Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 10, Issue, 06, pp.70095-70098, June, 2018

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

ISSN: 0975-833X

RESEARCH ARTICLE

KISSING: NO STRANGER TO DANGER

***Touyz, L.Z.G., Touyz, S.J.J. and Nassani, L.M.**

BDS, MSc (Dent), M Dent (Perio and Oral Med), McGill University Faculty of Dentistry PQ Canada

ARTICLE INFO

Article History:
Received 18th March, 2018
Received in revised form
14th April, 2018
Accepted 20th May, 2018
Published online 28th June, 2018

Key words:
Kissing, Hepatitis, Infection,
Lips, Immunity, Mouth,
Phonation, Viruses,
HPV, Immunity,
Vaccination.

****Corresponding author***

ABSTRACT

Provenance: Kissing as a societal habit, is as ancient as recorded History. Kissing , long practiced in many cultures and regarded as a benign from of social communication, is not as innocent as most will believe. **Aim:** This article appraises types of kissing and possible disadvantages arising from ignorant sub-conscious spread of infection. **Discussion**: Progressive knowledge about viruses (mainly Hepatitis, Human Papilloma Viruses, and others), and their relation to infections and cancer, have coerced compelling re-assessment of social and personal kissing habits. **Concluding Remarks:** Kissing may be a dangerous practice for picking up infections and increased awareness of this should be publicized by all health care workers, particularly dentists.

Citation: Touyz, L.Z.G., Touyz, S.J.J. and Nassani, L.M., 2018. "Kissing: No stranger to danger", *International Journal of Current Research*, 10, (06), 70095-70098.

INTRODUCTION

The mouth as the most important organ of comprehensive communication is of prime concern for practicing dentists. Although the mouth houses all the teeth, besides communication, the oral cavity is the start of the aero-digestive tract, is used for speech articulation, facial expression, taste and smell, an extra prehensile organ, for oro-genital contact and *also for kissing*. For thousands of years*, kissing was venerated* by painters and sculptors, cherished by scribes, many people and exploited by poets and profligates, oscillating between the divine and profane. Poets wax wonderfully with lyrics, songs, sonnets and emotions originating from kissing as part of the armamentarium of love. Antique documents chronicle the practice, and certainly kissing was most practiced widely during Roman times.

Aim: This article *appraises kissing*, how it impacts Dentists, *reviews types of kissing*, and possible disadvantages arising from sub-conscious spread of infection. *Kissing diffused* through continental Europe as Latin-Euro culture spread from Italy and dominated for the next 1500 years. Kissing was highlighted as a central feature theme for a 17th Century Latin German tome '*Opus Polyhistoricum… de Osculis'*, by Martin von Kempe (Kirshenbaum, 2011). Kempe asserted that more than 20 kissing types exist, but for contemporary (2018) practical reasons, only six different defined types survive, and the Latin names still apply to most. (Touyz, 2011)

The types are

- Gesture
- Cultural
- Osculum
- Basium
- Saviolum
- Oro-genital

Gesture Kissing

Two types: (1) Air-Kissing: An approximation of cheeks to cheeks without contact; it's less than 55mms, but with air between participants. Warmth and smells (as pheromones) are detected. For hygiene Air Gesture Kissing is successful to avoid microbe transfer (Touyz, 2011) Hand-and-Foot kissing, also regarded as gesture kissing, allows lips to body contact, and reduces microbe transfer. Although an ancient custom, frequent manual touching (shaking hands and hand kissing) is a health hazard without hand hygiene. This is often cited as causing spread of antibiotic resistant infections (Methicillin Resistant Staphylococcus-MRS, & Clostridium difficile). Disinfecting hands with detergent soaps, gels or alcohol, is now common in hospitals.

Cultural Kissing: Involves facial contact other than lips. Well-known (Inuit Eskimo) is rubbing noses. Primitive Indonesian and African tribes allow frontal cranial contact for greeting and respect. See *Osculum, Basium and Saviolum below.*

Osculum: A closed-lip peck on the cheek. Combined with gesture kissing and repeated both sides of the face, between mutual recipients. Some cultures (Russians) repeat this more than once with greetings or farewells.

