

## IN THIS ISSUE

- Transitions to Adulthood
- Quality of Care
- Biomedical Research
- Urban Studies
- Employment and Marriage
- Reference Works

*Improving family planning services provided at health facilities can significantly increase contraceptive use and continuation rates.*

*see page 2*

# POPULATION BRIEFS

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## TRANSITIONS TO ADULTHOOD

### *Broad Survey of Pakistani Youth Completed*

Pakistan currently has one of the largest cohorts of young people in its history, with approximately 25 million people between the ages of 15 and 24. Through the decisions they make and the opportunities they are offered, this group will play a crucial role in the social, political, and economic development and stability of the country. Young people in this age group face a number of critical life decisions as they negotiate the transition to adulthood: choices about leaving school, becoming employed, taking on greater responsibility, choosing a spouse, and starting a family.

Until recently, however, little was known about the details of the lives of Pakistani youth. Population Council investigators, as part of the organization's research into transitions to adulthood around the world, sought to fill this knowledge gap. The researchers conducted the largest nationally representative survey ever to focus on this age group of Pakistanis. A total of 6,585 households in 254 communities were interviewed, including 4,530 adults (parents, where possible) and 8,074 young people. For the first time, Pakistani young people were asked directly about their lives, rather than having adults speak for them. The investigation yielded information about the state of education, work, and marriage and childbearing, among other insights.

"This survey's findings should be translated into a social plan aimed at resolving health, education, and other problems that youth face," states Pakistan's Finance Minister, Shaukat Aziz, in a preface to a report of the survey's findings. The report, *Adolescents and Youth in Pakistan 2001–02: A Nationally Representative Survey*, was published in July 2003.

#### **Education**

The need to set up high-quality, well-functioning schools for children of both sexes, but particularly for females in rural areas, was one of the foremost findings of the survey. Parents in Pakistan prefer to send their children to single-sex schools. However, the number of schools available to females at each level falls far short of the number of schools that are accessible to males, particularly in rural areas.

Roughly 50 percent of all females between 15 and 24 have ever enrolled in school. Furthermore, those who do attend are more likely to drop out at an earlier level than their male counterparts. This pattern of low enrollment for females is magnified among the poorest Pakistani youth. "There is evidence that school enrollment and attainment has increased for females in the last five years," says Population Council deputy program manager Minhaj ul Haque, principal investigator for the survey in Pakistan. "However, the gains are small and the gender gap remains huge."

Almost all males and females report ambitions for achieving higher educational levels than their parents attained, feeling that they should be educated to either the secondary or university level. "While we found that educational aspirations are high, actual education attainment levels are much lower. Poverty, lack of access, and poor school quality all contribute to this gap," says Population Council director of social science research Cynthia Lloyd, a lead researcher.

*continued on page 8*

## *Improved Care Increases Contraceptive Use*

Improving family planning services provided at health facilities can significantly increase contraceptive use and continuation rates, according to a recent study completed by Population Council researchers and their collaborators. “This is the first rigorous analysis that establishes a link between quality of care and contraceptive use,” write the authors of the study.

### *Why investigate quality?*

Although high-quality care is a worthy end in itself, family planning programs in developing countries have often been justified and evaluated solely in terms of their contribution to fertility decline. Managers of family planning programs have had little incentive to improve quality of services in the absence of empirical evidence that better quality contributes to increased contraceptive use or lower fertility.

At the same time, it seems intuitively likely that increased contraceptive choice, enhanced training for health care providers, and improved provider–client interactions in family planning facilities would result in more women being satisfied with their care and meeting their reproductive goals. This hypothesis is supported by some evidence but merits a more rigorous exploration.

To this end, Population Council researchers Saumya RamaRao, Marilou Costello, and Heidi Jones collaborated with investigators from the Ateneo de Davao University in the Philippines. The researchers looked at 80 health facilities in the provinces of Davao del Norte and Compostela Valley, the Philippines. They interviewed 1,728 family planning users who had obtained services at these facilities between April and December 1997. More than 80 percent of the respondents were interviewed within six months of receiving care. Interviews took place between September 1997 and January 1998.

