Misconceptions About Condom Efficacy Linked to High Risk of Unprotected Sex Among Chinese STD Patients

In southern China, 71% of males and 28% of females with a newly diagnosed sexually transmitted disease (STD) had had sex with a nonregular partner in the previous six months, according to a survey conducted in public clinics.[1] Most respondents with new STDs did not consistently use condoms, either with nonregular partners or with regular partners. In addition, two-thirds stated that it was likely that they would have unprotected sex with nonregular partners before their STD was cured. Misconceptions about HIV, STDs and condoms were common among respondents overall but were more common among those with less education. The odds that respondents had had or anticipated having unprotected sex before their STD was cured was elevated among those who had more misconceptions, those who believed that condoms were not effective for prevention and those who perceived themselves to be very likely to contract HIV or STDs in the future.

The study was conducted in four public hospitals in Guangzhou, a metropolitan city in southern China, during 2001. Adolescents and adults visiting the hospitals' dermatology and venereal disease clinics because of symptoms of a previously undiagnosed STD were eligible for the study if an infection was confirmed. Study participants completed anonymous questionnaires.

Analyses were based on 619 respondents (440 male and 179 female respondents). Male respondents were nearly equally distributed across age-groups, whereas about 70% of female respondents were aged 20–29. Larger proportions of female respondents had a lower educational level and were unemployed, and larger proportions of male respondents were professionals. About half of both male and female respondents were married and came from rural areas. A significantly larger proportion of male respondents had previously had an STD (21% vs. 10%).

In the six months before the study, the proportion of respondents who had had a regular sex partner was lower among males than among females (62% vs. 71%), whereas the proportion with a nonregular partner was higher among males than among females (71% vs. 28%). During the same period, significantly larger proportions of male than female respondents had had sex with a commercial sex worker (30% vs. 3%), with someone they did not know (18% vs. 3%) or with a friend or colleague (31% vs. 22%).

Although the proportion of respondents who reported consistently (always) using condoms with nonregular sex partners before the current STD episode was three times as high among males as among females, the proportion for each gender was low (17% vs. 6%). The respective proportions were even lower for consistent use of condoms with regular sex partners (5% vs. 3%).

Among respondents who had had a nonregular sex partner in the previous six months, 68% stated that it was likely that they would have unprotected sex with a nonregular partner before their STD was cured, whereas only 23% stated that it was unlikely. The rest believed that they had already done so. The proportion of respondents stating that unprotected sex was unlikely was significantly greater among those aged 35 or older, but did not differ by gender or education level.

In contrast, among respondents who had had a regular sex partner in the previous six months, 90% stated that it was unlikely that they would have unprotected sex with a regular partner before their STD was cured. About 6% believed that they had already done so, and 5% believed that they were likely to do so.

At least 85% of respondents knew that HIV could be transmitted by unprotected vaginal or anal sex, sharing of needles and blood transfusion, and from mother to child. However, 69% of respondents did not know about the lag between HIV infection and its detection, 81% did not know that an infected person may have no symptoms for years and 37% believed that AIDS is curable.

Misconceptions about STDs and condoms were also common. Large proportions of respondents mistakenly believed that gonorrhea is not an STD (49%), that people infected with an STD once are immune to infections thereafter (32%), that a person cannot have two STDs simultaneously (59%) and that an asymptomatic person cannot transmit an STD (51%).

Similarly, substantial proportions of respondents did not know that condoms have an expiration date (39%) or that they should not be reused (25%), or believed that it is appropriate to put on a condom just before ejaculation (25%). Significantly larger proportions of female than male respondents believed that condom use is not effective for preventing STD infection (21% vs. 11%) and HIV infection (24% vs. 14%). In general, the proportion of respondents holding misconceptions about HIV, STDs and condoms declined with rising levels of education.

Larger proportions of male than female respondents believed that it was likely or very likely that they would become infected with an STD in the future (31% vs. 18%). Among respondents overall, 10% believed that it was likely or very likely that they would become infected with HIV in the future, 60% believed that it was unlikely and the rest were unsure.