Basium: An approximation of lips without mouth opening. Slight pressure is maintained for seconds. Sustaining a Basium longer is satisfying for some.

Saviolum: An approximation of lips, with mouth opening and tongue-insertion into a partners' mouth. Saviolum is known in Anglo-Saxon cultures as 'French kissing'. Each mutually alternates inserting the tongue into the recipients' mouth while maintaining lip-to-lip contact. It's considered the most passionate kiss, and derogatorily described as "a Tonsil-Washer". This type of wet kissing involves an unwitting exchange of bodily fluids as saliva. *Oro-genital contact* considered a *Saviolum* kiss. While this commonly occurs in heterosexuals, it's also frequently practiced between 'gay' couples. Discussions on these oro-genital activities may be found in appropriate texts on sexual behavior. Lubricating fluids, and sperm may be introduced into the mouth with this practice (Touyz, 2011; Touyz, 2009).

Psychological and other physiological reactions to kissing: Kissing releases a wide range of reactions, from evoking positive pleasurable psychological, emotional, physical and/or physiological responses, to neural and cardiovascular reflexes. In healthy people one or more of these may be experienced, during or after a kiss.

Physiological and physical reflexes to Kissing: In the brain, the centrally placed hypothalamus releases psycho-active chemo-stimulants like nor-adrenaline, dopamine, endorphins and oxytocin. Heart rate and blood pressure increases; glycogen reserves are released and blood glucose rises and falls. *Freed pheromones from kissing* stimulate the autonomic nervous system, with catecholamine releases (dopamine, adrenaline and nor-adrenalin and others), reinforce tactile and thermal receptors, evoke vaso-dilation, and vaso-congestive tumescence of the lips, breasts, nipples and genitalia. The rush of blood into helicine arteries and vascular channels is what engorges the genitalia causing erections in the male penis and engorgement of the female clitoris (Touyz, 2009).

Emotional reflexes to Kissing: The kiss-combination floods emotional, pleasurable and stress reactions, but which, when prolonged, are often exhausting. In 1999 Dror Orpaz and Karmit Tsubera ,a couple in Israel, kissed for 30h45min. They set a Guinness World Record for the longest kiss recorded, but had to be treated for exhaustion afterwards when fatigue set in. Induced ephemeral emotions are usually pleasurable, but emotional revulsions are also possible, as when forced to kiss another who is loathed (Masters, 1966).

Reality check for the Dentist: The lips and mouth manifests a wide variety of pathology, from both local and systemic diseases (Gonsalves, 2007). Many may be sexually transmitted diseases (Gonsalves, 2007). Many viruses and/or microbes are transmitted through kissing, such as Epstein-Barr, Herpes, Human Papilloma, HIV, Hepadna and Meningococcus (Contreras, 2000; Nair, 2005; El-Lofty Samir, 2016; Crawford, 2006; Partridge, 2006; Hillermann, 2006; Jauora, 2007; Baron *et al*., 2000; Schattenfroh, 1997; Journal Canadian dental Association, 1997; MacLennan *et al*., 2006; Zacks *et al*., 2006; Strauss *et al*., 2003). Severe aggressive periodontitis is consistently associated with high titers of Human Herpes Virus antibodies (Contreras *et al*., 2000). Allergies of the lips from cosmetics are also possible (Zacks *et al*., 2006), and sun-protection is important against conditioning against development of neoplasia (Pogoda, 1996)*, but v*iral orally associated conditions are also prevalent (Gonsalves, 2007; Nair, 2005). Change in oro-sexual mores obtained after the introduction of the contraceptive pill (1955) and the 1960's sex revolution witnessed a huge increase in oro-genital practices as fellatio and cunnilingus (Touyz, 2016). Most vaccines are successful at imparting life-long immunity. Consequently the earlier the vaccine is given, the longer the protection and the stronger the likelihood of preventing viral morbidity. Among the many *viruses transmitted by kissing are the Human Papilloma Virus (HPV) and the Hepatitis viruses (Hep-V), both of which by frequency of prevalence, induce most of the serious global morbidity and mortality.* These two (HPV and Hep-V) are discussed below (Jensen, 1982; Norkin, 2010; Touyz, 2013; Forman *et al*., 2012; Touyz, 2016; Touyz, 2013; Touyz, 2014; Simmonds *et al*., 1993; Perz, 2006; Meffre *et al*., 2010; Feinstone, 1975; Cawford, 1975; Mahboobi *et al*., 2010; National Institue of Health, 2002; Lavanchy, 2005; Wienbaum, 2008; Centers for Disease Control and Prevention, 2006; Goldstein *et al*., 2005; Jones, 2001; Li *et al*., 2013). *Other viruses like HIV, EBV and Herpes, although also transmissible through kissing activity, are discussed elsewhere in specialized texts.*