Known as the Davao project, the investigation is one of four field studies being undertaken by the Population Council under the Impact Studies Program. The program is designed to

document the feasibility of improving quality of care and the effect of improved quality on women’s reproductive behavior. It is directed by Anrudh Jain, Population Council senior director of policy and regional programs.

### *Rating quality of care*

The respondents were asked about the type of family planning method they selected and about other characteristics, such as education level. They were also asked several questions regarding five aspects of the care they received: needs

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assessment, provision of information, method choice presentation, interactions between provider and client, and follow-up care arrangements. The researchers assigned a quality of care score on the basis of clients’ answers to questions about these facets of their care. Respondents who received care near the mean level of quality were deemed to have obtained medium-quality care, and those who received care that fell outside of this range were said to have gotten either low- or high-quality care. Twenty-seven percent of respondents received low-quality care, 37 percent received medium-quality care, and 36 percent received high-quality care.

Subsequently, the clients were reinterviewed between May and August 1999 to obtain information on their contraceptive and reproductive behavior since the first round of inter-

views. By collecting information at two points in time, the researchers were able to assess the effect of quality of services on subsequent contraceptive use.

At the time of follow-up, 75 percent of women said they currently used a contraceptive method, over two-thirds of them a modern method. Results from a cross-tabulation of quality and contraceptive use at follow-up indicated that use of a modern method was greater at the highest level of care than at the lowest level. Continuation of a modern method steadily increased as the level of quality increased. This trend continued to be statistically significant even after adjusting for other variables, such as respondents’ education and income.

“This is a noteworthy result,” the authors write, “because previous analyses have indicated that the effect of quality of care tends to diminish with the addition of socioeconomic controls,” such as education, employment, and wealth.

Many ways of improving quality of care—such as training providers in interview techniques that show respect for the client—cost very little to implement and can have a substantial influence on clients’ subsequent choices. Research findings, for example, have shown repeatedly that fearing and experiencing side effects are the main reasons women discontinue contraceptive use. “Our results suggest that providers can allay these legitimate fears if they are trained in ways of presenting information about contraceptives and responding to clients’ concerns,” says RamaRao.

“Clients at family planning and reproductive health clinics deserve to receive high-quality care,” says Jain. “This study provides additional justification for improving services.” ■

### SOURCE

RamaRao, Saumya, Marlina Lacuesta, Marilou Costello, Blesilda Pangolibay, and Heidi Jones. 2003. “The link between quality of care and contraceptive use.” *International Family Planning Perspectives* 29(2): 76–83.

### OUTSIDE FUNDING

The Rockefeller Foundation and the United States Agency for International Development

# Unlocking the Mechanism of Androgen Action

Conducting basic biomedical research, such as illuminating the events in cells at a molecular level, is a painstaking endeavor that can take decades to produce major results. But knowledge garnered from this type of study is crucial to the formulation of new drugs and the development of successful strategies for tackling health problems. For more than 15 years, Population Council biomedical researcher James F. Catterall and his colleagues have been studying the genetic mechanisms of action of male sex hormones, or androgens. Catterall is the director of the reproductive physiology and immunology program at the Council's Center for Biomedical Research. His lab has devised ingenious ways of gleaned information about how androgens regulate the activity of genes and why they affect certain tissues and not others.

Scientists in the Catterall lab are studying the effects of androgen in the kidney, rather than in the reproductive system. "We expect androgens to use the same mechanism of action in the kidney as they use in the reproductive system," says Catterall.