In a multivariate analysis of characteristics that influenced whether respondents had had or anticipated having unprotected sex with a nonregular partner before cure of their STD, the odds for males were significantly elevated for those who had previously had an STD (odds ratio, 2.0); those who were less knowledgeable about HIV (2.2), STDs (2.7) and condoms (3.7); those who believed they were very likely to become infected with HIV (7.0) or an STD (3.2) in the future; and those who believed that condoms are not effective for preventing HIV infection (2.4). Among female respondents, the odds were significantly elevated only for those who believed that condoms are not effective for preventing STDs (3.5).

A second multivariate analysis examined factors that influenced whether respondents had had or anticipated having unprotected sex with a regular partner before cure of their STD. The odds were significantly elevated for males who were less knowledgeable about condoms

(odds ratio, 2.4), those who believed that they were very likely to become infected with HIV (8.6) or an STD (5.6) in the future and those who believed that condoms are not effective for preventing HIV infection (2.3). Among female respondents, the odds were significantly elevated only for those who believed that condoms are not effective for preventing infection with HIV (3.1) or STDs (3.5).

The investigators comment that people with STDs who have unprotected sex before their disease is cured can serve as a bridge for infection of others. Misconceptions about HIV, STDs and condoms are likely contributing to this practice and to the sharply rising rates of infection in China, they observe. They contend that interventions promoting education and condom use are urgently needed to "break the cycle of STD infection."–*S. London*

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Health of Children in Rural India May Reflect Whether Parents Have Met Their Goals for Family Composition

One in three rural Indian children are severely stunted, and nearly two in five have not had all of the recommended vaccinations by age five, according to an analysis of data from the 1992–1993 National Family Health Survey.[1] The gender mix of older surviving siblings is associated with outcomes on these health measures; differences between boys and girls in these associations suggest both that parents value sons over daughters and that they "may discriminate selectively" depending on whether they have achieved the gender balance they desire in their family. For example, girls have reduced odds of being stunted if all of their older siblings are boys, but marginally increased odds if they have siblings of both genders. Yet, even boys are treated differently depending on their family's composition: Their odds of being fully immunized are elevated if they have only sisters but are reduced if they have only brothers.

The data reflect outcomes among children of ever-married women aged 13–49 living in rural areas of India. To study severe stunting, an indication of nutritional deficit, the analyst examined information on almost 15,000 children aged 6–47 months. (Severe stunting was defined as three standard deviations below an international measurement of height for age.) The analyses of immunization (i.e., whether children had received the full complement of tuberculosis, polio, measles and diphtheria-pertussis-tetanus vaccinations recommended by the World Health Organization) included more than 25,000 children 12–60 months old.

Both samples of children were equally divided between boys and girls. In each, roughly one-quarter of children had no older surviving siblings, one-third had a mix of brothers and sisters, and the rest had only sisters or only brothers; the average family included three children. Mothers were predominantly illiterate, and about one in six had more than a primary education. Half of children lived in a village with no health services, one-third in a village with a hospital and health center, and the remainder in a village with a health center only.

One-third of all children (36% of girls and 33% of boys) were severely stunted. Only three in 10 (29% of girls and 31% of boys) were fully immunized, and nearly four in 10 (41% of girls and 35% of boys) had received no vaccinations. Results of bivariate analyses suggested that health outcomes were related to the number and gender of older surviving siblings, and that these relationships were different for girls and boys. To more closely examine these relationships, the analyst conducted a series of logit analyses, controlling for social, household and village characteristics that may influence gender differences.

In the multivariate analyses for all children combined, a child's gender was not associated with the likelihood of severe stunting, but girls were less likely than boys to have had a full range of vaccinations. The analyst points out, however, that these findings are difficult to interpret because associations involving the presence of older siblings differed by gender. Girls with two or more sisters and no brothers were more likely than those with no siblings to be severely stunted (odds ratio, 1.3); the odds were marginally elevated for those with both sisters and brothers. Moreover, compared with boys in similar situations, girls with at least two sisters and no brothers had higher odds of stunting (1.6), and those with at least two brothers and no sisters had a lower likelihood of this outcome (0.7).

Boys whose older siblings were all girls were more likely than those who were only children to be fully immunized (odds ratio, 1.2); those with only brothers had reduced odds of having had all recommended vaccinations (0.8). Girls were less likely than boys to be fully immunized if they had sisters but no brothers (0.6, whether they had one sister or more).