Protection against viral infections of HPV and Hepatitis: *The Human Papilloma Virus (HPV)* was deemed to be a benign virus with few variants (Jensen, 1982; Norkin, 2010; Touyz, 2013; Forman *et al*., 2012). Subsequently more research revealed over 150 varieties of serologically identified HPV some of which are benign, but many of which are oncogenic by modifying mutant genes (Forman *et al*., 2012). Vaccines against these genes have been developed. Gardasil® and Cervarix®, were initially introduced and recommended for young girls before their sexual debut (Touyz, 2016). A new broader antigen based HPV vaccine has been developed; it is called the V503 by Merck. Merck (MRK), known as MSD outside the United States and Canada (Touyz, 2013). Close social contact which includes frequent hugging, embracing , non-sexual and sexual activity all facilitate transmission and spread of HPV. Some religious authorities of organized religion object to embracing HPV vaccines, claiming it's use will lead to promiscuity (Touyz, 2014). But HPV spread is transmitted by close social contact and without any genital contact, and *also through frequent kisses between people, across the globe, and at all ages. Commonly*, kissing maybe part of these *behaviors* and unwittingly people transmit HPV (Touyz, 2013). The use of vaccines for pan-public protection should target boys and girls to maximize its benefit (Touyz, 2016; Touyz, 2013; Touyz, 2014). The *Hepatitis Viruses (Hep-V)* have a variety of genotypes: There are type Hep-A, Hep-B, Hep-C and Hep-D. Hep-C alone has six major genotypes and a series of subtypes. (Simmonds, 1993). All the variants can produce morbidity and mortality by disrupting healthy liver function (Mahboobi, 2010; National Institue of Health, 2002).

Hepatitis viruses survive in bodily fluids, tissues and cells and are easily and commonly transmitted through droplet spread in sneezes, *saliva through kissing,* sexual activity, traces of blood and by blood used for transfusions which have been unwittingly donated by infected people (Lavanchy, 2005; Wienbaum *et al*., 2008). The survival of Hepatitis viruses in blood products like platelets,, tissues, body fluids and liquid residues are so successful, that eliminating tests for hepatitis viruses form the ultimate criterion for sterilization processes (Wienbaum *et al*., 2008; Centers for Disease Control and Prevention, 2006). Prophylaxis against hepatitis viruses is achieved mainly through vaccinations (Perz *et al*., 2006; Meffre *et al*., 2010; Feinstone, 1975; Cawford, 1975; Mahboobi *et al*., 2010; National Institue of Health, 2002; Lavanchy, 2005; Wienbaum, 2008; Centers for Disease Control and Prevention, 2006; Goldstein *et al*., 2005). People infected with a hepatitis virus may disperse the virions unwittingly. Travelers who visit places where Hepatitis is endemic, like the Carribean Islands, Many African and Middle- East and Far-eastern countries, are well advised to be inoculated against Hepatitis. There are various vaccinations ubiquitously available like Engerix®,, Twinrix ®,and Havrix®, which are successful in preventing hepatitis viral infections (Jones, 2001; Li *et al*., 2013).

