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ABOUT NOISE IN RELIGIOUS CONTEXT: RELIGIOUS COMMUNICATION PERSPECTIVE

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Abstract The World Health Organization has confirmed the severe health consequences of noise pollution. Paradoxically, conflicts and regulations seem more common not where noise pollution reaches the worse levels. As a new "trend" in health related issues, it seems to be more seriously taken in the West, arguably a great deal quieter than less developed countries. In the latter, the battle has been picked up by the more affluent or middle income segments of the population. But when it comes to limit noisy religious signals, they often meet strong resistance, specially in interfaith contexts, but also in Indonesia, among members of the same religion. In order to overcome cultural and political factors, they are sometimes turning to a public health narrative. It implies a shift in sensory and sleeping patterns, not unlike pre-industrial Europe, but relatively new for these regions.

Keywords: Public health, noise pollution, religious communication, anthropology of senses, public sphere.

Abstrak *Organisasi Kesehatan Dunia (WHO) telah mengonfirmasi konsekuensi kesehatan yang parah dari polusi suara. Paradoksnya, konflik dan peraturan tampak lebih umum bukan di mana polusi suara mencapai tingkat yang lebih buruk. Sebagai "tren" baru dalam isu-isu yang terkait dengan kesehatan, tampaknya lebih serius diambil di Barat, bisa dibilang jauh lebih tenang daripada negara-negara kurang berkembang. Pada bagian yang terakhir, pertempuran telah diambil oleh segmen populasi yang lebih makmur atau menengah. Tetapi ketika datang untuk membatasi sinyal agama yang berisik, mereka sering menghadapi perlawanan yang kuat, khususnya dalam konteks antar agama, tetapi juga di Indonesia, di antara anggota agama yang sama. Untuk mengatasi faktor budaya dan politik, mereka terkadang beralih ke narasi kesehatan masyarakat. Ini menyiratkan pergeseran pola sensorik dan tidur, tidak seperti di Eropa pra-industri, tetapi relatif baru dalam konteks ini.*

Kata kunci: *Kesehatan masyarakat, polusi suara, komunikasi keagamaan, antropologi indera, ruang publik.*

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INTRODUCTION

While in many cultures "silence is golden", complete silence in everyday life would be very distressing. Sound is a sign of vitality or a time reminder: from the gentle swash of a broom sweeping the street early morning, or the chanting of children in a nearby school, to the strident whistle of the *kue putu ayu* seller. As they rhythm the day, they turn into necessities, allies against boredom or anonymity. Since the late 1970's the World Soundscape Project has enrolled anthropologists to measure these innumerable elements forming the sonic landscapes from all over the world. It aims to preserve an intangible cultural heritage, but also to expose the way sounds are understood and perceived (Schafer, 1977; Rodaway, 1994). Noise, though, is defined as an unpleasant, loud, unexpected or unwanted sound, still in line with its old French root meaning commotion, quarrel, dispute. A social construct, based on sensory perceptions, its aesthetics, like those of vision or smell, are used to differentiate "us" from "the Other" and as such, varies among individuals but also cultures. However, in this part of the article, we will refer to the word "noise" as a public health concept, generally divided between occupational (work related) and environmental. The expression "noise nuisance" generally indicates a more localized event, between neighbors for instance, while "noise pollution" signals a larger phenomenon, outside an individual's reach.

Noise can kill. A major World Health Organization publication, drawn from a meta analysis of 172 epidemiological surveys, linked cardiovascular diseases and other severe health outcomes to environmental noise. The authors made the point that risks are stronger with noise exposure at night. In the Western part of Europe, at least one million healthy life years are lost every year from excessive noise exposure. Besides daly deficit due to hearing loss, cognitive impairment of children and heart disease, the highest figure was caused by sleep disturbance (WHO, 2011: v). Except for a census of noise perceptions in the world (NASA, 2001) there are no similar data yet for the rest of Europe, Asia, Africa and the Americas. But review from a few smaller studies suggests that it is probably worse (Mbuligwe, 2004: 830).

DISCUSSION

Definitions and Reactions To Noise

1. Categories, Measures and Effects

Environmental noise stressors most frequently analyzed, including in Indonesia, are: airports (Suma, 1991), heavy traffic such as highways and railroads (Vanadila, 2012: 12) military grounds or construction sites. In many developing countries with no zoning systems and an important informal industrial sector, sources of noise can be found deep inside residential areas (Mbuligwe, 2004: 830). When factories or workshopsare situated close or next to habitations, it blurs the boundaries between occupational and neighborhood-based nuisance (discotheques, concert halls, markets, religious or political settings) making it more difficult to regulate.

The first step usually taken to legislate on noise pollution, is to try to get an objective idea of the problem. Decibels measurements have been adopted internationally and in Indonesia the Ministry of Environment published Noise Level Standards guidelines such as these:

Table 1. Noise Level Standards

Environmental Activities	Noise Level dB(A)
Housing and settlement	55
Commercial and service	70
Office and commercial	65
Green open space	50
Industry	70
Government and public facilities	60
Recreation	70
Airport	*)
Railway station	*)
Port	70
Activity Environment	
Cultural Preservation	60
Hospital or the like	55
School or the like	55
Religious worship place or the like	55

***) Adapted to relevant regulation of Ministry of Transportation.**

Normal conversation between three people usually ranges between 60 and 65decibels. Health risk starts at 80 decibels, the maximum accepted by most labor legislations. In Germany, though, the noise standard for mentally stressful tasks is set at 55 decibels, much lower than the Indonesian limit. At 120 dB, there is pain and danger. The sound of an airplane taking off is 160 decibels. But these values cannot be technically assessed in daily life by lay individuals (although decibel counters can be added as an app on mobile phones). They also carry different weight according to time, location, culture and even gender. Noise perception differs during day and night time. Noise is amplified at night, so much so that sleep disturbance is one of the most common complaints raised by noise-exposed populations. The World Health Organization (2011: 55) assures that it can have a major impact on health and quality of life and recommends a maximum exposure of 40 dB for a restful night: it is equivalent to a mosquito's buzz. As the chart above states, sound from religious institutions should remain under 56 decibels, including at night time. It seems that most places of worshipin Indonesia and many other countries either are not aware of these recommendations, or cannot comply with them.The early morning call to prayer, between 4 and 5 am, boomed by dozens of different loud speakers, can reach painful levels.