Noting that India has a decades-old mass immunization program "that should theoretically be accessible to all eligible children," the analyst characterizes the disadvantage observed for girls as "somewhat surprising" and attributes it to opportunity costs that parents may be unwilling to pay for relatively unwanted children. Overall, the analyst concludes, the results "strongly [suggest] that parental and societal norms about the values of girls relative to boys and about a desirable family sex composition are key to explaining why certain children fare worse than their siblings and why girls with older sisters fare particularly badly." –*D. Hollander*

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Women Who Know a Person With AIDS Do Not Have Elevated Condom Use Rates

In South Africa, women who know someone who has received a diagnosis of HIV infection or who died of AIDS are no more likely than other women to have used a condom at last sex, according to an analysis of nationally representative data from 1998.[1] However, the odds of use with a casual partner are slightly more than twice as high as those for use with a spouse (adjusted odds ratio, 2.3). Knowing that condoms can prevent transmission of a sexually transmitted infection (STI) also significantly increases a woman's odds of use (1.9).

To identify factors that affect condom use, researchers examined data collected from more than 11,000 women aged 15–49 in the 1998 South Africa Demographic and Health Survey (DHS). Measures related to sexual behavior or AIDS-related knowledge included knowing someone who had received a diagnosis of HIV infection or had died of AIDS, the type of partner at most recent sexual intercourse, knowing that condom use can prevent STI transmission, and knowing that a person can have

HIV infection and yet look healthy and be symptom-free.

The analysis also considered three social variables—the participants' employment status, their response to a survey question asking whether they alone decided how to spend their earnings, and whether they had experienced or been threatened with violence in the previous year. The demographic variables assessed were age, level of education, rural versus urban residence and race.

Nearly eight in 10 survey respondents were black (78%); the rest were biracial (10%), white (8%), or Asian or Indian (4% combined). Six in 10 were aged 20–39, and a similar proportion lived in urban areas. Seven in 10 had a secondary or higher education. Thirty-one percent of women were currently working; 70% decided for themselves how to spend their earnings. Nine percent reported having been mistreated in the previous year.

Seventeen percent of respondents had personally known someone who had received a diagnosis of HIV infection. Eighty-five percent knew that condoms are effective in preventing HIV transmission; however, only 30% knew that an HIV-infected person could appear healthy.

Among women who were sexually experienced, 50% said their most recent sexual partner was their spouse; 43% a regular, nonmarital partner; and 7% a casual partner. Overall, 12% had used a condom at their most recent intercourse—7% with their husband, 16% with another type of regular partner and 23% with a casual partner.

Variables associated with condom use in the bivariate analysis at $p<.001$ were examined in a multivariate logistic regression analysis. According to this criterion, all of the variables were included in the multivariate analysis except for the social characteristics and the variable of knowing that HIV-infected persons can appear healthy. Despite being significant only at $p=.05$, having known someone who received a diagnosis of HIV infection was included in the logistic regression model because it was considered the key explanatory variable. After excluding the data of women who had reported not using condoms because they wanted to become pregnant, the researchers analyzed the data of 8,014 sexually experienced women who had provided responses about contraceptive use.

Condom use was associated in the multivariate analysis with partner type and AIDS knowledge, but not with having known someone who had received a diagnosis of HIV infection or died of AIDS. Compared with women who had last had sex with their husband, those who had done so with a regular, nonmarital partner or a casual partner had approximately twice the odds of condom use (odds ratio, 1.8–2.3). Understanding that condom use can protect against HIV infection nearly doubled the odds of use (1.9).

Women who were white, biracial, Asian or Indian had lower odds of condom use than did black women (0.4). (A subsequent calculation of estimated probabilities revealed that much of this difference could be explained by more frequent condom use during marital sex by black women than by nonblack women.) An interaction term combining race and partner type showed that nonblack women who had last had sex with a regular, nonmarital partner had higher odds of condom use than did black women whose most recent partner was their husband (2.5).

Women younger than 30 had significantly higher odds of condom use at last sex than did those aged 40–49 (odds ratio, 1.5–2.0). The odds increased with level of schooling and were significantly elevated for all women who had completed at least a primary education (2.0–7.3). Living in a rural area was negatively associated with condom use (0.6).