Concluding remarks: Prophylaxis against viruses remains among the most desirable strategies against contracting virus through kissing. For those cancers when the cause is defined, prevention by induced immunity is most successful. *Vaccination is advised for all young boys and girls before their sexual debut, when all forms of kissing become more prevalent*. . The vaccines procure immunity against most varieties of HPV and Hepatitis, and consequent development of oro-pharyngeal, uro-genital or hepatogenic cancers are significantly reduced (Goldstein *et al*., 2005; Jones *et al*., 2001; Li *et al*., 2013; Syrjänen, 2010; Liu *et al*., 2013). For dentists and all health care workers,, universal barrier protocols and ongoing quests for highest levels of disinfection possible in operatories and clinics should ensure they are not targets for transmission or receipt of any infectious agents. HPV and hepatitis vaccinations should be considered essential for all individuals and be part of the battery of inoculations received in the first decade of life (Kramer *et al*., 2009). *Kissing as a universal habit among lovers, families and society globally will persis*t. Sublime reactions become profane when unwittingly strangers introduce infective agents. *When indulging in any form of kissing stimuli, it would be prudent to reserve kissing for life-partners* Dentists and all health care workers should be inoculated against HPV an HPV, and should always take care in practice but also socially. *Kissing is no stranger to danger.*

Author's declaration: the author has no conflict of interests to declare.

Ethics: No Internal Review Board (IRB) certificate was needed for this report.

Finance: This a spontaneous article by the author. No funding was solicited.

Abbreviations used in this paper:

EBV= Ebstein-Barr Virus;
HPV =Human Papilloma Virus;
Hep- V=Hepatitis virus**;**
MRS= Methicillin resistant Staphylococcus: LGBTQ=Lesbian Gay Bisexual Transsexual Queer Society.

REFERENCES

Baron S, Poast J, Richardson CJ, Nguyen D, Cloyd M. 2000. Oral transmission of human immunodeficiency virus by infected seminal fluid and milk: a novel mechanism. *J Infect Dis.,* Feb;181(2):498-504.

Cawford J 1975. New light on the transmissibility of viral hepatitis in dental practice and its control. Jnl Am Dent Ass 91(4):829-835. (PMID: 1057624) DOI**:** 10.14219/ jada.archive.1975.0447

Centers for Disease Control and Prevention. A comprehensive immunization strategy to eliminate transmission of hepatitis B virus infection in the United States. Recommendations of the Advisory Committee on Immunization Practices (ACIP). Part II: Immunization of adults. MMWR. 2006;55:1–33.

Contreras A, Slots J. 2000. Herpes Viruses & Perio disease. *J Perio Res.,* 35;3-16.

Crawford DH, Macsween KF, Higgins CD, Thomas R, McAulay K, Williams H, Harrison N, Reid S, Conacher M, Douglas J, Swerdlow AJ. 2006. A cohort study among university students: identification of risk factors for Epstein-Barr virus sero-conversion and infectious mononucleosis. Clin Infect Dis. Aug 1;43(3):276-82. Epub 2006 Jun 20. *Erratum in: Clin Infect Dis*., 2006 Sep 15;43(6):805.

Donovan B. 2004. Sexually Transmissible Infections (other than HIV). The Lancet;. 363.545-56.

El-Lofty Samir K, Patil S. 2006. Human Papilloma virus-related oro-pharyngeal non-keratizing Squamous Cell Carcinoma: Characterization of a distinct phenotype. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod,* 102; 339-45.

Feinstone SM, Kapikian AZ, Purcell TH *et al*. 1975. Transfusion-associated Hepatitis not due to Viral Hepatitis Type-A or B. NEngl Jnl Med; 292:767-770.

Forman D, de Martel C, Lacey CJ, Soerjomataram I, Lortet-Tieulent J, Bruni L. *et al*. 2012. Global burden of human papillomavirus and related diseases.. Source Section of Cancer Information, International Agency for Research on Cancer, Lyon, Franc**e.** 2012 Nov 20;30 Suppl 5:F12-23. doi: 10.1016/**j .** Vaccine.2012.07.055. formand@iarc.**fr.**

Goldstein ST, Zhou F, Hadler SC, Bell BP, Mast EE, Margolis HS. 2005. A mathematical model to estimate global hepatitis B disease burden and vaccination impact. Int J Epidemiol. 2005; 34:1329–1339.

