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**Reproduction Based on Islamic Culture: Effort to Increase Understanding of  
Reproduction System and Prevention of Infectious Diseases**

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## REPRODUCTION BASED ON ISLAMIC CULTURE: EFFORT TO INCREASE UNDERSTANDING OF REPRODUCTION SYSTEM AND PREVENTION OF INFECTIOUS DISEASES

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### Abstract

*The number of people living with HIV / AIDS in Indonesia is increasing from time to time. Based on the Department of Health report, up to December 2011 there were 27,947 HIV/AIDS sufferers in Indonesia. 1,069 (3.83%) of them were aged 15-19, while 13,053 (46.71 %) were aged 20-29. The age group of 30-39 was 8,832 people (31.60%), age group of 40-49 was 2,840 people (10.16%), age group of 50-59 was 83 people (0.30%) and over the age of 60 were 233 people (0.83%) The most sufferers are adolescents and adults. This study aims to examine and link learning culture-based human reproductive system in order to improve understanding of reproduction and prevent reproductive disease. The formulation of the problem in this study is how the application of learning culture-based human reproductive system affects the understanding of reproduction. This research is designed with Quasi Experiment method with One Group Pretest-Posttest Design The study was conducted at MAN Darussalam Aceh Besar class XI IPA 1 involving 23 students and five observers and a biology teacher. The results of this study obtained a description of the reproduction system based on culture that affects the improvement of students. It was concluded that the application of learning of human culture based reproduction system has been able to increase students understanding on reproduction. Students can build knowledge through active involvement in the learning process and their understanding of the concept of the human reproductive system is increasing (N-gain = 71%).*

**Keywords:** Human Reproduction; Culture; Understanding of Reproduction; Sustainable Life



## **A. Introduction**

Reproductive health has become an important international issue since the International Conference on Population and Development (ICPD), held in Cairo, Egypt, in 1994. This is driven by the widespread diseases associated with reproductive organs. One of the reproductive diseases is HIV/AIDS. The number of people with HIV and AIDS (Acquired Immune Deficiency Syndrome) in Indonesia are increasing from time to time. Based on the Department of Health report, up to December 2011 there were 27,947 HIV/AIDS sufferers in Indonesia. 1,069 (3.83%) of them were aged 15-19, while 13,053 (46.71 %) were aged 20-29. The age group of 30-39 was 8,832 people (31.60%), age group of 40-49 was 2,840 people (10.16%), age group of 50-59 was 83 people (0.30%) and over the age of 60 were 233 people (0.83%) (MOH, 2012).

Founded on the data above, the highest numbers of HIV/AIDS sufferers are adolescents and adults (Manus, 2008). The same data source also mentioned that 597 people died because of this disease. In Aceh province alone, the number of AIDS patients has reached 149 people. This number continues to increase over time. These data indicate that the importance of reproductive health have not been fully conveyed and understood by the general public, especially by teenagers (Givaudan, 2008; Masatu: 2009; Herman, 2013). It especially affects adolescents' reproductive health (Mattebo, 2015; Mudey, 2010; Ali, 2005). Hence the need to explain to the general public since early age about how human reproductive organs work biologically arose (Hatami, 2015; Lauszus, 2011). The introduction to reproductive organs actually already started in elementary school through science lessons. However, such teachings tend to be more theoretical and rarely linked with social issues and local wisdom (Wellings, 2006; Leksono, 2015).

Consequently, it leads to disconnect between teachings and the real conditions in adolescents' social life. They then gained inaccurate information about reproductive organs and sexuality is from inappropriate sources (Kamrani, 2011; Bersamin, 2007). This resulted in unhealthy adolescent sexual behavior (Elizabeth, 2008; Glasier, 2006; Nair,

2012), and encouraged the ever-increasing practice of abortion (Adaji, 2010). Several multimedia-based studies (Samona, 2009; Sugiono, 2008) were admittedly able to explain the concept of human reproduction better, but they did not associate it with social issues and local wisdom that exist in the teenagers' environment. Reproduction is defined as the process of creating new individuals as a result of birth, cell division, and other reproductive ways. From this definition it can be understood that reproduction is a process of producing new individuals, and reproduction occurs only in living beings. Reproduction is an attempt to defend oneself by producing a new generation.