By using kidney cells, the research team is able to simplify its studies. For example, germ cells, which exist only in the reproductive system, undergo meiosis, the type of cell division that results in sperm and eggs. At various points in this complex process, cells can have either the normal amount of DNA, twice the normal amount of DNA, or half the normal amount of DNA. The ever-varying amount of genetic material present in these cells complicates the analysis of gene regulation. Cells in the kidney, in contrast, always have the normal amount of DNA; they never undergo meiosis. Catterall and his colleagues study the gene for the kidney androgen-regulated protein, known as the *Kap* gene.

## The importance of androgens

Androgens, testosterone in particular, are essential for male sexual function. Testosterone controls sex drive and the production of sperm, among many other functions. Much of the research conducted at the Center for

Biomedical Research is geared toward gaining a more complete understanding of male reproductive physiology and developing new male contraceptives.

Genes make the proteins needed for various cellular tasks. All functional genes have a section called a "promoter." The promoter precedes the part of the gene that contains the code, or recipe, for the gene's protein. "Essentially, the promoter is a message for the cell's protein-making apparatus that says 'start here,'" says Dianne O. Hardy, a scientist in Catterall's lab.

Catterall and his colleagues wanted to study the *Kap* gene promoter to determine what parts of it were involved in the regulation of the

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gene by androgen. To do this, they created a hybrid gene in the laboratory. They took part of the promoter from the *Kap* gene and attached it to the genetic code for another protein. Then they genetically engineered mice to carry this hybrid gene along with the normal *Kap* gene.

In these mice, the researchers could compare the activity of the hybrid gene to that of the normal gene when androgen levels were manipulated experimentally. They were able to tell the difference between the activities of the two genes by comparing the amounts of the two different proteins they produce. The protein-coding section of the hybrid gene is known as the "reporter" because its activity in the cell provides information about the functioning of the promoter.

Catterall and his team removed a section of the hybrid gene's promoter known as the L1

repeat. When they compared the hybrid gene's activity to that of the true gene, they found that the reporter gene no longer responded to androgen. This surprised the researchers because the L1 repeat was previously thought to be unnecessary for proper gene function. Now they believe that the L1 sequence is required for *Kap* expression and its regulation by testosterone. Catterall and his colleagues are conducting research to further quantify the role of the L1 repeat in the *Kap* gene.

## In vivo or in vitro?

Most of the Catterall lab's research has been done in live animals, a practice known as *in vivo* research. But this process can be time consuming and costly. Recently, however, Hardy identified a line of opossum kidney cells that are an appropriate model for conducting research in culture dishes, or *in vitro*. This will allow the lab to use fewer animals in its research.

In the future, the investigators hope to determine how androgen exerts its influence in some tissues and not in others. At least two things may play a role in the specificity of androgen action. Variations in the promoter sections of androgen-responsive genes probably play a role. Another factor may be the action of co-regulator substances that are present in some tissues and not others. Tissue-specific complexes made from these substances may modulate hormone action. ■

## SOURCES

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## OUTSIDE FUNDING

The Andrew W. Mellon Foundation and the National Institutes of Health

## Transformation in World's Cities Explored

Historically, developing countries have been largely rural. As a result, demographers have focused on life cycle events—marriage, fertility, health, and schooling—in mainly rural contexts. In the next 30 years, however, most of the world's population growth will occur in the cities and towns of Africa, Asia, and Latin America. This trend will transform the developing world and generate unprecedented challenges.

Recognizing the need for a better understanding of issues related to urban population growth, the National Research Council formed the Panel on Urban Population Dynamics. The panel was chaired by Population Council demographer Mark R. Montgomery and Richard Stren of the University of Toronto. Thirteen other scholars participated. The members reviewed existing literature and conducted new analyses. A report of their findings was published by National Academies Press.

### Rapid changes

According to the panel, the world is in the midst of a fundamental economic restructuring, with less developed countries urbanizing and industrializing rapidly. The speed and scale of these changes pose risks to the environment and health. For example, expanding squatter settlements and shanty towns exacerbate urban congestion and hinder the provision of basic infrastructure and amenities. There are benefits to urbanization, though. Unlike rural areas, cities have a concentration of diverse social and economic resources, which, when properly managed, can become sources of innovation and advances in productivity.