2. Night Time Exposure and Sleep Deprivation

According to a survey in eight Asian and African nations, around 150 million adults in the developing worldsuffer from sleep disorders. At its highest rate, more than a third of the subjectsexamined for this research were affected. The investigation was performed in rural settings, including Purworejo Regency in Java, and the authors cautioned that these figures could be higher for populations in urban areas.While the study,overlooking etiologies, did not consider living conditions and acoustic factors among the potentialcauses of poor sleep, it concluded that itshigh prevalence in low-income countries represents a significant public health issue (Stranges, 2012: 1173-1181).Regular sleep deprivation, or “sleep debt”,has been linked to hypertension and related fatal heart conditions, diabetes and obesity, not mentioning irritability, memory lapses, anxiety and depression (two strong correlates in Stranges study) or even mental disorders (Harvard Heart Letter, 2004). Totaling depriving prisoners of sleep is a torture method and as such was condemned by the European Court of Human Rights. This is how Begin (1979) described it:

> “In the head of the interrogated prisoner, a haze begins to form. His spirit is wearied to death, his legs are unsteady, and he has one sole desire: to sleep. Anyone who has experienced this […] knows that not even hunger and thirst are comparable with it.”

But moderate sleep deprivation might be as detrimental: people who slept six hours a night, for ten days, had similar bad results to simple tests as those who were completely sleep deprived for one day (Walker, 2009). Avery often quoted paper by the Harvard Medical School asserts that sleep deprivation has an effect on the brain’s amygdala and causes some individuals“to become incapable of putting an emotional event into the proper perspective” (Yoo and al., 2007). As a consequence, they cannot give a controlled, appropriate response to non ordinary situations and over react. Besides drowsy drivers unable to make rapid decisions and putting their passengers at risk, sleep debt explains the highly emotional conduct of individuals interrupted during their rest. It can go from “annoyance” to unethical behavior at work (Christian and Ellis 2011: 913-934), or even to homicidal anger. Examples abound all over the world, of sometimes fatal outbursts: ordinary citizen kill their unruly neighbors in a rage, out of exasperation after weeks of poor sleep. There again, in a different way, noise can kill.

3. Reactions To Noise Exposure

Noise, extremely early in the day or too late at night, is the number one complaint North American tenants have about their neighborhood and reason to move away (Hageman, 2012). In Australia, “the largest proportion of violent behavior in contemporary society results from personal disputes between family members, neighbors and

workmates. Underlying causes may be […] noise pollution" (Hazlehurst, 1989).

In Vancouver, Canada, a man who played loud music at four in the morning, in the parking of his residence, was killed by his neighbor (Bowder, 2012). Two neighbors died after a dispute over a noisy motorcycle in Texas (Visordown News, 2013). In France, a man stabbed to death his neighbor who refused to turn down the volume of his radio (France Bleue Poitou, 2013). Arowdy birthday party in Sete, France, resulted in six neighbors being shot, two of whomdid not survive (Malric, 2012). In Switzerland, an eighty years old distinguished scientist was judged for killing a young man who had been partying all night under his windows (Focas, 2013).These are just a few examples from dozens retrieved on search engine results pages (SERPs). None of the assailants had a criminal record and some of them committed suicide right after their acts. In two cases, anonymous bloggers commenting these tragediesconfessed having felt homicidal towards noisy neighbors as well (Huffitong Post, 2009). They were ordinary, law-abiding citizens and had apparently complained many times before finally resorting to extreme violence in an emotional outburst.

Because these incidents are more often exposed in the occidental media (and easily located on English SERPs), or owing to some specifics like the guns legislation in the United States, one might get the impression that such vehement occurrences can happen only in the western world. But in Thailand, in December 2012, a dispute between neighbors over a creaky gate ended with one killing the other (Bangkok Post, 2012). In Cambodia as well, noise in the vicinity can trigger, after a long period of silent acceptation, an uncontrollable rage (Luco, 2002: 108).Last year a Brazilian film "Neighborhood Noises" tackled the same issues (Wikipedia, 2014 f). In China recently, *guangchangwu*, a type of fitness dancing popular among older women, has ben a source of tension in many cities (Chin, 2014). Press reports cite residents throwingfeces "bombs", launching mastiff dogs or firing warning shots to groups playing loud music in the apartment building courtyard (Fauna, 2014). Stillthere is a sense that generally the threshold of noise tolerance is higher in middle or lower income countries than in industrialized nations. In Quebec, in the U. K. or in the U. S., for someorganizations that seek to bring noise pollution issues to the attention of the public and elected officials, sleep disturbance starts under the 30 dB maximum recommended by the World Health Organization. Meanwhile, it is not uncommon to see images of an Asian pedicab or an African taxi driver enjoying a nap in the middle of a rowdy market, apparently unaware of the chaos around them. How can it be explained ?

4. Subjective Perceptions of Noise

Psychoacoustics, the study of psychological perceptions of noise, distinguishes, among other features, between pitch, (high or low, calculated in *hertz*) and loudness, measured, as mentioned earlier, in decibels. Pitch can modify the reception: lower sounds are more intensely sensed. Besides, it is experienced differently as people age and according to their gender or even their economic status:olderfolks and women have a higher noise sensitivity (Friedman, 2007). They may react more strongly to some sounds, have a slower adaptation capability, and even feel endangered (Ramirez, 2004: 7). Pecqueux (2012)noticed that sometimes, even if the number of *decibels* is within a safe limit, it is the repetition of the same monotonous sound, that causes pain (the drip of a leaking faucet; the constant whapping of a Chihuahua, the clack of shutters in the wind, or the never ending ice cream truck music).Other factors, such as judgments of normality applied to the sound, or the relational context (in the case of neighborhood noise), also influence a feeling of annoyance. For instance, the strange low frequency "humming in the sky", recorded from time to time all over the world, disturbs people tremendously because it cannot be explained (Thornhill, 2012).

Of course, everyday evidence also speaks of adjustment: subjective habituation to noise is well documented. This phenomenon, also named "negative adaptation" or "secondary equilibrium",

happens when an external disturbance is repeated long enough to change the body's physiology. Humphrey (1999: 140) was the first to note how inhabitants near the Niagara falls report not hearing them anymore, as the thunderous roar "finally becomes part of the constant environment to thosethat live near by". Sirens and busy traffic noises could be soothing for the rickshaw drivers enjoying a nap at a busy intersection. But pragmatics as well as scientific experiments converge to attest the difference between short- and long-term habituation to stress: if exposure to the stimulus is interrupted, the organism will have to start the accommodation process all over again. It explains why country people arriving in large cities or slums complain about the tumult , while in their village they do not notice the constant chanting of roosters in the wee hours of the night. And how, after a month in the backwoods, or at the beach, you cannot bear the passing of trains to which you had got used, right under your windows.

