Young girls, exposed!
Early menstruation, sexual debut and teenage pregnancy in the Philippines
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INTRODUCTION

Global trends show an earlier onset of puberty in girls and boys which is suggestive of earlier entry to reproductive maturation (Herman-Giddens et al., 2012). Mean ages of the beginning of pubic hair growth, rise in testicular volume and genital development for boys and breast development, pubic hair growth and menstruation for girls were recorded and compared over time (Weil, 2012).

The rapid decrease in the age of onset of secondary sexual characteristics maybe related to environmental factors, including exposure to chemicals, changes in diet, less physical activity, and other modern lifestyle changes and exposures and may not reflect healthy conditions (Sprinkle, 2001; Golub et al., 2008; Herman-Giddens et al., 2012). Psychological, emotional, and behavioral considerations of earlier sexual maturity may be important, given the current phenomena of social and emotional delay in achieving adulthood (Herman-Giddens et al., 1997; Goldstein, 2011; Herman-Giddens et al., 2012). For girls, the most important indicator of reproductive readiness is menarche or the onset of first menstrual period.

In the paper of Gilette (2010), she discussed that the average age of a girl at menarche is decreasing worldwide; sexual maturity is reached by girls now at a significantly younger age than their grandmothers. She also reported drop in age at menarche in several countries like in the United States the average age at menarche dropped from 14 years in 1900 to 12.8 years (Chumlea et al., 2003; Pinyerd and Zipf, 2005). Average age at menarche in Israel has also declined from 13 to 11 years (Chodick et al., 2005); from 14 to 12 years in Poland (Hulanicka and Waliszko, 1991); in Scotland from 13.2 to 12.7 years (Okasha, 2001); in Northern Europe, age at menarche is about three years earlier than it was 100 years ago (Parent et al., 2003); and in South Korea, girls reach menarche four years earlier than their grandmothers did (Hwang et al. 2003). In the Philippines, the average age at menarche (first menstruation) has declined by six months from 13.7 to 13.2 years in the last 15 years, from 1993 to 2008 (Cruz, 2013).

Predisposition to cancer and heart disease and early participation in risky behaviors, such as cigarette smoking, alcohol abuse, and sexual activity are among the identified biomedical, emotional, and socio-cultural consequences of early menarche (Chodick et al., 2005). Other studies found that early-maturing females tend to become pregnant at younger ages than do later-maturing females (Udry 1979; Udry, 1988; Sisk & Foster, 2004; Carel et al., 2006; Dunbar et al., 2008). Additionally, Dunbar et al. (2008) speculated that early physical maturation is not an important antecedent of early

childbearing among Black Americans because the prime mediator of the relationship between early menarche and early pregnancy, early age at coitarche (age of sexual debut), is more normative among Black than among White American girls. Accordingly, they posited that coitarche explains the association between menarche and first pregnancy among White girls, but fecundity (i.e., fertility) at coitarche underlies the association between these two events among Black and Hispanic girls.

Given the observed trend toward earlier menarche and the desirability of preventing adolescent childbearing, a better comprehension of the interconnections of early menarche, age at sexual debut and early pregnancy could provide valuable information that can feed into improved teenage pregnancy prevention interventions for young adolescent girls. It is within this context that this paper examines the interrelations of these factors. This study would like to determine if girls who have early sexual maturity lead to early sexual initiation and in turn will result into early pregnancy. The analysis is extended across socio-demographic variables such as type of residence, religion and socio-economic status. This study aims to provide valuable information to the understanding of the complexity of the adolescent pregnancy in the Philippines.

DATA AND METHODOLOGY

The data used in this study are drawn from the 1993 National Demographic Survey (NDS), the 1998, 2003 and 2008 National Demographic and Health Survey (NDHS) collected by the Philippine National Statistics Office in partnership with ORC Macro International. The 2008 NDHS is a nationally representative sample of 13,594 women, aged 15 to 49 years old from 12,469 households. The overall response rate is 98 percent. It is the ninth in a series of demographic and health surveys conducted to assess the demographic and health situation of the Philippines.

The 2008 NDHS collected detailed information on fertility levels, marriage, fertility preferences, family planning, nutrition and other health related data including violence against women. The sample used in this study is limited to women who are currently in either a marital or cohabiting union with the final sample comprised of 8549 respondents.

Explanatory variables used in this study are socio-demographic factors such as place of residence, religion and socio-economic status. Place of residence is the current residence which is a dichotomous variable with Urban and Rural as categories. Religion was recoded into two categories – Roman Catholic and Non-Roman Catholic while socio-economic status was recoded from the wealth index variable into two categories, poor and non-poor.

Early menstruation (defined here as 12 years and younger), and age at sexual debut serve as both dependent and explanatory variables for this study. The former is a a dichotomous variable with early maturing (12 years old and younger) and non-early maturing (13 years old and older) as while the latter is a continuous variable. Both are used as dependent variables when examining its determinants and serve as explanatory

variables when evaluating its effect on teenage pregnancy measure here as a continuous variable.

Bivariate analyses (with the necessary test for association and correlation between the dependent and independent variables) and binary logistic and linear regression were conducted to examine the interrelationships between the variables under study.

INITIAL FINDINGS

About two in every five girl are considered to be early-maturing. There is an observed decline in the age of first menstruation and increasing proportion of young women (15-19 years old) who have had their sexual debut and first pregnancy although age at sexual initiation seems to be static.

Initial results also show that while early menarche can significantly explain age at sexual debut, it does not significantly predict age at first pregnancy. Age at first sex is the strongest predictor of age at first pregnancy. The inclusion of age at first sex in the model seems to influence the effect of age at menarche and it serves more like serves and intermediation function. This finding supports the findings of Dunbar, et al. (2008) wherein the inclusion of age at coitarche (sexual debut) significantly decreased the effect of age at menarche, almost entirely mediating the relationship between age at menarche and that at conception

Teenage girls from poor households mature earlier and also engage in sex earlier than their nonpoor counterparts. Place of residence and religion do not play a role in the interplay of these events in a girl's life from the start of their menstruation to their first sexual experience until they have their first pregnancy.