Jacob (2006), explains that reproduction is a biological consequence with the aim to conserve a species, by producing the same offspring as the parents' generation. This definition signaled that offspring will always inherit their parents' traits, so that every child born certainly carries a certain property that could be attributed to their parents. Irianto (2014), adds that reproduction is one of the most important human functions, because by reproducing humans could avoid extinction. The reproductive function has been able to sustain human life in the world, when it is eliminated; the human life comes to an end. Therefore, maintaining reproductive health is a very important thing to support sustainable life.

Reproduction is not only a biological event but also a cultural, religious, and lately, also an economic event. Jacob (2006: 51) explains that cultures participate in regulating reproduction such as matchmaking, marriage, pregnancy, and childbirth and childcare processes, since the whole process is an important milestone in the human life cycle, so reproduction cannot be done carelessly and cultures also participate to regulate the process. The biological reproductive process in both women and men has different roles, although the goal is the same. When fertilization occurs where a human egg and sperm become one, women will experience pregnancy, childbirth and breastfeeding. These events show that reproduction in men is instantaneous and very short, while in women it runs for years.





This research focuses in designing a human reproduction system learning process based on local wisdom which hopefully can encourage student to Bridge the theoretical knowledge they acquire in the classroom with their background knowledge, so as to alter their views and behavior.

## **B. Method**

This research was designed using Quasi Experiment method with One Group Pretest-Post-test Design (Creswell, 2007). This method employed one quasi-experimental research group which was subjected to pretest and post-test. The objects in this study were the students of grade XI at Madrasah Aliyah Negeri (MAN) Darussalam Aceh Besar, which amounted to 23 students. Quantitative data analysis techniques performed using the excel program and statistical tests of normalized gain on pretest and post-test results. The students' concepts understanding and stand were analyzed using the students' N-gain mean score (Meltzer, 2002) as follows.

$$\text{N - gain} = \left( \frac{N_B - N_A}{N_{\text{MAX}} - N_A} \right) \times 100\%$$

## **C. Research Finding**

### **1. The Concept of Reproduction**

The reproductive system in humans can be divided into two, namely the male reproductive system and the female reproductive system (Campbell, 2004). Both of these reproductive systems have different structures and functions. The male reproductive system includes the reproductive organs, spermatogenesis, and hormones. Male reproductive organs are divided into two parts, namely the external reproductive organs and internal reproductive organs. The outer male reproductive organs are part of the male genitalia which can be seen directly without going through a surgical process and using a special tool. There are two parts: First, the penis can be divided into two parts: the penis (the largest part of the penis) and the glans. Covering the glans is the foreskin, or prepuce. This skin is surgically removed when a man is circumcised. On

the inside of the penis there is a sponge-like network that can expand and harden. When a man experiences sexual desire this network will be filled with blood vessels and nerves that cause the penis to enlarge and harden. This happens because the penis is filled with blood. The penis contains no bones and/or is formed from muscles. The size varies greatly, but an erect penis size is almost the same. Second, the scrotum, a leather pouch that serves as a place to hang and protect the testicles, dark colored and usually wrinkly. The scrotum contains smooth muscle that regulates the distance of the testes to the abdominal wall to keep the testicular temperature stable. This way, the testicles will produce sperm in the best condition. In performing its function the scrotum may change size. When exposed to water or cold air it will shrink and pull the testis closer to the body so that it becomes warmer. Conversely, in hot weather the scrotum will enlarge and sag to expand its surface area to release more heat.

Male inner reproductive organs are present in the human body and cannot be seen except after surgery and/or using special tools. Various chemical and biological functions in male genitals are present in this internal organ. This section is divided into four parts (1) Testis is a pair of sex glands that produce sperm cells and testosterone hormones. The testes are oval and located inside the scrotum or the testicle sac. In the testes there are many fine channels called seminiferous tubules. The walls of the seminiferous tubules are composed of connective tissue and germinal epithelial tissue. Germinal epithelial tissue functions at the time of spermatogenesis or sperm formation process. Seminiferous tubule splits are located in the testicular chambers or called testicular lobules. One testicle generally contains about 250 testes of lobule. (2) Epididymis is a long, winding channel that comes out of the testes. Epididymis amounts to a pair on the right and left that serves to store the temporary sperm and ripen the sperm before heading to the vas deferens. (3) Vas deferens is a long and straight channel that leads upwards and ends in the prostate gland. This channel serves to transport sperm to the seminal vesicles. The ejaculatory channel is a short channel funding connecting the seminal vesicles with the urethra. (4) Urethra is a long canal channel of the ejaculatory



ducts and is present in the penis. The urethra acts as a tract that originates from a semen bag and a duct to remove urine from the bladder.