Reaction to an uncalled-for noise starts with "annoyance", a term describing an unpleasant mental state, a wide range of negative emotions. "Any unwanted sound, soft or loud, sweet or nasty, […] takes over not only your acoustic space, but your mind space as well. Acoustic intrusions reduce your freedom of thought" (Davies, 1999). It can escalate to more extreme levels as the problem goes unresolved. In the end, it would eventually be perceived as a death threat. Triggering the famous adrenaline based "fight or flight" reaction, the aggressive power of sound can be such that it has been employed as a weapon. Besides the legendary tale of Jericho's trumpets, there are several examples of loud noise or strident music defeating opponents: "When the United States invaded Panama in December 1989, President Noriega took refuge in the Holy See's embassy which was immediately surrounded by U.S. troops. After being continually bombarded by hard rock music for several days, Noriega surrendered" (Wikipedia, 2014 c). In 1993, the FBI resorted to sleep deprivation during the siege of the Branch Davidians cult, in Texas: they achieved it with all-night broadcasts of jet planes, pop music, chanting and the screams of animals being slaughtered recordings (Wikipedia, 2014 d).

In the previous examples of ordinary people killing their neighbors over a noise dispute, it happened mostly at night, late evening or early morning. Noise at night seems much more disruptive. And almost all of these fatal reactions also happened because it was endured at home: apparently, noise in the street, or in a public place, or even at work, is felt differently, as less dangerous or unbearable. More than half of French citizens living in large cities complain of noise pollution inside their habitation (Martin-Houssart 2002) and Chinese fed up with *guangchangwu* would snarl: "At one point, they told me to wear ear plugs. I'm supposed to wear ear plugs inside my own house? Seriously?" (Chin, 2014: 1). This is where the notion of proxemics becomes helpful.

5. Auditory Proxemics

Proxemics describe how we use space in different categories of non-verbal communication. All senses (eye contact, smell, touch and sound) play a part in proxemics, a word implying a closeness, a proximity to one's body and it's surroundings. Hall(1976)gave the first account of what distinguishes "personal space" (the immediate zone around someone,) from "territory". (the area which a person may "lay claim to" and defend against others). Personal space differs with each culture: most North Americans, to feel comfortable, need more or less a distance of one meter away from the new person they speak to. Closer would be reserved for family members or an intimate contact. Meanwhile, in South America, the Mediterranean (Spain, Italy) or the Arab World, a conversation with a stranger could be held at thirty centimeters or less, and touching or smelling the interlocutor is not inhibited.

Since all senses contribute to non verbal communication, the loudness or the pitch of a voice can convey a degree of intimacy, or create a sense of emotional distance. In a warm and impulsive culture (Brazil, Mexico, Italy), a conversation will be more animated, louder, with greater pitch variations than in a non-confrontational

(Vietnam, China, Japan) or a so-called "cool and decisive" (Germany, Norway, U.S.A.) culture. For Italians or Southern French, a diner conversation in a Scandinavian family would sound extremely reserved and boring. And when a Dutch tourist visits Portugal, he may get the impression that people are shouting at each other, always on the verge of a fight. In Indonesia, the same could be said of a Javanese encounter with a Batak (Muryantina, 2014).

Sound has been compared to touching. It can be gentle and healing, or neutral, or it can be forceful. Hence, just like a proxemics boundary can be considered broken when another person stands too close, personal space can be felt violated by sound. Similar to the way some animal species (dogs, wolves, cats, birds….) mark or extend their territory with sounds (Lack, 1947) humans have long used specific resonances and music to repel enemies or intimidate outsiders. For some aboriginals and in ancient folklore, it was the whoosh of the spear that destroyed the opponent, and before military drums the Romans had special troops to make noises capable of confusing and frightening the enemy. On a large scale, during the last two World Wars, research went into finding specific killing sounds. In a minor way, "aggressive young men love blaring booming music from their cars" (Witchel, 2010) and police authorities turn to loud renderings of classical music to disperse drug dealers at their meeting points in Denmark, Germany and Switzerland (Evrything2, 2002). But in all the examples, mentioned in the paragraphs above, of murderous rage among neighbors, it appears that the invasion of an unwanted sound inside what some cultures call "the sanctity of the home" (Mazaheri, 2014) must have been overwhelming. House could be said together an extension of personal space and a territory, which one wants to defend from any intrusion, including noise. And for quite a number of people, it can be assimilated to rape: "it meets your body and forcibly enters your mind, not just through your ears but also via your bones, your flesh, and your body cavities" (Davies, 1999).

The degree to which this will happen depends upon the culture considered. Apparently it is not a crime in Buenos Aires to start a party at two am in your apartment. North Americans tend to consider Mexicans a rowdy bunch. Meanwhile, French look down on boisterous U. S. tourists shouting their comments in the subway. The way some Spanish keep happily chatting on their hand phone in public transport shocks the discreet Japanese… Although, within these cultures, individual variations exist and with time and socio economic factors, they are subject to change. Noise tolerance rests on what has been called "primary regulations": habitus customs and social rituals internalized by all group members and allowing smooth social transactions, including, from time to time, reciprocity: nuisance is better accepted if it can be returned. I remember a Cambodian villager, obviously suffering from a bad headache because of the next door neighbors' earsplitting wedding music. It had started at four or five in the morning and nobody would have dared even to ask for the volume to be slighted turned down. As I was watching, he turned to me and whispered with a grin: "I don't say anything now, but when our daughter will be married, they will see…". When these "primary regulations" are not respected or in a changing state, external, "secondary regulations" are called for: law, decrees, intervention of a conciliator, penalties….There is no better example than what happened with noise ordinances in Europe, for instance.