The researchers note that their analysis is limited by the absence of DHS data on consistency of condom use, as well as on self-perceived risk of HIV infection. In addition, they say, a few hundred women who indicated that they had never been married reported that their most recent sexual intercourse had been with their husband; they point out, however, that the number of women reporting these contradictory responses was relatively small and probably did not affect the overall findings.

According to the investigators, the significant association between condom use and knowledge of the protective effect of condoms suggests that "women do have some agency in determining whether condoms are used." Although they believe their data show that certain types of women have heard and heeded messages about condom use for HIV prevention, they conclude that "efforts are needed to ensure that prevention campaigns, including condom promotion, reach rural, less-educated women and their partners."—*C. Coren*

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In Zimbabwe, Substantial Minorities of Women Are Accepting of Wife-Beating

Half of Zimbabwean women believe that in some situations, a man is justified in beating his wife, according to an analysis of data from the 1999 Zimbabwe Demographic and Health Survey.[1] Although the proportion who see some justification for this behavior varies among subgroups of women, it never is below one-third and typically exceeds one-half. Women are more accepting of wife-beating in some situations than in others; levels of acceptance are highest (33–39%) in cases in which a woman has argued with her spouse, gone out without telling him or neglected her children.

The 5,907 women in the nationally representative sample were predominantly urban, married and living with their spouse or partner in a monogamous union; virtually all of them belonged to one of the country's two main ethnic groups (Shona and Ndebele). On average, they were 28 years old and had been married for 12 years. Nearly half had at least a secondary education, and slightly more than half were employed (mainly as agricultural or manual workers); six in 10 lived in households whose level of wealth was categorized as low. Respondents' partners were generally older than they were and more likely to be employed. When asked how decisions about the household and the woman herself were made, half of respondents said that their partners did not have final say in any of five specified situations; one-third reported that the couple made at least two types of decisions jointly, and one-third said that they had final say in four or five areas.

In most subgroups, 52–62% of women considered wife-beating justifiable in some circumstances; even the lowest proportion (36%, among urban women) indicated substantial acceptance of this behavior. Comparisons based on chi-square tests revealed that acceptance differed significantly by most background and relationship characteristics: Urban residence, minority ethnicity, a high level of household wealth or educational attainment, older age and employment in a high-status occupation were associated with reduced levels of acceptance. Similarly, having a husband who was older than 36, had at least a secondary education or held a high-status job was related to lower acceptance of wife-beating. The level

of acceptance was relatively low among married women, those who did not live with their partner and those married more than 10 years. Women who had final say or participated in household decision-making were less likely than others to consider wife-beating justifiable, while those whose partners were the main decision-makers were more likely to do so.

Fifty-three percent of respondents said that a man was justified in beating his wife in at least one of five hypothetical situations. Acceptance was highest for instances of a woman's arguing with her husband (39%), neglecting her children (37%) or going out without her husband's permission (33%). About three in 10 women considered a beating justified if a woman refused to have sex with her husband, one in 10 if she burned food.

Using logistic regression, the analyst examined the associations between women's background and relationship characteristics and their belief that wife-beating was justified in the specified situations. For each circumstance, rural women were more likely than urban dwellers to accept such behavior (odds ratios, 1.7–2.9), and the older a woman, the less likely she was to accept it (0.9–0.96). No other background characteristic was associated with acceptance of wife-beating in every situation specified, but several were associated with reduced odds of considering it justified in 2–4 situations: increased household wealth (0.96–0.98), having a primary education (0.7 for each of two reasons) or secondary schooling (0.4–0.5 for each of three reasons), and working in a high-status job (0.04–0.6 for each situation except refusal to have sex). Ndebele women had higher odds than Shona women of accepting wife-beating if a woman argued with her husband or neglected her children (1.3 and 1.6, respectively), but they, as well as women of other ethnicities, had lower odds than Shona women of accepting it in cases in which a woman refused to have sex (0.5–0.6).