Just like men, a woman also has reproductive organs. However, the female reproductive organs are far different from men's. There is no better or worse because both of these reproductive organs complete each other. Female reproductive organs consist of external reproductive organs and internal reproductive organs. The two reproductive organs are not separated from one another, but are interconnected. The external reproductive organs consist of: First, the vagina, the channel that connects the uterine with the outer body. It serves as a copulation organ and delivery channel. Hymen, can be found inside the vagina. Secondly, the vulva is a gap that exists on the outside and is divided into two parts: Labium major is a pair of large lips located on the outside and confines the vulva, and Labium minor is a pair of small lips located on the inside and confines the vulva. The inner organ consists of firstly, the ovary, the main organ in women. There is a pair of it and are located inside the abdominal cavity in the left and right waist area. It serves to produce ovum and female hormones such as: estrogen which serves to maintain a secondary trait in women, and also help in the process of maturation of the ovum. Progesterone functions to maintain the period of pregnancy.

Secondly, the fimbriae, soft cilia located at the base of the ovary adjacent to the tip of the oviduct. It catches mature ovum cells released by the ovaries. Thirdly, the infundibulum, a funnel-shaped and enlarged tip of the oviduct located adjacent to the fimbriae. It accommodates ovum cells that have been captured by the fimbriae. Fourth, the oviduct tube, a longitudinal conduit after the infundibulum served as a fertilization site and the path for the ovum cell to the uterus with the help of the cilia on its wall. Silia serves to catch the ovum released by the ovaries.

## **2. Reproduction Based On Islamic Culture**

One of the sub-materials that link the materials and local wisdom is on the topic of male reproductive organs and their relation to circumcision. Circumcision is closely related to the male reproductive



organs. When it comes to learning about the penis, it will be directly associated with circumcision. Circumcision is the process of removing or cutting the entire skin of the front cover of the penis and the health benefits gained by circumcised men. The theory of reproductive organs and local wisdom in the society are integrated. Circumcision is a practice advocated by Islam. For the people of Aceh, circumcision has two meanings. First, circumcision is a sign of a mature male, already *baligh*, and already independent. Therefore the people of Aceh carry out a feast to be grateful for this process. Secondly, circumcision is part of the practice of the religion.

In Islam, circumcision has existed since Prophet Ibrahim and continues to be practiced by Prophet Muhammad. That is why every boy must be circumcised to preserve this religious teaching. Circumcision is a process of cutting or removing some or the penis' entire foreskin. Circumcision in boys is carried out at the age of 9-14 and in Aceh, on that age they had to have completed the Quran study. Circumcision is completed by an expert called *mudin* or *mudem*. A *mudin* will take care of a child's circumcision until the wound heals. Nowadays circumcision has been accomplished by doctors in the hospital or at home. Experts say circumcision benefits male reproductive health such as: it removes dirt where it is usually located inside the foreskin; reduces the risk of penile cancer; reduces urinary tract infections; and prevents sexually transmitted diseases such as HIV.

Wet dreams also can be considered as reproduction materials. A wet dream happens when a man ejaculates while asleep. Ejaculation means secreting semen (a viscous fluid that contains sperm) from the genital. It usually happens when one is dreaming about sex. This dream can happen even without having to touch the genital. Having experienced a wet dream means a sign that a child has grown up. His body has produced testosterone hormones containing sperm. This means that if there is sexual intercourse with a woman, she can become pregnant. Wet dreams are a normal thing experienced by men. Some teenage boys do not



experience it but that does not mean he is not healthy. If one experiences it, then when he wakes up he had to bathe himself by wetting the whole body, from head to toe.