A Brief Cultural History of Noise

1. Environmental Acoustics

More than 2. 600 years ago, in Sybaris, the Greeks created the first environmental noise legislation: potters, tin makers and other noisy craftsmen had to live outside the city walls, while roosters were banned completely. Later, in Ancient Rome, because the streets were too narrow, goods were carried only from sunset to sunrise: Juvenal complained that insomnia from an horrendous night traffic was causing "diseases and deaths", the very first mention of sleep disturbance linked to health issues (Goldsmith, 2012).Most medieval towns in Europe were suffering from what we call now occupational noise, each district or area having it's specialized industries. Plus, there was

music being played, hawkers shouting for their goods, creaky chariots and the pounding of horses hooves on cobbled stones. In some countries or cities, though, richer citizens would have the means of living separately, or to build noise buffered dwellings, from the Romans or Greeks using tapestries, to the Renaissance noblemen ordering their architects to lay large courtyards around their estates. But workers and craftsmen would have to do with a more saturated sonic environment, just like people in pre industrialized countries to day. They had to suffer or get used to it, while merchants, lawyers, intellectuals enjoyed more quiet and rest.During the 19th century, in many European cities, the equivalent of the Indonesian kampungs of Jakarta were destroyed, to create larger avenues and residential areas. But then, the specific professional noises of each district stopped being confined to a few streets, and spread out everywhere, making in fact the entire town more noisy (Balay, 2003).Nonetheless, in many instances, the entire population could at least benefit from a night curfew. In London, in 1595,a law forbade any "suddaine out-cry... in the still of the Night, as making any affray, or beating his Wife, or servant, or singing, or revelling in his house, to the Disturbance of his neighbours". Later, in 1864, London created the first the Act for the Better Regulation of Street Music in the Metropolis (Goldsmith, 2012).

2. Religious Acoustics in Europe

Besides these occupational, transportation or recreational sounds let's not forget….. the bells. The auditory landscape, in most of Europe, from the Middle Ages to the 18th century resonated with the Angelus. The Angelus, Latin for "angel" is a Christian prayer which was accompanied by the ringing of one or more bells, three times a day: at six in the morning, noon, and six at night. Bells were also to call parishioners to mass and, during mass, to signal the most important rituals. The sound was supposed to spread good-will to everyone on earth. So much so that these instruments, the medium, as would say Mc Luhan, became as sacred as the message they were supposed to convey.

Casting a bell was expensive and eventually required a contribution from the entire village population. Nobody could do it but itinerant masters with a special status, and, like the blacksmiths, they were both revered and feared. Specific rituals surrounded the long, complicated, mysterious and almost magical manufacturing. Considered an element of divine protection, every bell was given a name, during a special ceremony. Animist and Christian beliefs combined in turning some of these bells into miracle makers. For instance it was believed that the bell sound would help a woman deliver faster and safer. It could be called upon in exorcisms as well, and St Georges fighting the Dragon, was often engraved somewhere on the mantel, as a protection for the village against the devils of lightening and fire. It became a custom to shake the bells furiously to ward off danger or warn against an imminent threat (a storm, an invading army….) or signal important local or national events like the death of the king, the end of the war. Their role was also to count the hours and mark the opening and closing of the city gates. Together a tool of mass communication and a territory marker, their hard metal and heavy sound symbolized and reminded the preachers that their predications had to be powerful.

The bell tower, often situated within the church, symbolized and to these days is a double meaning for "local spirit", or parochial attitude, implying narrow-mindedness and a lack of understanding or interest in the world beyond your own town's boundaries. Hence, the 18th century French Revolution went very hard on them. Bells were seized to be turned into cannons for the revolutionary war. And those left were supposed to ring for non religious occasions only. Controlling the bells became a mini war itself, with villagers hiding the bells, or stealing them from other villages, or ringing them against the new regulations. Meanwhile, for the new government, ordering or suppressing their use was essential to confirm its authority and ensure the loyalties of the French countryside (Corbin, 1999). What a better example of the power of sound to mark and possess space? A German states man would have once said that church bells were the Christian clergy's artillery (Nyanatusita, 2014).

"Yes, sure we like the bells chanting at six in the morning", said a Mexican friend. But "in the Philippines, you do not want your house near a church", a French friend living there told me recently. An interesting difference of opinion, proving how things have changed a great deal, all over Europe, since the 1970's. With the decline in religious practice, less and less churches ring their bells (or registered carillon music through loud speakers)and restrict it to weddings and, eventually, funerals. One bell can deliver 100 decibels. Two or more create a deafening raucous and the clergy understands that it would alienate the neighborhood, specially early in the morning, even if it includes Christians. In Great Britain, churches rely on professionals to ensure phonic insulation of some major bell towers. The outcome is limited to 75 decibels, all bells together (CCBR, 2011). In France, a few provinces (Alsace, Brittany), specially in the countryside, still ring the bells or the tower clock, sometimes not only every hour but every quarter of an hour. New comers or city folks who settle nearby, not yet gone through a 'negative adaptation process', complain vehemently, brandishing decibels counters and health regulations in court. In France the legal maximum amount authorized for bell sound around a house is 30 decibels (Lherbier-Levy 2005: 9). So the plaintiffsoften win, by can also get rebuked with a "it's the local tradition", or "in our village most people are believers and for them the bell sound is not a noise" (Haltiner, 2010).A quick search on the topic results in hundreds of SERPs pages, indicating a growing number of legal disputes on the fine points of "noise pollution" versus "tradition" and cultural heritage: the bells evoke, for some of their proponents, a rural and bucolic scenery, or remind them of a simpler epoch, marked by a "traditional" soundscape. For Attali (2001) this kind of deceptive nostalgia, when musical sound pretends that the world is in harmony, is a narcissistic tool. In brief, bell ringing, to this day, acts together as an identity marker, moods and emotions disseminator, time keeper, faith proselyte, magical protector and political statement.

3. Politics of Religious Noise

Power can be demonstrated equally by imposing your own sound and by silencing others'. In Ancient Greece, the elites displayed their importance by forcing their music, chanting and clashing of arms during public pageants, proving that the top dogs can make commotion. They also instigated the first noise legislation in Sybaris, as mentioned above, forcing potters and blacksmiths to live outside the city walls (Goldsmith 2012). At the same time the slaves had to keep always quiet. Silence becomes a form of oppression, as when drums were taken away from African American by their masters. Conversely, revolts are noisy affairs, be they political protests or teen agers rebelling with ear splitting music. African American slaves overturned the taking away of their musical instruments by reverting to singing and hand slapping.