One challenge to exploiting these resources springs from a recent trend in which national governments and ministries have decentralized the delivery of services related to health, family planning, and poverty alleviation. Responsibility for these tasks and for revenue raising has been transferred to local governments, few of which are equipped to take them on.

Demographers are currently unable to provide much evidence-based guidance for urban policymakers. Most of the available data examines simple rural/urban dichotomies, ignoring the diversity of life within and among cities. Not only are there large and small cities, but these locales are populated by both rich and poor people. Some of the poor live within wealthier neighborhoods, while others are segregated in slums. Each of these settings varies with regard to health, fertility, and many other factors. Adequate population data that are comparable among and within cities, as well as between urban and rural areas, are clearly needed.

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### Findings

By plumbing the available data, the panel found that large urban areas enjoy a marked advantage over smaller cities and rural areas in the provision of piped water, flush toilets, and electricity. For example, 31 percent of people in cities smaller than 100,000 lack these amenities, while only 2 percent of people in cities larger than 5 million lack them. When they examined access to these services on the basis of wealth, the researchers found that rural residents still fare worse. In sub-Saharan Africa, for example, 89 percent of rural villagers lack these amenities, compared with 63 percent of the urban poor and 34 percent of better-off urban residents.

Perhaps because of the greater access to services found in cities, urban dwellers have generally been thought to be healthier than rural residents. Since the mid-1980s, however,

researchers have questioned this urban health advantage. Where urban poverty is spatially concentrated—in slums—health risks can exceed those seen in rural areas. For example, one study showed that infant mortality is higher in a Dhaka slum (134 deaths per 1000 births) than in rural Bangladesh (93 deaths per 1000 births).

“The urban advantage in health is not a myth—but is only a partial truth,” says Montgomery. “Where it exists, it is an advantage that has been constructed from political will and from the marshaling of massive infrastructural and other economic investments.”

### Urban governance

Solutions to urban problems are increasingly being sought at the city level as national governments decentralize basic service delivery. The panel identified many governance challenges that will confront cities in the developing world in the coming years. Cities will have to increase their capacity to provide services, often with limited financial resources. They will have to cope with the diversity inherent in urban settings and deal with increasing urban violence and crime. Finally, they will have to overcome the difficulties of providing services in sprawling urban areas.

By 2030, more than 80 percent of the population of North America, Europe, Oceania, and Latin America and more than 50 percent of the population of Asia and Africa will be living in urban areas. “Until demographers develop an understanding of all facets of the urbanization process, their work will continue to be of marginal relevance to those charged with the design of better urban policies,” concludes the panel. ■

### SOURCE

Montgomery, Mark R., Richard Stren, Barney Cohen, and Holly E. Reed (eds.). 2003. *Cities Transformed: Demographic Change and Its Implications in the Developing World*. A report of the National Research Council Panel on Urban Population Dynamics. Washington, DC: National Academies Press.

## Egyptian Working Women's Perceptions of Marriage

Trends in work and marriage have shifted dramatically in Egypt, particularly since the 1960s. Women are getting married later than ever and, although work opportunities have stagnated recently, women are working outside the home more than they did historically. Learning about the relationship between work and marriage may be crucial for understanding a number of other phenomena related to gender roles, including trends in education and childbearing. Population Council demographer Sajeda Amin collaborated with Cairo-based researcher Nagah H. Al-Bassusi to explore how working women in Egypt view marriage and work.

Amin and Al-Bassusi analyzed national data published by the United Nations on long-term marriage trends and by Egypt's Central Agency for Public Mobilization and Statistics (CAPMAS) on labor force trends in 1988 and 1998. The Population Council developed a set of questions about young people that were incorporated into the 1998 survey administered by CAPMAS and also conducted a qualitative study of young female wage workers. The CAPMAS surveys were nationally representative. The 1988 survey reached 28,286 individuals, 2,709 of whom were women between the ages of 15 and 24. The 1998 survey reached 23,997 individuals, 2,438 of whom were women between 15 and 24.