Gonsalves WC, Chi AC, Neville BW. 2007. Common oral lesions: Part I. Superficial mucosal lesions. Am Fam Physician. Feb 15; 75(4):501-7. Review

Hillermann P, Wang X. 2006. Integration of HPV-16 and HPV-18 DNA in vulvular intra-epithelial neoplasia. *Gynecol Oncol.,* 100:276-282.

Jauora EA, Leodolter S, Hernandez-Avila M, Wheeler C M *et al*. 2007. Efficacy of a quadrivalent human papillomavirus (types 6,11, 16, 18) L1 virus-like-particle vaccine against high grade vulval and vaginal lesions: a combined analysis of the randomized clinical trials. Lancet. 369:1693-1702.

Jensen AB, Link CC, Lancaster WD 1982. In: Viral infections in Oral Medicine. Hooks JJ, Jordan GW eds. Section II. Papilliomavirus Etiology of oral Cavity papillomas. 132-

146. Elsevier**.** (Indicates HPV regarded as benign, but demands more research)

Jones RW, Blatter M, Abraham B *et al*. 2001. A prospective, randomized, comparative US trial of a combination hepatitis A and B vaccine (Twinrix®) with corresponding monovalent vaccines (Havrix® and Engerix-B®) in adults. Vaccine .19:32:4710-4719.

Journal Canadian dental Association. 1997. Kissing reported as possible cause of HIV transmission.J Can Dent Assoc. Sep;63(8):603. PMID: 9322386 (PubMed - indexed for MEDLINE.

Kirshenbaum S. 2011. The Science of Kissing. Grand Central Publishing, New York, NY. Quoted as Stories of the Heart. A Brief History of Kissing. National Post. 2011. Feb 14, 2011. p A12.

Kramer ES., Hofmann C., Smith PG. *et al*. 2009. Response to Hepatitis A and B vaccine alone or in combination in Patients with chronic hepatitis C virus and advanced fibrosis. *Digestive Diseases and sciences*. 54:9: 2016-20125.

Lavanchy D. 2005. Worldwide epidemiology of HBV infection, disease burden and vaccine prevention. *Jnl Clin Virology*. 34:1:S1-S3.

Li J, Huang R, Schmidt JE, Qiao YL. 2013. Epidemiological Features of Human Papillomavirus (HPV) Infection among Women Living in Mainland China. Asian Pac J Cancer Prev. 14(7):4015-23. West China School of Public Health, No.4 West China Teaching Hospital, Sichuan University, Chengdu, China E-mail : qiaoy@cicams.ac.cn.

Liu XY, Feng AH, Cui YM, Tobe RG. 2013. Prevention of human papillomavirus (HPV) infection and cervical cancer in China: How does HPV vaccination bring about benefits to Chinese women? *Biosci Trends*. 2013 Aug;7(4):159-67

MacLennan J, Kafatos G, Neal K, Andrews N, Cameron JC, Roberts R, Evans MR, Cann K, Baxter DN, Maiden MC, Stuart JM. 2006. Social behaviour and meningococcal carriage in British teenagers. *Emerg Infect Dis.,* Jun;12(6):950-7.

Mahboobi N, Agha-Hosseini F, Mahboobi N *et al* 2010. Hepatitis B virus infection in dentistry: a forgotten subject. https://doi.org/10.1111/j.1365-2893.2010.01284.x

Masters WH and Johnson VE. 1966. In: Human Sexual Response. First Edition.. Ch 3:27-37 and Ch11:171-176. J&A Churchill, London UK.

Meffre C, Le Strat Y, Delarocque-Astagneau E, *et al*. 2010. Jnl Med virolo.. 82:4:546-555.) Prevalence of hepatitis B and hepatitis C virus infections in France in 2004: Social factors are important after adjusting for known risk factors.