Similarly, as all religions try to assert their importance, occupying hearing space seems in line with drum banging. Nowhere is this more obvious than in multi faiths countries. Manado, in Sulawesi, resonates from a large array of mosques and churches announcements. In Sri Lanka, a monk reported about hearing, at the same time, chanting from three Buddhist temples, Sinhala Christiancarol singing from a church, and calling to prayers from a nearby a mosque (Nyanatusita: 1). And when the main point of contention revolves around religious ceremonies or festivals, usually tolerance runs low. In Israel, in 2011, the government imposed a ban on loudspeakers, which antagonized the Muslim minority and was not enforced. Mixed towns then started a battle over the airwaves: one neighborhood bought four giant loudspeakers, from which rock and roll music would be played to clash with the Muslim prayers' melody.In India, Muslims devoteesattacked an Hindu temple, on the reason that it was using loud speakers during the month of Ramadan (Amitshama 2013). In retaliation, Hindu regularly petition for the silencing of mosques and sometimes torch them to the ground, in a spiral of violent intolerance.The government has tried, since 1999, to regulate loudspeakers, arguing that "religion is not a ground to violate noise rules" and that these instruments were creating "communal tension" (Wikipedia, 2014 b). In Saudi Arabia, since 2002, authorities are checking on parallel practices such as political calls through broadcast sermons. Bloggers are then prompt to remind each other

how minarets in the past functioned also as military towers.

In Malaysia also, loud speaker abuse is testing the fragile multi ethnic balance of a nation where religious issues between Muslims, Hindus and Christians have ended in belligerent arguments. In 2008 and in 2011, complaints about long and loud readings or too noisy azan for *subuh* prayers were met with riots, death threats and calls to have the plaintiffs imprisoned under the Internal Security Act, to the cries of: "Long Live Islam" and "The call for prayer is sacred". Non-Muslim bloggers, under the cover of anonymity, were trying to address the incident as "a matter of civility and communal living", hence, resorting to "primary regulations". But they also bemoaned the fact that over the years the azan have become longer and louder. For the sake of peace and unity though, they could only "bear and grin, even if it often takes a whole hour to get back to sleep. But if someone comes asking, we'd probably give the politically correct answer and say it is okay. Who wants to be the villain?" (Cartoonkini 2011).

The same forbearance occurs in Nigeria, where the governmentstipulated in 2007 that the noise level of religious houses should not exceed 65 decibels during the day and 45 at night (a far cry from the 30 decibels allowed for bells in France). It was meant for mosques as well as churches, and probably particularly for the latter. Since their beginning in the 1930's, Pentecostal and Evangelical movements in Africa "have celebrated loudness as a proper way of worship", a sign that the Holy Spirit, the Breath of God, has descended upon the congregation. Silence not only would impede the spiritual transformation sought after during the ceremony, but could be interpreted as a sign of resistance, of disengagement from the community. Ultimately, silence indicates fear from the Devil, as when someone is possessed through witchcraft, and only the mystical power of a strident speech (with a loudspeaker) or deafening singing, will force him out (Rowlands, 2007). Hence, when journalists enquired if the new regulations had any effect, they reported either a large ignorance or complete denial of the problem. An imam explained: "I am not aware there was anything like a decibel we must not go beyond. In our own case, even though we have a loudspeaker outside the mosque, we don't make much noise". While the pastor of a church, Mr. Joseph Ariyo, explained that the broadcasting was intended to "bless" other people who would not have the time to attend the church program. He also said, like his Muslim colleague: "Nobody has actually complained that we are noisy or disturbing the peace of this area. I'm sure the residents have no problem with us". When the reporters questioned the locals, some of them finally admitted: "Nobody wants to incur the wrath of a church. You know how these churches can be. They could start praying against you if you complain about them" (Kunle, 2012). A very serious obstacle indeed, as it is tantamount to a witchcraft accusation.Correspondingly, in Indonesia, a Muslim blogger stated that: "Those who do not like hearing the calls to prayer are in need of spiritual healing, why? Because they are possessed by Satan" (Khabar 2012). An idea inspired by canonical Muslims scriptures, in which "When the call to prayer is made, Shaytan retreats, passing wind, so that he will not hear the *adhan*."

4. Dichotomy of Sacred Sound

While sound as a mediator in religious transactions is universal, the spectrum goes from "sonic driving" that induces altered states of consciousness to all kinds of sounds aiming at the expulsion of malevolent forces. In its primeval, oldest form, shamanism best illustrates the supernatural powers associated with sound and music: sonic driving includes beating of drums and reciting of the same sounds (onomatopoeia). It intends to produce a trance, but in association with a large array of other acoustic effects (ventriloquism, imitation of animal or nature sounds, whistling and playing of any musical instrument) this kind of soundscape works also as an oblation, an entertainment offered to the spirits, just like tambourinesand flutes played a propitiation part in pre biblical sacrifices. While different registers and tones can be mixed up in some shamanistic rituals, most of the time a loud sound is expected to repel obscure forces. Within

the framework of other observances or culture, the same notion guides employing harsh, dissonant tonalities. Traditional healers would scream and yell at patients under the spell of bad spirits, and rely on clanking instruments for exorcisms. The Jewish shofar is blown an extra number of times after some ceremonies, "to confuse the Adversary" (Wikipedia, 2014, g). Vigorous banging of drums, pots and pans, scares the monster swallowing the moon during an eclipse, in many oriental cultures (China, Cambodia, Burma, Laos, The Philippines…). Firecrackers chase away evil spirits in China. Long rockets explode for pageants associated with the Ghosts Festival in Thailand, and India celebrates Diwali, a celebration of goodness overcoming evil, with fireworks.

Boundaries between sacred and profane have been blurred, though, since the 1930's:no village is small enough that its temple or mosque does not possess a few loud speakers. Their owners find hard to differentiate shouting the devil out from thunderous informing of the community. In Thailand or Sri Lanka, sermons or chanting of very long sacred texts can be blared for hours on amplifiers, making the Buddhist temples "the worse noise polluters" (Nyanatusita: 1), an interesting paradox if we remember that the Greek root of the word pollution means "desecrating a place of worship". And indeed, in many of these compounds, religious festivals turn into large and raucous funfairs. In Thailand and Burma they can last day and night from one week to a month, offering full volume concerts, films, lottery results or sponsors advertising, even saucy "coyote" dancing, amidst loud sacred recitations. Such concomitance often disturbs conservative devotees and clash with outsiders' expectations of Buddhism as an introvert, silence seeking philosophy. Departure from the premises of the founding fathers happens in all creeds.