The researchers found that, in 1988, 22 percent of 15–19-year-old women and 57 percent of 20–24-year-old women were married. By 1998, those figures had declined to 11 percent and 44 percent respectively. (Exploring longer-term trends, demographers have determined that the decline in the proportions who married at young ages began between 1966 and 1976.)

Concurrently, the CAPMAS data showed that the rate of employment has not increased, while educational attainment has. In 1988, 27 percent of women aged 15–24 were in school, and 29 percent of them were employed. In 1998, those figures were 38 percent and 26 percent, respectively. An increase in women working has remained elusive despite the imple-

mentation of economic policies, such as investing in the textile export industry, that observers believed would boost young women's employment. Women who do work, however, are working longer hours than they did in the past.

### *Changes in marriage expectations*

Several analyses of marriage in Egypt have suggested that the number of material goods obtained by young couples in preparation for marriage has increased in recent years. Moreover, newly married couples are more likely to want to live in their own household after marriage, mandating additional setup costs, rather than accepting the less expensive option of living with extended family. These

*“These women are not defying marriage. They see work as a way of facilitating marriage.”*

rising aspirations may have been driven by labor migration of young Egyptian men to the Persian Gulf region. This migration has led to an increase in income that allowed such expensive tastes to develop despite the lack of economic opportunities locally.

Engagements at a relatively young age have remained common, but the length of engagements has increased in order to provide time for the accumulation of goods now seen by many young couples in Egypt as necessary for marriage. Women's employment is one way of meeting costs and building a dowry. “The society appears willing to accommodate a lot of waiting and bargaining to meet these goals,” says Amin.

### *Working women's views*

The qualitative study of young female wage workers conducted by the Population Council between 1998 and 2000 took place in three locations in northern Egypt: an urban area, an investment zone on the coast, and a rural village. The researchers conducted multiple in-depth interviews with a total of 27 randomly selected women in these locations between the ages of 15 and 29. All of the women had experience working in formal, full-time jobs in sales and services, garment manufacturing, and small factories.

The women reported overwhelmingly that a primary reason they took a job was to prepare for marriage. Although arranged marriages are still the norm in Egypt, the women interviewed reported being actively involved in the process of finding a husband and exercised some control, either direct or indirect, in the decision. For example, one woman said, “I was engaged to my cousin about three years ago. . . . In fact, I did not love him. I did not treat him the way he would like,” and the engagement was eventually called off.

Whether engaged or not, all of the respondents spoke of saving for marriage with the expectation of carrying a substantial trousseau (*gebaz*) into the new home. One respondent paid for her transportation from her salary, but saved the rest for her *gebaz*. Another respondent, who was recently married, contributed 3,000 out of the 8,000 pounds required for her marriage. In addition to working, many women and their families go into debt in order to obtain the money needed for marriage. “These women are not defying marriage by working,” says Amin. “They see work as a way of facilitating marriage.” ■

#### SOURCE

Amin, Sajeda and Nagah H. Al-Bassusi. 2003. “Wage work and marriage: Perspectives of Egyptian working women.” Policy Research Division Working Paper no. 171. New York: Population Council.

#### OUTSIDE FUNDING

The International Development Research Centre of Canada, the Rockefeller Foundation, and the United States Agency for International Development

## *New Population Encyclopedia Offers Thorough Review, Reflects Expanded Scope of Field*

The newly published *Encyclopedia of Population* provides a comprehensive appraisal of the field of population studies. The reference work was badly needed, as the last encyclopedia of population was published more than two decades ago in 1982. "In the 1980s, population issues seemed to many people to connote little else but rapid population growth and measures to curtail it," write the editors, Paul Demeny and Geoffrey McNicoll, in their preface. "Today, population growth is one concern among many." Both editors have long associations with the Population Council. Demeny, who holds the position of Distinguished Scholar, is founder and editor of the Council's journal *Population and Development Review*. McNicoll is a senior associate at the Council. Both have written extensively on population and development issues.

