.001$) (Table 2). The most commonly reported drug for both males and females was "shabu" (local term for methamphetamine), followed by marijuana, "rugby" (toluene-based glue that is inhaled), medicinal syrup, and injectable drugs. Higher percentages of males reported having tried each drug than females ($p<0.001$ for shabu, marijuana, rugby, medicinal syrup; $p = 0.03$ for injectable drugs).

Among those who had tried drugs, mean age of initiation did not differ significantly for males (17.0 ±1.9) and females (16.8 ±1.9) ($p = 0.36$). For both genders, the person who initiated the emerging adult into taking drugs was most commonly a peer ($p = 0.19$). About 20% of males and 5% of females said they continue to use drugs on occasion ($p = 0.04$).

Parenting styles and emerging adult son's drug use

In base regression models, authoritative mothering was associated with reduced odds of males having tried drugs by follow-up as compared with permissive mothering (OR = 0.48, 95% CI: 0.29, 0.79) (Table 3). This association remained statistically significant in partially- (OR = 0.51, 95% CI: 0.30, 0.86) and fully- (OR = 0.53, 95% CI: 0.29, 0.97) adjusted models. There were no significant differences between authoritarian or neglectful mothering styles as compared with permissive as they related to males' drug use.

No significant differences were observed when comparing fathering styles in the base model (Table 4). As compared with permissive fathering, neglectful fathering was associated with increased odds of drug use at a trend level in partially- (OR = 1.60, 95% CI: 0.96, 2.66) and fully-adjusted (OR = 1.70, 95% CI: 0.95, 3.04) models.

Discussion

We investigated patterns and prevalence of drug use in a cohort of emerging adults in Cebu, Philippines as well as associations between mothers' and fathers' parenting styles and offspring drug use. We found that drug use is fairly common in this population, particularly among the males and particularly with respect to methamphetamine and marijuana. Since the number of females in our sample who reported drug use was low we focused subsequent analyses on the males. We found that authoritative mothering is associated with lower odds of son's drug use, while neglectful fathering is associated, at a trend level, with higher odds of son's drug use.

Lifetime prevalence of drug use by age 21 in our sample was approximately 40%formales and 5%for females. Among 17–18 year olds in the United States, lifetime prevalence is 46.2% for males and 38.4% for females, with the most commonly reported drug being marijuana (Swendsen et al., 2012). While marijuana use was also prevalent in our Filipino sample, the most commonly reported drug was methamphetamine (33% of males and 4% of females). In contrast lifetime use of methamphetamine was less than 1% among 12–17 year olds and 3% among 18–25 year-olds in the US (NSDUH, 2013).

Rates of methamphetamine use are similar among men and women in the US (Gonzales, Mooney, & Rawson, 2010). The male preponderance of substance use in our sample is likely due to greater differentiation of gender roles among young adults in the Philippines than in the US (Medina, 2001). Opportunities for drug use and attitudes about its appropriateness for females are hypothesized to vary as a function of societal views of gender roles (Seedat et al., 2009). In the Philippines, in part due to religious values, parents have traditionally been stricter with their daughters than with their sons especially with respect to romantic relationships and sex (Medina, 2001). This strictness with respect to various social freedoms may serve to limit opportunities for drug use.

Our findings mirror international surveys that show that methamphetamine use is more rampant in Southeast Asia than other regions (Degenhardt & Hall, 2012) and that it is the most common drug of abuse in the Philippines (UNODC, 2009). The demand for methamphetamine in Southeast Asia has been increasing and regional Governments have actively supported increased treatment initiatives (UN:INCB, 2013). The prevalence of lifetime use in our sample is concerning in light of methamphetamine's high abuse potential, deleterious health consequences, and associated social harms (Gonzales et al., 2010). Our findings, combined with evidence from large-scale epidemiologic surveys, show that methamphetamine use among young people in the Philippines warrants attention from public health professionals.

Consistent with our predictions and with studies from Western settings (Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Backer-Fulghum et al., 2012), we found that authoritative parenting was associated with reduced odds of offspring drug use while neglectful parenting was associated, at a trend level, with increased odds of drug use. These findings suggest the relevance of parenting for drug use of emerging adult offspring in Cebu. The ongoing parental influence on offspring through emerging adulthood in the Philippines is not surprising, given that many offspring continue to live with their parents through that period (Medina, 2001). In addition, the focus on family as evidenced by values, "utang na loob" (internal debt to parents for their sacrifices; Almirol, 1982) and "pakikisama" (prioritizing harmony with others over personal interest; Agbayani-Siewert & Revilla, 1995; Chao & Tseng, 2002) underscores the cultural values of consideration and respect for parents, which may be internalized and continue to influence offspring behavior and decision making into adulthood.

Some studies in Western contexts have underscored the importance of mothers' authoritative style (Patock-Peckham et al., 2011) and also father-youth connectedness (Gau et al., 2008), father-child communication (Luk et al., 2010), or general father involvement (Goncy & van Dulmen, 2010) in protecting against offspring substance use. In this study population, it may be that authoritative mothering is important while any paternal involvement is protective, due to mothering and fathering roles in Cebu. In the Philippines, mothers are more involved than fathers with day-to-day rearing and disciplining of offspring (Medina, 2001). Thus, aspects of authoritative parenting, such as monitoring, may be particularly important for the mother's role as compared with the father's.