What differentiates Islam from other religions, and attributed to a very early vision in the beginnings of the new faith, is resort to the human voice instead of any mechanical device (horns of the Jews, bells of the Christians) to call to or remind of prayer time *(adhan).* A potent tool, verifying that "sound has a lot of power; but the voice has tremendous influence" (Desikachar, 1999). Prayer being one of the five essential tenets of the religion, the *adhan* (to listen, to be informed) assumes several functions, as it together states the faith, summarizes its creed and preaches to the nonbelievers. As any loud recitation or chanting, it equates sung speech and devotional.Although some mosques play recorded calls, most of the time live the call is broadcast live. The muezzins are taught to declaim melodiously, each phrase ornamented by long pauses and the singing of a single syllable. Called *melisma*, this musical technique was known in ancient cultures as an hypnotic method, favored in mystic traditions all over the Middle East and practiced in chanting the Jewish Torah. A few recordings of the *adhan* recited in churches during interfaith gatherings circulate on the web and attest its majestic beauty. But the muezzins must also reach the maximum number of listeners, and at least five times a day.

With spectacular consequences in the field of architecture (the minaret being "the gate of heaven and earth") this element has become the cornerstone of debates and difficulties in noise reduction. The greatest number of disputes, specially in interfaith contexts, implicates *fajar*, the first call to prayer. It is the earliest of all religious signals, at around four in the morning, and with the advent of loud speakers powerful enough to be heard within a five kilometers range, can reach vociferous levels of sound. Two more issues compound a pleasant rendering: the muezzin's personal pride and outdated, cranky sound systems. Just like European villages challenged each other with their bell ringing prowess, there is, at times, bravery and daring between minarets, either on the starting time, or on the power of the rendering: a muezzin's success lays in attracting the greatest number of people to his mosque. The result, far from melodious, becomes unreasonably discordant, even for pious Muslims. In Egypt, the Ministry of Religious Endowments received countless anonymous complaints like this one:

"Some of the mosques blast not just the roughly dozen sentences of the call itself, but all of the verses and actual prayers intoned by the local imam. When all the local mosques do the same

thing competing with one another in volume, what should be an announcement lasting at most two minutes goes on for 45 minutes, keeping the entire neighborhood in a state of high alert. I'm not an irreligious man. But there were no loudspeakers at the time of the Prophet. Now, rather than being a joy, to listen to the call to prayer is a daily torture to the ears" (Smith, 2005).

In 2005, the decision to resolve the matter by broadcasting a live and centralized call from a downtown studio met strong resistance from the imams, who accused the government of "ulterior motives", and suspected a conspiracy orchestrated by the West. But the opposition was specially intense among the more or less 100.000 muezzins who were going to loose their job and religious status: "The prophet says those who lead the call to prayer have the longest necks and will stand the tallest on judgment day. So of course I'm against them denying us the azan" (Nelson, 2010). Supported by many religious scholars, the decree was not implemented, timidly, until 2010, but the muezzins defied the government order, unplugged their receiver boxes and waved a "war of the microphones". The political situation in the following years was not conducive to pursue this reform. Other countries with a Muslim majority (Morocco, Turkey) attempted similar amendments. In Ryad, in particular, religious broadcasts were measured in two hundred mosques. The investigators confirmed that the sound is always louder outside than in the emitting chamber, a little known but vital acoustic phenomenon. Whilethey found results of more than85 decibels (a level deemed dangerous after a prolonged exposure) outside half of the mosques, they were deemed "in compliance with international norms of hearing safety" because they were produced for a limited amount of time (Shimemeri, 2011).

5. Economy of Health and Salvation

Although no lessening of these emissions could be proposed in Saudi Arabia, it is of great interest that such a survey was ever commissioned. It atteststhe globalrising of a partition between the sanctity and the profane properties of spiritual sound. Churches and mosques, overstepping their mandates, turn the microphones on not just to call or ring the bells. They also broadcast their sermons, Sunday morning women religious education, and young children chanting classes. For a good measure, add neighborhood information about funerals, communal gatherings and so on. These excesses erode the theological message and provide leverage for complaints. Still, as can be attested in Nigeria, blaming the clergy feels fraught with danger. Annoyance must find another name: heart condition, sleeping disorder, anxiety.

In Indonesia, the largest Muslim nation in the world, rich of around 800.000 mosques, a remarkable tolerance allows for instance a temporary suspension of the loudspeakers during the Hindu celebrations of Nyepi, the Day of Silence in Bali. But in ordinary circumstances, questioning the loudness of the call seems at first impossible. Foreigners are instructed never to recriminate about it, and reminded of the madcap Westerner who complained directly about a noisy *musholla* in his neighborhood: accused of blasphemy and arrested, his house was ransacked (Fitri, 2010). A perfectly logical outcome, when remembering that the sacred, loaded with intrinsic, active powers, is dangerous matter and its meaning is "set apart", taboo. The strong and antagonist forces of the profane should submit; if not, the *profanation*, or sacrilege, desecration, demands a heavy penalty, sometimes death (Schmidtt, 1992). While young North Africans bloggers discuss the practicalities of Short Message Services to remind them of prayer time (Forum Algerie, 2008) does contesting the number of decibels of the *adhan* constitute haram, a sinforbidden by God, a sacrilege?

Pious Muslim Malays were of this opinion, during the riots of 2008 and 2011 (see above) but religious scholars still debate it (Tajuddin M. R., 2011) and grumbling or silent flight to quieter quarters, increasingly arises among Indonesian Muslims themselves. Two incidents in particular illustrate how the notions of health and quality of life rescind popular religious beliefs. The first incident involves a 75 years old Muslim in Aceh, a province in Indonesia ruled by Sharia Law. He filed a lawsuit against his village mosque, arguing

that the Quranic recitationsthirty minutes before the calls to prayers were having a toll on his heart condition. Death threats by angry mobs did not deter him, because the noise “is making my illness worse” (Jakarta Globe, 2013).The second incident was dubbed politically courageous: in 2012, Vice President Boediono himself called for a lessening of the volume when performing the *azan* or at least the issuing of some rules to “limit the use of sound systems”. The Chairman of the Indonesian Ulema Council retorted:

"What he said was wrong because call for prayer is supposed to be as loud as possible. If there is a sound system that can be heard in a 10km radius, then we should use it." Amid heaps of criticism, some comments about the Vice President’s proposition mentioned the notions of Human Rights and the WHO guidelines (Citrawan, 2012). A year later, the deputy Head of the Council of Mosques agreed on connecting the topic to health concerns: "Even Muslims, such as those who are ill or have insomnia, will definitely get annoyed at the noise." (AFP, 2013).