The *Encyclopedia of Population* is directed both to professionals in the population sciences reading outside their immediate areas of expertise and to other social scientists, college students, advanced high school students, and the educated lay reader. "An effort is made to avoid material and jargon that would require specialized knowledge," write the editors, "but without losing significant detail through undue simplification." The two-volume set includes 336 short articles written by 278 authors. The contributors are experts from a wide range of disciplinary backgrounds: anthropology, biology, demography, economics, geography, history, law, literature, philosophy, political science, public health, and sociology. More than one-third of them are from outside the United States.

### **Expanding the boundaries**

Along with the standard demographic entries and biographies of persons notable in the field,

topics covered in the encyclopedia help to delineate a broadened scope of population studies. Among these are: AIDS, aging of population, animal ecology, childlessness, climate change and population, emerging infectious diseases, environmental ethics, feminist perspectives on population issues, human extinction, and population in literature. "If [this encyclopedia] has an ambition beyond the utilitarian it is to push out the boundaries of the subject."

*"If this encyclopedia has an ambition beyond the utilitarian it is to push out the boundaries of the subject."*

### **Practical information**

The editors have not neglected the core of the field, demography. Subjects related to this, too, are treated in a reader-friendly fashion. In her article on population dynamics, for example, Heather Booth of the Australian National University, Canberra, provides a basic introduction to the topic. She describes population growth and decline, population age structure, and population momentum and aging, avoiding complicated mathematics.

Other demographic topics that are each explored in several articles are: applied demography, demographic techniques, economic demography, fertility, historical demography,

mortality and health, political demography, population statistics and data collection, prehistoric demography, reproduction and birth control, and urban demography.

### **Controversial issues**

The editors also plumb controversial issues. The ethical concerns raised by genetic testing and new reproductive technologies are discussed, for example. The debate over animal rights is described, as are questions of environmental ethics and euthanasia. "Not a few topics in population studies are contentious, either in terms of research findings or, more basically, in terms of their political and ethical premises or implications," write the editors.

"Unsurprisingly, the various authors writing on matters related to such topics may often take differing positions. We have not sought to suppress those differences, but rather to ensure a rough overall degree of balance among the articles."

"A test of such a work," conclude Demeny and McNicoll, "is the extent to which it repays browsing and offers the reader serendipitous discoveries and insights." The encyclopedia is available from Macmillan Reference USA. A word-searchable electronic version is planned, to be accessible through Gale eBooks and netLibrary. ■

### SOURCE

Demeny, Paul and Geoffrey McNicoll (eds.). 2003. *Encyclopedia of Population*. New York: Macmillan Reference USA.

**All issues of *Population Briefs* are available on the Population Council's Web site: <http://www.popcouncil.org/publications/popbriefs/default.htm>**

# RECENT PUBLICATIONS

## Biomedical Research

### Contraceptive development and products

Chen, Y.M., **N.P.Y. Lee**, **D.D. Mruk**, W.M. Lee, and **C.Y. Cheng**. "Fer kinase/FerT and adherens junction dynamics in the testis: An *in vitro* and *in vivo* study," *Biology of Reproduction* 69(2): 656–672.

**Lau, A.S.N.** and **D.D. Mruk**. "Rab8B GTPase and junction dynamics in the testis," *Endocrinology* 144(4): 1549–1563.

**Lee, N.P.Y.**, **D.D. Mruk**, W.M. Lee, and **C.Y. Cheng**. "Is the cadherin/catenin complex a functional unit of cell–cell actin-based adherens junctions in the rat testis?" *Biology of Reproduction* 68(2): 489–508.

**Lui, W.Y.**, W.M. Lee, and **C.Y. Cheng**. "Sertoli–germ cell adherens junction dynamics in the testis are regulated by RhoB GTPase via the ROCK/LIMK signaling pathway," *Biology of Reproduction* 68(6): 2189–2206.