Smoking is also included in the concept of reproduction. Smoking greatly affects sperm mortality. Smoking is one of those unnecessary things that is strangely adored by many people in the world. In Indonesia, the number of active smokers reaches 65 million people. This amount is comparable to twice the total population of Malaysia. A survey conducted by the Faculty of Economics, University of Indonesia, the number of active smokers in Indonesia reached 34.7% of the total population. What if the smoke released by a smoker is inhaled by others? That means it will negatively affect more people. For a man, one of the diseases caused by cigarettes is related to sexuality. The chemicals contained in the cigarette will enter the blood vessels and spread throughout the body that includes the blood vessels associated with the male reproductive organs which subsequently interfere with the functions of the sexual organs. Experts say there are at least four cigarette dangers associated with male reproductive organs. First, smoking will damage the sperm quality. The toxins in the cigarette will make the sperms defective and imperfect. Second, smoking decreases the sperm mortality. As a result, the number of sperms that can move toward the uterus is very small so the possibility of pregnancy will also be small. Third, male hormone testosterone levels will be reduced that leads to a low sex drive. Fourth, the chemicals that enter the blood vessels cause blood flow disruption to the male sexual organs that could lead to impotence.

Female reproductive organs can be linked to the hymen. Many men think that virgin blood is a must on the first intercourse. If a wife does not bleed on her first sexual intercourse, her husband might think that she is not a virgin, which implies the woman's morale standing. This woman will be assumed to must have had sexual intercourse out of wedlock. Scientifically, when the hymen tears, it does not always have to be followed by blood discharge. There are several reasons for this (1) Too

fragile, the hymen is already torn because it is too fragile. Some types of sports such as horse riding, martial arts, cycling and so on can be the cause of the tearing of the hymen, especially if the hymen is the fragile type. (2) Very elastic, due to its very elastic nature. This membrane is very flexible. In some cases this elasticity allows it not to tear at the first time of intercourse. In some cases, it is torn after the woman gave birth. (3) Small amount of blood so it is not easily seen by the eye. The hymen is so thin that when it is torn it does not release much blood. (4) Absence of hymen, there are women who simply do not have one since birth.

Female circumcision is also still being implemented in some areas, for example in Aceh. Female circumcision in Aceh culture is performed at the age of 1-3. On the day of the circumcision, girls will be wearing Acehnese traditional garb and a female *mudin* will carry out the task. Nowadays the midwives in the local *puskesmas* will carry out this task too. In Acehnese society, female circumcision is still alive today, in addition to religious orders, it is also done as a symbol of self-cleansing. In this process the clitoral part will be partially cut off. Modern science does not found a positive impact of this activity that even WHO condemns such practice.

Menstrual-related cultures can also be linked to the concept of reproduction. In general, in Indonesian society women who are on period follow these rules namely; (1) abstinence from sexual intercourse for married couples, not only it is forbidden in Islam, but it may also cause health issues. This is due to open blood vessels in the whole lining of the uterus will increase the risk of infection. (2) Not consuming soft drinks and caffeine. Menstruating women usually tend to feel bloated and sensitive, so consuming soda and caffeine can aggravate the stomach that leads to stomach cramp and bloating. (3) Not washing her hair and cut her nails. This does not have any detrimental effect on the body so it is not medically recommended.

There are several things to do during menstruation, namely: (1) Clean the female organs the right way, from front to back as well as drying it. (2) Do not forget to wash hands before and after washing the female organs to avoid



bacterial infections. (3) Routinely change the pads at least once every 3-4 hours or when there is already a lot of blood. (4) Do light exercise and drink plenty of water to avoid dehydration. (5) Get enough rest. (6) Eat nutritious foods and blood-boosting supplements to avoid anemia. (7) Avoid alcoholic beverages, caffeine and cigarettes. (8) Be sure to always use cotton underwear that absorbs sweat so that the female organs are not damp. (9) Have warm bath to relax and ease menstrual pain.