In Kosovo, although the wording seemed inappropriate and insulting to the Muslim clergy, a Bill to tone down all religious signals was making an effort to follow the European regulations on Noise Pollution(Bislimi, 2014). Turkey, going by the W. H. O. recommendations, has already initiated a program of noise reduction around some hospitals because “noise threatens aperson’s health both physiologically and psychologically”(Durduran, 2008).In Mumbai, dubbed the noisiest city in the world, ordinances wereineffective and politicians themselves turnedreligious festivals into the loudest possible affairs. Sumara Abdulali fundedthe Awaaz Foundation and campaigned in 2006 for stricter noise reduction policies, obtaining the interdiction to use loudspeakers at night. Strong support from the middle classes expanded the movement to other Indian cities rallying against “environmental hazards” and noise as “a public health concern” (Ashoka, 2008).

Are these declarations, the choice of health and sickness as a reason for noise abatement, a façade, a cover-up ? Is it easier to complain about a heart disease than annoyance? Does it feel less blasphemous ? Or are we witnessing a shift from local perceptions of health and well being? From compelling religious concerns to more wordily considerations? Salvation for the soul and spiritual endeavors want to co exist with new aspirations: a sound, relaxed body and a good night sleep. Two notions far from new (“sleep is that golden chain that ties health and our bodies together”) but structured in a different way. Sleeping patterns in particular have evolved with industrialization and artificial lights. In Medieval Europe, the night was divided in at least two cycles of four hours (bi-phasic sleep).After an early rest, until around midnight, there would be an awakening and activity, sometimes a late last meal, and another sleep cycle of four more hours (Verdon, 2003). Likewise, aboriginal populations do not sleep all night and rest in the afternoon or at other moments of the day (polyphasic sleep). It is still common to see rickshaw drivers or day laborers taking short naps in very uncomfortable positions. But in large Asian and African cities, clerks, salesmen and factory workers tend now to take their rest in one block (monophasic sleep) rather than segmented and broken-up. With the constraints of longer hours spent awake in public transport and administrative or commercial settings, the need for an uninterrupted rest might request biological resets. These physiological mutations explain why some religious obligations feel taxing or unmanageable: “I had just put my baby back to sleep and had not much sleep left before leaving for work. This is when the azan woke me up…”

But protesting feels risky. An Indonesian bank employee wrote on a social media: "a neighbor actually came to our mosque and asked us to turn down the loudspeaker volume we used to broadcast the Qur'an recital because he was tired and needed some sleep. What kind of Muslim does that?" While an another said: “Qur'an recital should delight those who hear it and, therefore, must be broadcast through a loudspeaker” (Prima, 2013). Rebukes can be much harsher than these two examples. Because “for Muslims and Islam, a call to prayer cannot be under any circumstance or instances be equated to a sound or noise that

is undesirable or nuisance" (Duke, 2009).Hence, it is only in the privacy of blogs that these tired young mothers or office workers dare to suggest a lowering of the sound or a shortening of the sermons. While most entries denote acceptance for members of other faiths (in Malaysia, for instance) and some scholars circulate wise advice and appeasing literature about "the true spirit of azan" (Tajuddin, 2011), a rising intolerance and the reflux of secularism tends to obstructs dialogue. It takes to Vice Presidents or Health Ministers to mention "the elephant in the room" and suggest: "I feel that the sound of azan heard faintly from a distance resonate more in our hearts that those that are too loud and too close to our ears."

CONCLUSION

Is noise buffering worth of consideration in developing countries and emerging economies? Are not they facing more urgent problems: unemployment, high maternal death rates, overcrowded clinics? It is now proven that cardiovascular diseases and other severe health outcomes can be linked to environmental noise. Numerous studies have made the point that the risks are stronger with noise exposure at night. Around 150 million people already suffer from sleeping disorders in Asia and Africa, and these figures are growing. Should religious institutions be targeted first? Are not airports and toll roads more guilty and accountable? While these valid points are to be pursued and petitioned for, this contribution attempts on one hand to grasp the outlines of a new trend amid multi-faiths and Muslim middle class societies: medical sociology and anthropology of religions must read these new developments as a global shift on par with the growth of digital modes of communication. More insights could be gained through the study of web posts and extensive, unstructured one-to-one interviews. On the other hand, the author endorses the view that "noise is spiritual death". The paradox of doctrines proclaiming their concern for each other and love of the All Knowing at the top of their voice brings upon this quip from Woody Allen: "God is silent. Now if only man would shut up."More elegantly, perhaps, an Indonesian proverb declares: *padi tumbuh tidak berisik* (le riz qui pousse ne fait pas de bruit).

REFERENCES

Amitshama. (2013). "Communal riots in Meerut village:1 dead, 12 injured". *The Indian Express.* Retrieved on 28 July 2013 from www. archive. indianexpress.com/news/communal-riots-in-meerut.../1147786

Ashoka. (2008). "Sumaira Abdulaili", Investing in New Solutions for Our World's Toughest Problems. Retrieved from *india.ashoka.org.*

Attali, J. (1977). *Bruits.* (Second Edition). Paris: PUF/ Fayard.

Balay, O. (2003). *L'espace sonore de la ville au XIX siècle.* Paris: A La Croisée. Retrieved from *www. fnh.org/français/doc/en.../bruit/interview3.htm*

Begin, M. (1979). *White nights: the story of a prisoner in Russia.* San Francisco: Harper & Row.

Bislimi, B. (2014). "Kosovo's 'Noise Pollution' Bill Riles Religious Communities" Radio Free Europe 2014. Retrieved from *www.rferl.org/content/ kosovo.../25258781.html*

Bowder, M. (2012). "Early morning noise dispute leads to fatal shooting", *The Columbian.* Retrieved on 3 March 2012, from www. columbian.com/.../eary-morning-noise-dispute-lead...

Cartoonkini. (2011). Azan Issue: Why hasn't the govt condemned the protests? Retrieved from *www. malaysiakini.com/letters/153431.*

Chin, J. (2014). "Dance Craze: In China, Retirees Raise a Ruckus by Getting Down. As More Groups Boogie in Public Places, Neighbors Can't Take The Noise". *The Wall Street Journal,* March 28-30, p. 1.

Christian, M.S., & Ellis, A. P. J. (2011). "Examining the effects of sleep deprivation on workplace deviance: A self-regulatory approach". *Academy of Management Journal,* 54(5), pp. 913-934.

Citrawan, H. (2012). "Public Nuisance and Adzan". Jakarta Post. Retrieved on 11 May 2012 from *www.thejakartapost.com*/.../public-nuisance-and-a

Corbin, A. (1998). *Village Bells.* New York: Columbia University Press.