Among relationship characteristics, duration of marriage was positively associated with acceptance of wife-beating overall and when food was burned or the couple had argued (odds ratios, 1.02–1.06); living with a partner was associated with elevated odds of acceptance overall, when food was burned and when children were neglected (1.3–1.4). Women whose partner had final say in household decision-making were more likely than others to accept wife-beating (1.1 for each reason), those who reported having final say had increased odds of accepting it if a woman burned food, argued with her spouse or neglected her children (1.1 for each); respondents who reported joint decision-making had reduced odds of justifying it for any reason except burned food (0.9 for each).

"Gender norms and expectations in Zimbabwe," the analyst remarks, "warrant the concern of public health researchers and practitioners." She notes that improving women's educational and occupational opportunities might help alter their perceptions of social norms, and promoting joint decision-making might help them achieve "equality in marriage." But she concludes that changing the acceptability of wife-beating in Zimbabwe will require widespread social and political reforms, including "improvement in national level regulations for women to . . . maintain control over their lives" and the promotion of "non-violent approaches to conflict resolution both within the household and outside."–*D. Hollander*

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In Asia, Child Mortality Is Not Linked to Women's Autonomy or Religion

An analysis of 15 Muslim and non-Muslim community pairs in four countries in Asia shows no consistent relationship between differences in levels of female autonomy and child mortality.[1] In many areas, Muslim women do not have lower levels of autonomy than women of other religions. Moreover, indicators of women's autonomy do not have a strong or uniform association with child mortality.

To test common assumptions about relative levels of female autonomy and child mortality in Muslim and non-Muslim communities, and to determine whether female autonomy is associated with child mortality, the researcher used data from four of the five countries included in the Survey on the Status of Women and Fertility of 1993–1994. These countries—India, Malaysia, the Philippines and Thailand—have Muslim and non-Muslim populations.

The analysis compared six indicators of female autonomy and probabilities of under-five mortality within 15 Muslim and non-Muslim community pairs. The autonomy indicators measured women's freedom of movement (in 13 pairs a summative three-item scale of 0–3 and in two the proportion of women who did not need permission to go outside the home), whether women had ever been beaten by their husband, whether they were afraid to disagree with him, whether employed women had control over their income, whether women made independent economic decisions (summative four-item scale of 0–4) and whether women decided (either on their own or with their husband) what to do when a child was ill. Cox regressions were used to examine the effect of being Muslim on the hazard of before-five mortality in three of the four countries studied, once women's level of autonomy and socioeconomic status were controlled for.

Muslims were compared with Hindus in eight community pairs (five in India and three in Malaysia), with Christians in two pairs (both in the Philippines) and with Buddhists in five pairs (three in Malaysia and two in Thailand). Although the community pairs were also examined for differences in women's socioeconomic characteristics, such as the woman's (and her husband's) educational attainment, index of household possessions and income, no relationship between religion and socioeconomic indicators was evident.

On one of the six measures of women's autonomy, Muslim women were clearly at a disadvantage. In 12 of the 15 community pairs, Muslim women had less freedom of movement than non-Muslims. For example, in the 10 pairs using a summative score, the totals in Muslim communities (based on three items measuring whether the woman could go alone to the market, the health center and the community center) ranged from 0.2 to 1.9, whereas those in non-Muslim communities ranged from 0.3 to 2.9. In the two pairs in Thailand that used a different freedom of movement measure, 39–53% of non-Muslim women could go outside the home without seeking permission, compared with 9–25% of Muslim women. However, the proportions of women who had been beaten by their husband were lower or no different among Muslims than among non-Muslims in seven of the nine community pairs for which data were available.

The pattern for fearing to disagree with a husband was also mixed: Higher proportions of Muslim women feared to disagree with their spouse when compared with Christian women in the Philippines (84% vs. 34–41%) and Buddhist women in Malaysia (37–43% vs. 19–28%). However, Muslims were either less likely or no more likely to fear expressing dis-

agreement than Hindus in India and Malaysia, or Buddhists in Thailand. Muslim women had no less control over their earnings than women of other religions (with the main exception of Christians in the Philippines), and differences by religion in economic decision-making were similarly small (except for the comparisons between Muslims and Buddhists in three settings in Malaysia and one in Thailand). However, Muslim women had less influence when a child was sick in 10 of the 15 community pairs studied, and this difference was large in six of the 10 differing pairs.