Counter to our hypotheses, authoritarian and neglectful mothering did not differ significantly from permissive in relation to offspring drug use. We had expected the permissive and authoritative styles to be protective because of offspring reported "closeness" with parents and because other CLHNS studies suggested benefits of the permissive style (Hindin, 2005; Hock et al., in prep). Our findings suggest that the combination of closeness and strictness may be important in reducing emerging adult substance use in the Philippines. We found many studies, including from European American populations (Patock-Peckham et al., 2011) as well as Brazil (Paiva et al., 2012), Taiwan (Gau et al., 2008), and urban Hispanic adolescents (Pokhrel, Unger, Wagner, Ritt-Olson, & Sussman, 2008) that reported the benefits of parental monitoring in protecting against substance use. Monitoring can also exert influence by guiding offspring selection of a peer group that does not engage in risky

behaviors, such as substance use (Patterson & Stouthamer-Loeber, 1984). It may be that aspects of authoritative parenting, such as monitoring, are universally beneficial in preventing drug use.

This study had several limitations. Our parenting styles measure was constructed from only two questions, and there is a risk of misclassification if our measure did not adequately capture the four desired categories. Nevertheless, we combined constructs of warmth and control so as to be consistent with the theoretical framework of Maccoby and Martin (1983). Other researchers have reduced parenting data to constructs of warmth and control to create four-category measures in a similar fashion (Garcia & Gracia, 2009; Hindin, 2005; Lamborn et al., 1991). As both the predictor and the outcome (parenting styles and substance use) were self-reported reported by the emerging adults, there is also potential for shared reporting bias. The fact that the parenting styles and substance use were reported at different time points three years apart may help to partially mitigate this issue.

Our outcome was lifetime drug use so it is not guaranteed that reported parenting style preceded offspring drug use. Adjusting for baseline risk behaviors, including drug use, mitigated some of the potential timing issues. In addition, we observed relative stability in parenting styles over time in our data. The relationship between parenting and offspring drug use may be bidirectional, as other studies have found that offspring's behavior can also influence parenting (Kerr & Stattin, 2003).

Unmeasured confounders (e.g., parental substance use, family genetics) and residual confounding (e.g., imprecisely measured socioeconomic status) are potential threats to the validity of our findings. We were able to include more potential confounders than comparable studies, however, and included measures that were culturally appropriate. Finally, due to the limited sample size of female drug users in CLHNS, we were unable to examine the influence of parenting style on female drug use.

Conclusions

This study had a number of strengths including the investigation of an important public health topic in an understudied population, use of a longitudinal population-based dataset with a large sample size, inclusion of many covariates, and examination of the separate influences of mothers and fathers. We found that authoritative mothering was associated with reduced odds of sons' drug use in Cebu and neglectful fathering was associated, at a trend level, with increased odds. Our findings are generally consistent with the European-American parenting literature and contribute to a larger body of research on cross-cultural variability of parenting styles.

Findings may also inform family-based substance use prevention interventions in the Philippines. Our results suggest ways to approach the identification of at-risk families (e.g., via parenting styles). Parental monitoring—and authoritative parenting more broadly—can be taught (Steinberg, Fletcher, & Darling, 1994), and family-based interventions have shown promise in reducing or preventing substance abuse (Haggerty, McGlynn-Wright, & Klima, 2013). Finally, our results suggest that fathers play an important role in offspring's

propensity to use drugs and should be included in family-based interventions. Such interventions—if developed or adapted so as to be culturally relevant— may be useful in the Philippines given the widespread availability and use of dangerous drugs such as methamphetamines and the high cultural value placed on family relationships.

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Table 1

Participant characteristics at baseline (2002).

	Girls (n = 818[a]) Mean ±SD/N (%)	Boys (n = 905[b]) Mean ±SD/N (%)	P-value or Fisher's Exact Test[c]
Emerging adult (EA) characteristics			
Age (range: 17–19)	18.2 ±0.4	18.2 ±0.4	0.5497
Last grade completed (range: 1–15)	10.9 ±2.1	9.9 ±2.8	< 0.001
EA general health			
Poor	36 (4.4)	58 (6.4)	0.180
Good	630 (77.0)	678 (74.9)	
Excellent	152 (18.6)	169 (18.7)	
Parent and household characteristics			
Last grade completed by mother (range: 0–21)	7.8 ±3.8	8.1 ±3.9	0.1101
Last grade completed by father (range: 0–22)	8.0 ±4.1	8.3 ±4.2	0.1281
Household assets index[d] (range: 0–11)	5.2 ±2.0	5.1 ±2.1	0.7172
Frequency of mother's church attendance			
Never	10 (1.3)	7 (0.8)	0.596
Occasional	119 (15.3)	139 (16.3)	
About once/month	181 (23.3)	209 (24.5)	
About once/week	401 (51.6)	414 (48.6)	
> Once a week	66 (8.5)	83 (9.74)	
Mother's depressive symptoms (range: 0–21)	6.8 ±3.8	6.9 ±3.8	0.2893
Who EA considers responsible for upbringing			
Both parents	540 (66.1)	601 (66.4)	0.718
Mother alone	198 (24.2)	214 (23.7)	
Father alone	48 (5.9)	47 (5.2)	
Others	31 (3.8)	43 (4.8)	
Mother's parenting style			
Permissive	440 (53.8)	636 (70.3)	< 0.001
Authoritative	131 (16.0)	103 (11.4)	
Authoritarian	119 (14.6)	51 (5.6)	
Neglectful	128 (15.7)	115 (12.7)	
Father's parenting style			
Permissive	276 (33.7)	531 (58.7)	< 0.001
Authoritative	125 (15.3)	81 (9.0)	
Authoritarian	213 (26.0)	98 (10.8)	
Neglectful	204 (24.9)	195 (21.6)	