**Mruk, D.D.**, M.K.Y. Siu, **A.M. Conway**, **N.P.Y. Lee**, **A.S.N. Lau**, and **C.Y. Cheng**. "Role of tissue inhibitor of metalloproteinases-1 in junction dynamics in the testis," *Journal of Andrology* 24(2): 510–523.

Saleh, S.I., S.H. Khidr, S.M. Ahmed, T.M. Jackanicz, and H.A. Nash. "Estradiol–progesterone interaction during the preparation of vaginal rings," *Journal of Pharmaceutical Sciences* 92(2): 258–265.

**Segal, Sheldon J.** "Modern methods of contraception," in **Paul Demeny** and **Geoffrey McNicoll** (eds.), *Encyclopedia of Population*. New York: Macmillan Reference USA, pp. 170–174.

Siu, M.K.Y., W.M. Lee, and **C.Y. Cheng**. "The interplay of collagen IV, tumor necrosis factor- $\alpha$ , gelatinase B (matrix metalloproteinase-9), and tissue inhibitor of metalloproteinases-1 in the basal lamina regulates Sertoli cell–tight junction dynamics in the rat testis," *Endocrinology* 144(1): 371–387.

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### Reproductive health product development

Ylänen, K., T. Laatikainen, **P. Lähteenmäki**, and A.J. Moo-Young. "Subdermal progestin implant (Nestorone<sup>®</sup>) in the treatment of endometriosis: Clinical response to various doses," *Acta Obstetrica et Gynecologica Scandinavica* 82(2): 167–172.

### Reproductive physiology

**Akingbemi, B.T.**, **R.S. Ge**, C.S. Rosenfeld, L.G. Newton, **D.O. Hardy**, **J.F. Catterall**, D.B. Lubahn, K.S. Korach, and **M.P. Hardy**. "Estrogen receptor- $\alpha$  gene deficiency enhances androgen biosynthesis in the mouse Leydig cell," *Endocrinology* 144(1): 84–93.

**Bernard, D.J.** "SMAD expression in the testis predicts age- and cell-specific responses to activin and TGF $\beta$ ," *Journal of Andrology* 24(2): 201–203.

Gao, H.B., M.H. Tong, Y.Q. Hu, H.Y. You, Q.S. Guo, **R.S. Ge**, and **M.P. Hardy**. "Mechanisms of glucocorticoid-induced Leydig cell apoptosis," *Molecular and Cellular Endocrinology* 199(1–2): 153–163.

**Lee, N.P.Y.** and **C.Y. Cheng**. "Regulation of Sertoli cell tight junction dynamics in the rat testis via the nitric oxide synthase/soluble guanylate cyclase/3',5'-cyclic guanosine monophosphate/protein kinase G signaling pathway: An *in vitro* study," *Endocrinology* 144(7): 3114–3129.

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**Walch, L.**, E. Clavarino, and **PL. Morris**. "Prostaglandin (PG) FP and EP<sub>1</sub> receptors mediate PGF<sub>2 $\alpha$</sub>  and PGE<sub>2</sub> regulation of interleukin-1 $\beta$  expression in Leydig cell progenitors," *Endocrinology* 144(4): 1284–1291.

## Building Research Capacity and Tools/Capacity Building

### Developing or adapting tools for reproductive health research

**Hewett, Paul C.**, **Annabel S. Erulkar**, and **Barbara S. Mensch**. "The feasibility of computer-assisted survey interviewing in Africa: Experience from two rural districts in Kenya." Policy Research Division Working Paper no. 168. New York: Population Council.

## Gender and Family Dynamics

### Family dynamics

**Mensch, Barbara S.**, **Barbara L. Ibrahim**, Susan Lee, and Omaima El-Gibaly. "Gender role attitudes among Egyptian adolescents," *Studies in Family Planning* 34(1): 8–18.