When it comes to gestational period (pregnancy), learning materials can be linked to local wisdom that exists in the society during pregnancy, such as the practice of bringing fruit (*ba boh kaye*) in Aceh society. In the first month of pregnancy, a very small lump on the wall of the uterus is formed. Most women on their first trimester tend to love sour, bitter, sweet fruits and also fruit salad. It is not uncommon that pregnant women crave fruits -unripe fruits, such as mangoes, oranges, rose apples, *rambutan*, guavas and other fruits. This tradition (*ba boh kaye*) to deliver various types of fruits to pregnant women will involve the father-in-law who will invite close relatives and neighbors to bring fruits to his daughter-in-law's house to fulfill her craves for fruit. Another practice called *mee bu*, is the delivery of a set of rice along with side dishes for the daughter-in-law who is 7 months pregnant. The dishes prepared for *mee buarebu kulah* (a baked pyramid-shaped rice wrapped with young banana leaves) and other side dishes consisting of fish, grilled chicken, beef, sticky rice, cakes and several different fruits. The specially made for the pregnant womendishes are grilled fish, beef, roasted chicken, duckcurry, eggs, *tuhee* sauce and fruits. *Ba boh kaye* and *mee bu* has very positive impacts on medical aspects, this is supported by Syari (2015) study which states that the growth and development of the child is determined by the condition of the fetus while in the womb and the mother's nutritional intake during pregnancy. Mothers with poor food intake during pregnancy will experience infant growth disorders that may result in Low Birth Weight (LBW). Infants death is an adverse effect of LBW.

In regard to menopause and Indonesian culture in general, menopause women tend to become more active in social life. Women will experience

menopause in which the ovum production and the menstrual cycle is stopped. After menopause, a woman will no longer be able to produce offspring. Meanwhile, healthy men generally will not experience menopause. That is, men can continue to produce sperm throughout life. Herein lies the different processes of reproduction in women and men, why does menopause only happen to women. One of the reasons is for women to be free to spend time with grandchildren or become more active in community activities. In Aceh society, women who have experienced menopause are assigned as community leaders such as being a *mudim* (a person who performs female circumcision), an *Imam* for the females, lead in the process of cleaning women's bodies, and become a midwife. Postmenopausal women in Aceh appear to be much more involved in social activities and become community leaders. On the other hand, productive aged women in Aceh cannot be involved in too many social activities because of their obligations to raise kids, do home chores, and others.

### 3. Students' Understanding Improvement

Students' understanding of the reproductive system concept was obtained from the data of before and after the treatment (pretest and post-test). Based on the pretest results, students' understanding on human reproduction was not adequate. Most students scored below 50. This is because these topics have not been taught for a long time or their initial understanding is limited to the basics taught in the middle school. Therefore it was not surprising that there were absolutely no students who were able to answer all the questions correctly. In contrast with students' post-test results, students' pretest highest score was only around 55-64, i.e. 17% of the students. 30% of students scored 45-54 equal to the number of students who scored 0-34 or the lowest score. Meanwhile, there were only 22% of students who scored 35-44. The learning process that relates the human reproduction system to the culture has been able to improve students' understanding of the topic. This can be seen from the following graph.





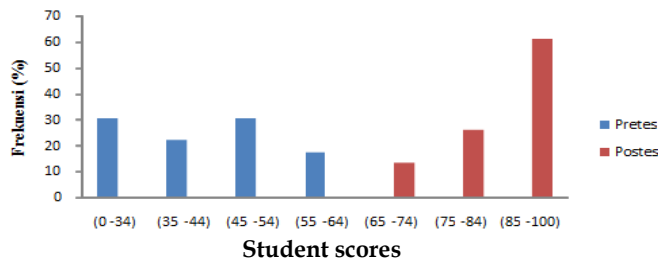


Figure 1. Pretest and Post-test results

The table showed that the highest score in the pretest was the lowest score in the post-test. The highest score on pretest was in the range of 55-64 and the frequency was 17%. At the same time, the lowest post-test result was in the range of 65-74 or 13% of the students and the highest was 85-100 or almost 60% of the participants. Thus it can be established that learning humans' reproductive system with a cultural approach can improve students' understanding in the materials provided by teachers. The test results based on the test scores level which were categorized as high, average and mean are shown below.