Nair S & Pillay MR. 2005. Human Papilloma Virus & disease Mechanisms: relevance to oral and cervical cancers. Oral Dis. Nov 11(6):350-9.

National Institue of Health 2002. Updated US public health service guidelines for the management of occupational exposures to HBV, HCV and HIV and recommendations forpost exposure prophylaxis.US public Health Service. MMWR-recomm Rep. 2001 Jun29: 50(RR-11): 1-52. PMID:11442229

Norkin LC. 2010. In: Virology: Molecular biology and pathogenesis. Ch 16. Papillomaviruses. 2010. 419-443.American Society for Microbiology Press. Washington DCLajer CB, von Buchwald C. The role of human papillomavirus in head and neck cancer. APMIS 201; 2010; 118:510-519.

Partridge JM, Koutsky LA. 2006. Genital human papilloma virus infection in Men. *Lancet Infect Dis.,* 6: 21-31.

Perz JF., Armstrong GL., Farrington LA., 2006. The contributions of Hapatitis B virus and Hepatitis c virus infections to cirrhosis and primary liver cancer. Jnl of Hepatology.

Pogoda JM, Preston-Martin S. 1996. Solar radiation, lip protection, and lip cancer risk in Los Angeles County women (California, United States). *Cancer Causes Control.* Jul;7(4):458-63.

Schattenfroh S. 1997. HIV--transmission by kissing. Dtsch Med Wochenschr. Sep 26;122(39):A8. German. PMID: 9378032 (PubMed - indexed for MEDLINE).

Simmonds P, Holmes EC Cha TA, Chan SW *et al*. 1993. Classification of hepatitis-C virus into six major genotypes and a series of subtypes by phylogenetic analysis of the NS-5 region. Jnl General Virology. 74: 2391-2399.

Strauss RM, Orton DI. 2003. Allergic contact cheilitis in the United Kingdom: a retrospective study. *Am J Contact Dermat.,* Jun;14(2):75-7.

Syrjänen S. 2010. Current concepts on human papilloma virus infections in children. APMIS. 118:494-509.16.

Touyz LZG 2011. Kissing: sublime or profane, sublime or insane. Probe and Mirror. 39:3-4.

Touyz LZG 2014. Kissing and HPV: Honest popular visions, the human papilloma virus, and cancers. Current Oncology, e1515-1517. Zhao FH, Lewkowitz AK, Hu SY, Chen F, Li LY, Zhang QM, *et al* (2012) Prevalence of human papillomavirus and cervical intraepithelial neoplasia in China: a pooled analysis of 17 population-based studies. Int J Cancer. 2012 Dec 15;131(12):2929-38. doi: 10.1002/ijc.27571. Epub 2012 Apr 24.

Touyz LZG. Lips, 2009. Kissing and Oral Implications. Jnl Aesthetic Dent. UK. Sept. (3) 29-34.

Touyz SJJ, TOUYZ LZG 2013. The Kiss of death: HPV rejected by religion. Current Oncology. Feb: 20; 1: E 52-53.

Touyz, LZG. 2013. Human Papilloma Virus (HPV)-A Biological and Clinical Appraisal: 2013. Science Postprint 1(1): e00001. doi:10.14340/spp.2013.10R0002

Touyz, LZG. 2016. HPV Vaccines; Still needed. Current Oncology (2016) 23,4;e330-331.

Wienbaum CM, Williams I, Mast EE, *et al*. 2008. Recommendations for identification and public health management of persons with chronic Hepatitis B virus infection. Management of Hepatitis B; an NiH Consensus development Congress. Oct 2008 Bethesda Maryland USA. p25-30.NIH,CDIC &FDA. Abstract

Zacks S, Beavers K, Theodore D, Dougherty K, Batey B, Shumaker J, Galanko J, Shrestha R, Fried MW. 2006. Social stigmatization and hepatitis C virus infection. *J Clin Gastroenterol.* Mar 40(3):220-4.

****