### HIV/AIDS

#### Basic science of infection

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## Transition to Adulthood

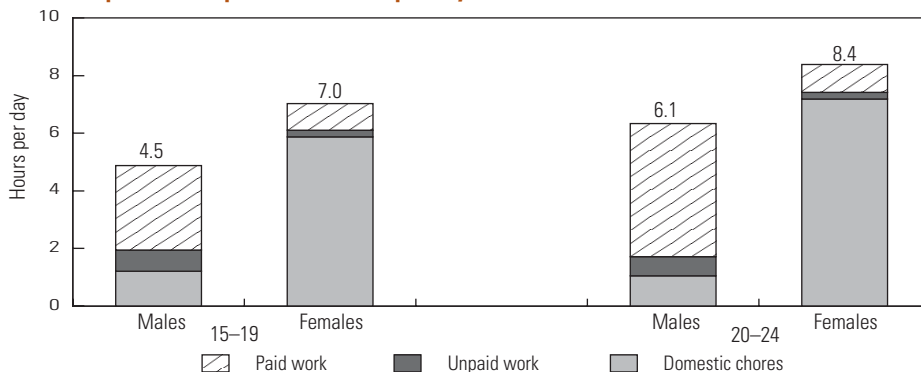
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## Domestic, paid, and unpaid work (hours per day)



### Time use and work

Young males and young females in Pakistan, particularly those who are not in school, spend their time very differently. While most young men eventually enter the paid labor force outside the home, less than 40 percent of young women have entered the workforce by age 24. Females are most likely to work inside the home on domestic chores. These work arrangements reflect very different mobility patterns, with males being much freer than females to leave the home unaccompanied. But, “these young women are not idle,” states Zeba Sathar, Population Council country director in Pakistan and a lead investigator on the survey. “We found that at every age between 15 and 24, women work longer hours than men.” (See graph.)

Recently, however, there has been a slight rise in paid work among females aged 15 to 19 in comparison to the cohort born five years earlier. Most young people, men and women, work in agriculture. Other types of work are segregated by gender, with females engaged in stitching, embroidery, and knitting (largely based at home) while young men work in factories, are self-employed, or perform skilled labor. Young people’s attitudes about gender roles remain traditional, with well-defined lines between the domains of males and females.

### Marriage and childbearing

The gap between the onset of puberty and the time of marriage for females and males is growing as a result of an increasing age at marriage. For females, however, there is little substantive,

skills-enhancing activity to fill this growing gap. Females in rural areas continue to marry much earlier than those in urban areas. A rural adolescent female is more than twice as likely as her urban peer to be married before age 20 (58 percent versus 27 percent).

The birth of a child tends to follow fairly quickly upon marriage. Worryingly, “survey data indicate that females between the ages of 15 and 19 are receiving less antenatal care and are less likely to have a medically trained attendant at their first births than were females between the ages of 20 and 24,” says Council program associate Judith Diers, a researcher on the study. Thus, not only are younger women facing the dangers associated with early childbirth, but their risks are further elevated by less access to professional care before and during the birth.

The survey’s findings will likely inform Pakistan’s emerging national youth policy. In response to insights gleaned from the investigation, the Population Council plans to continue in-depth research into primary schooling opportunities in the country’s rural communities. “Although students at these schools are not yet adolescents, these establishments are of the utmost importance for ensuring positive and healthy transitions to adulthood among future generations,” says Barbara Ibrahim, Council regional director for West Asia and North Africa.

Economic growth and prosperity “are not automatic; they will depend on whether Pakistan succeeds in providing better education, minimizing the gender gap, and creating job opportunities for today’s adolescents and youth in the country,” emphasizes Finance Minister

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Aziz. Young people are no doubt the most important resource for the country’s future, he notes. “But the government alone can’t do it—we need the world of NGOs, we need the world of civil society, we need the world of philanthropy to help us achieve this goal.” ■

### SOURCE

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