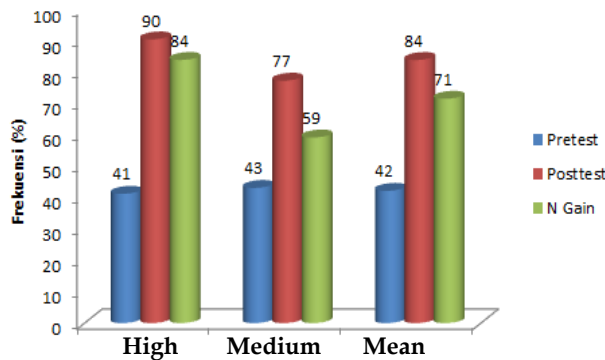


Figure 2. Test Results by Test Scores Level

Based on the chart above, a significant increase of learning outcomes after the treatment can be recognized. The boost ranges from 59% to 84%. In the high category, as many as 41% of students' pretest score was between 70-100 and 90% in the post-test results. These data showed the huge improvement obtained. Meanwhile in the average category, 77% of the



students in the post-test and 43% in the pretest scored 70-100. The test results showed no N-Gain value between 0-30 so the low group did not exist. The greatest increase of learning outcomes was included in the high category. Based on the data, the application of learning human reproductive system with cultural approach can improve students' understanding of the human reproductive system concept. In addition, students' attitude on this matter also improved as can be seen from the graph below.

The attitude scale test results based on high, average and low category can be seen in Figure 5 below.

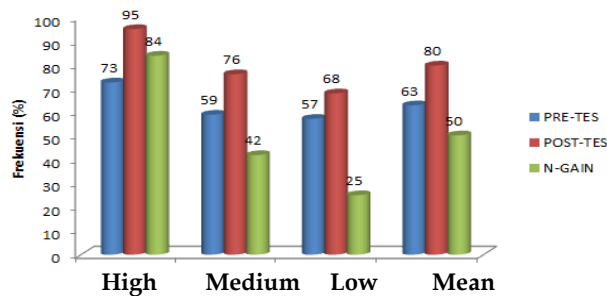


Figure 3. Attitude Test Results by High, Average and Low Category

Based on Figure 5 we can see an increase in students' standing on this matter. The increase ranges from 25% to 84%. In the high category, the pretest score was 73% and the post-test score boosted up to 95%. In the average category, the pretest score was 59% and the post-test score increased to 76% which indicated the change of students' attitude towards the myth of the reproductive system. In the low category, the pretest score was 57% and the post-test score increased to 68%. The mean value for pretest and post-test score respectively was 63% and 80%. The mean value signified students' standing on human reproductive system before and after the learning process.

#### D. Discussion

The application of learning with cultural approach can improve students' understanding of the concept of human reproduction system. This development is presumably due to the fact that learning with cultural approach enables students to actively learn and comprehend the material



and relate it to the cultural and real conditions in their lives. Human reproductive system teaching with cultural approach encourages students to bridge the theoretical knowledge they acquire in the classroom with their background knowledge, in order to alter their views and behaviors. By means of cultural approach, students are encouraged to be aware that maintaining reproductive health is a very important thing in maintaining overall health. This is in accordance with research conducted by Herman (2013), Nair (2012), Glasier (2006), Ali (2004), Lauszus (2010) and Hatami (2015) who found that every subject taught with cultural approach has significant influence to increase students' comprehension.

The introduction to reproductive organs has actually begun since elementary school through science lessons. However, such teaching tends to be more theoretical and rarely linked with social issues and local wisdom (Wellings, 2006; Leksono, 2015). Consequently, it leads to disconnect between teachings and the real conditions in adolescents' social life. They then gained inaccurate information about reproductive organs and sexuality is from inappropriate sources (Kamrani, 2011, Bersamin, 2007).

Many students shared their sexuality issues with friends or through social media that does not necessarily provide correct and credible information. Subsequently it resulted in unhealthy adolescent sexual behaviors (Elizabeth, 2008; Glasier, 2006; Nair, 2012). Therefore, a connection between human reproductive system materials and local culture can be a solution for this problem. It is evident from the students' post-test results that showed noteworthy improvement with active teaching and learning process as well as excited and enthusiastic students. The teachers relate the content of the subject to real-world situations and motivate students to connect their theoretical knowledge and its application in real life. Thus students will learn better when they can connect the content of academic materials to the context of their daily life.

## **E. Conclusion**

The implementation of human reproduction system with cultural approach in learning process encourages students to link the material



taught to the socio-cultural situation in the students' environment, with the intention that students play an active role in the learning process. The test results also show an improvement of students' understanding of the human reproductive system.

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