Overall, under-five mortality levels in the decade before the survey were not uniformly higher in Muslim than in non-Muslim settings. Eight of the 15 pairs differed significantly by child mortality, and in half of these community pairs, mortality was significantly lower among Muslims than among non-Muslims.

The correlations between differences in autonomy and differences in mortality were generally small, with differences in freedom of movement most often (in nine of the 15 pairs) coinciding with differences in mortality. In six areas, Muslims had lower freedom of movement scores and higher or similar child mortality rates, and in three areas, Muslims had higher freedom of movement scores and lower mortality rates. However, the author notes that in many settings where Muslims were at a disadvantage in both autonomy and mortality, they also fared worse on socioeconomic indicators, so "it is difficult to take any association between mortality and freedom of movement at face value."

The results of the Cox regressions, performed with data for 10 community pairs in the Philippines, Malaysia and Thailand, indicate that for the effect of religion alone, the risk of dying by age five is significantly greater for Muslims than non-Muslims in four of these 10 pairs. Introducing controls for both the freedom of movement autonomy measure and socioeconomic status did not change the significant and positive results for being Muslim in three of these four community pairs.

According to the researcher, her findings do not support the idea that rates of child mortality among Muslims are associated with levels of autonomy among Muslim women. In fact, she argues that this assumption "had far from strong or consistent support in the array of settings examined here." The author suggests that the Muslim disadvantages in mortality found in some countries may be related instead to "infrastructure, disease conditions, child care practices or other context-specific factors that were not measured (or are unmeasurable)."–*L. Remez*

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In South Africa, Having One Pap Smear Lowers Women's Chances of Cervical Cancer

Ever having had a Pap smear significantly reduces the risk of cervical cancer, according to a study of women in South Africa.[1] Compared with women who had never had the test, those who had ever had one had odds of cancer that were 70% lower. The reduction in risk decreased to 60% once 10 years had passed since the last Pap smear, and to 50% after 15 years. The protective effect increased from 60% for one smear to 80% for two or more.

Data for the analysis came from a case-control study on hormonal contraceptives and cervical cancer that had been conducted in the Western Cape between January 1998 and December 2001. The sample included 524 colored and black women younger than 60 who had received a diagnosis of cervical cancer at one of two area hospitals and 1,540 healthy controls matched for decade of age, race, area of residence and hospital. Trained nurses interviewed participants using a standard questionnaire that asked women how many Pap smears they had ever had and when the procedures had been performed. Researchers analyzed the data using logistic regression, controlling for age, area of residence, race, education, parity, age at first sexual activity, contraceptive use and tobacco use.

Among all women in the sample, 50% of those with cervical cancer and 73% of controls had ever had a Pap smear. The odds of developing the disease were 70% lower among women who had ever had the test than among those who had never had the procedure (odds ratio, 0.3). Moreover, the reduction in risk rose from 60% among women who had had one Pap smear (0.4) to 80% among those who had had two or more (0.2).

The protective effect of having had a Pap smear decreased as the time since the last screening increased, from 70% at durations of less than 10 years to 60% at 10–14 years and 50% at 15 years or more. Furthermore, age affected the effect of Pap smear screening on cervical cancer: Having been screened reduced the risk of cancer by 70% among women aged 30 or older (odds ratio, 0.3), but had no significant impact on the risk among younger women.

Among women with cervical cancer, 154 were in the early stages of the disease and 370 had advanced cases. Fifty-seven percent of women with early-stage disease had ever had a Pap smear, compared with 46% of women with late-stage disease. Compared with women in the control group, women with early-stage cancer had significantly reduced odds of having ever had a Pap smear (0.5); the odds were further reduced among those with late-stage cancer (0.3).

In light of their results, the researchers comment that Pap smears appear to be an effective measure to reduce the high incidence of cervical cancer among South African women. They remark that "Assuming the validity of the results, if all women had been screened under the conditions in the present study, an estimated 70% of cases of cervical cancer would have been prevented."

The author of an accompanying commentary, however, points out that this study shares several problems involved in using case-control methods to evaluate screening.[2] She notes in particular that the study "depends totally on women's recollection," and argues that "It is highly likely that women tended to report to the interviewer what they perceived as the 'correct' health-related behaviour."–*J. Rosenberg*

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