Note:

[a] n = 776–818;

[b] n = 840–905;

[c] p-value comes from: Wilcoxon Rank Sum tests for skewed continuous variables and from chi-squared tests or Fisher's Exact tests for categorical variables;

[d]Household assets index items: air conditioner, color TV, color TV with cable, video cassette recorder, refrigerator, electric fan, car, jeepney/multicab. Index score increases if house connected to electrical system, if family owns the house living in and if house constructed from a strong material.

Table 2

Emerging adult drug use by gender (2005).

	Boys (*n* = 905) Mean ±SD/*n* (%)	Girls (*n* = 818) Mean ±SD/*n* (%)	*P*-value or Fisher's Exact Test[c]
Current age (range: 20–22)	20.9 ±0.3	20.9 ±0.4	0.3531
Ever taken drugs	359 (39.7)	42 (5.1)	< 0.001
Drugs ever tried			
Shabu[a]	299 (33.0)	34 (4.2)	< 0.001
Marijuana	222 (24.5)	12 (1.5)	< 0.001
Rugby[b]	30 (3.3)	2 (0.2)	< 0.001
Medicinal syrup	25 (2.8)	0 (0)	< 0.001
Injectable	6 (0.7)	0 (0)	0.032
Age first tried drugs (if have tried)	17.0 ±1.9	16.8 ±1.9	0.3562
Person who initiated emerging adult into taking drugs			0.192
Peer (friend, classmate, neighbor)	315 (87.7)	39 (92.9)	
Self	29 (8.1)	2 (4.8)	
Cousin	11 (3.1)	0 (0)	
Brother/sister	4 (1.1)	0 (0)	
Spouse/partner	0 (0)	1 (2.4)	
Frequency of currently used drug			0.036
Stopped taking drugs	270 (75.4)	40 (95.2)	
Only occasionally	73 (20.4)	2 (4.8)	
Every week	9 (2.5)	0 (0)	
Every day	6 (1.7)	0 (0)	

Note:

[a] *Shabu* = methamphetamine;

[b] Rugby = toluene based glue that is inhaled;

[c] *P*-value comes from: Wilcoxon Rank Sum tests for skewed continuous variables and from chi2 tests or Fisher's Exact tests for categorical variables.

Table 3

Mother's parenting style and son's drug use.

	Base model OR (CI)	Model I OR (CI)	Model II OR (CI)
Parenting style			
Permissive (ref)	–	–	–
Authoritative	**0.48 (0.29, 0.79)**	**0.51 (0.30, 0.86)**	**0.53 (0.29, 0.97)**
Authoritarian	0.90 (0.50, 1.63)	0.96 (0.52, 1.78)	1.12 (0.51, 2.47)
Neglectful	1.06 (0.58, 1.94)	1.08 (0.59, 1.98)	0.89 (0.42, 1.89)

Note: $N = 773$ to 905; Base model adjusts for baseline risk behaviors; Model I = Base model + emerging adult (EA) gender + EA age + EA last grade completed + EA general health; Model II = Model I + mother's last grade completed + father's last grade completed + household assets index + mother's frequency of church attendance + mother's depressive symptoms + whom EA considers responsible for upbringing; Coefficients bolded if $p < 0.05$.

Table 4

Father's parenting style and son's drug use.

	Base Model OR (CI)	Model I OR (CI)	Model II OR (CI)
Parenting style			
Permissive (ref)	–	–	–
Authoritative	0.61 (0.32, 1.13)	0.69 (0.37, 1.29)	0.80 (0.41, 1.59)
Authoritarian	0.73 (0.39, 1.36)	0.85 (0.44, 1.64)	0.99 (0.49, 1.97)
Neglectful	1.50 (0.90, 2.50)	~1.60 (0.96, 2.66)	~1.70 (0.95, 3.04)

Note: N = 773 to 905; Base model adjusts for baseline risk behaviors; Model I = Base model + emerging adult (EA) gender + EA age + EA last grade completed + EA general health; Model II = Model I + mother's last grade completed + father's last grade completed + household assets index + whom EA considers responsible for upbringing; Coefficients bolded if $p < 0.05$ ~ if $p < 0.10$.