Duke, B. (2009). "Call to prayer is not a noise or a nuisance". *The Free Thinker.* Retrieved on 11 December 2009 from freethinker.co.uk/.../you-cant-call-the-islamic-call

Fauna. (2014). *Residents Buy Speakers to Yell At Noisy Public Plaza Dancers.* Retrieved on 27 2014 from www.chinasmack.com

Focas, C. (2013). "A 80 ans, excédé par le bruit des fêtards, il tire. Procès". *Tribune de Genève*. Retrieved on April 15 2013 from www.tdg.ch/geneve/actu.../80-ans...

France Bleue Poitou. (2013). *Tué pour avoir fait trop de bruit.* Retrieved on 1 July 2013, from www.francebleu.fr/.../tue-pour-avoir-fait-trop-de-bruit.

Friedman, E. M., & al. (2007). "Socioeconomic Status Predicts Objective and Subjective Sleep Quality in Aging Women". *Psychosomatic Medicine.* (69): pp 682–691.

Goldsmith, M. (2012). *The History of Noise.* Oxford: University Press.

Hageman, W. (2012). "Next-door nemesis How to resolve conflicts with a problematic neighbor without ruining your relationship". *Chicago Tribune.* Retrieved on February 14 2012 from *www. articles.chicagotribune.com*

Haltiner, N. (2010). "Le bruit des cloches de l'église l'empêche de dormir, il porte plainte à Strasbourg, 24 *Heures.* Retrieved on 28 October 2010 from www. journal.24heures.ch/.../bruit-cloches-eglise-e.

Hall, E. T. (1976). *Beyond Culture.* Anchor Books.

Harvard Heart Letter. (2004). T*he costs of not getting enough sleep,* Retrieved from www. health.harvard.edu/.../sleep_deprivation_proble

Hazlehurst, K. M. (1989). *Violence, disputes and their resolution.* Canberra: Australian Institute of Criminology.

Humphrey, G. (1999). T*he Nature of Learning*. *London:* Routledge.

Jakarta Globe. (2013). "Indonesian Wins Rare Victory Against Noisy Mosque". *Jakarta Globe* 25 february 2013. Retrieved from www. thejakartaglobe.com/.../indonesian-wins-rar.

Khabar. (2012). "In Indonesia, mosque loudspeakers too loud even for some muslims". Retrieved on August 17th 2012 from *khabarsoutheastasia. com/en_GB/.../feature-02*

Kunle, F. (2012). "Noise pollution: Religious leaders deny knowledge of approved decibel". Retrieved from Metro 1 February 2012 from *www.punchng.com*

Lack, D. (1947). *Darwin's Finches. Cambridge:* Cambridge University Press.

Lherbier-Levy, S. (2005). "Régime juridique des sonneries civiles des cloches de l'église communale", *La Lettre du Droit des Religions.* Retrieved on 8-9 Agust-Septembre 2005 from www.droitdesreligions.net/ldr.../ldr_aoutsept2005.PDF.

Luco, F. (2008). Between the Tiger and the Crocodile, *Management of Local conflicts in Cambodia, An Anthropological Approach to Traditional and New Pratices.* Phnom Penh: Unesco KH/EDU/2002/RP/2.

Malric, P., Guipponi, P., Boucomont, A. (2012). "Tuerie à Sète : excédé par le bruit il tire sur ses voisins, deux morts, deux blessés", *Midi Libre.* Retrieved on 2 December 2012 from www. midilibre.fr/2012/.../coup-de-folie-a-s

Martin-Houssart, G., & Rizk, C. (2002.) "Mesurer la qualité de vie dans les grandes agglomérations". *INSEE Premiere*, pp. 868.

Mazaheri, H. (undated). "The Sixth Talk", *Islamic Family-life Ethics,* World Islamic Network. Retrieved on 21st March 2014 from www.al-islam.org/islamic-family-life.../sixth-talk

Mbuligwe, S. (2004). *Levels and Influencing Factors of Noise Pollution from Small-Scall Industries (SSI) in a Developing Country. Environmental Management.* Vol. 33, 6, pp. 830-839.

Nelson, D. et. al. (2005). "The Global Burden of Occupational Noise-induced Hearing Loss", *American Journal of Industrial Medicine,* Dec; 48 (6), pp. 446-58.

Nelson, N., N. (2010) "In Cairo, An End To The Cacophony Of Calls To Prayer". *National Public Radio.* Retrieved on 5 August 2010, from www. npr.org

Pecqueux, A. ed. (2012). Ecouter le bruit, faire entendre la gêne, *Communications. Les bruits dans la ville.* n° 90, pp. 95-107.

Prima (2013) "In Indonesia, mosque loudspeakers too loud even for some Muslims". *Khabar Southeast Asia in Jakarta.* Retrieved on August 17 2012 from khabarsoutheastasia.com/en_GB/.../feature-02

Ramirez, M. J., & Alvarado, C. (2004). "Individual differences in anger reaction to noise". *Individual Differences Research,* 2(2): 125-136.

Rodaway, P. (1994). *Sensuous Geographies, Body, Sense and Place. London:* Routledge.

Rowlands, M. (2007). "The sound of witchcraft: Noise as Mediation in Religious Transmission" in Berlinger. D., Sarro, R. Ed: *Learning Religion, Anthropological Approaches.* New York: Berghahn.

Schafer, M. R. (1977). *The Tuning of the World.* The University of Michigan: Knopf.

Shimemeri, S. A., Patel, C. B., Abdulrhaman A. F., (2011). "Assessment of noise levels in 200 Mosques in Riyadh Saudi Arabia". *Avicenna Journal of Medicine.* 2011 Oct;1(2):35-8. doi: 10.4103/2231-0770.90914.

Smith, S. (2005). Cairo *dilema* over prayer calls. BBC New. Retrieved on 29 April 2005 from news.bbc.co.uk/2/hi/middle_east/4485521.stm.

Stranges, S. and al. (2012). "Sleep Problems: An Emerging Global Epidemic? Findings From the indepth Who-Sage Study Among More Than 40,000 Older Adults From 8 Countries Across Africa and Asia." Retrieved from www.journalsleep.org. Vol 35, Issue 08.http://dx.doi.org/10.5665/sleep.2012.

Suma, I. P. D. (1991). *Pengaruh Kebisingan Kegiatan Bandar Udara Terhadap Masyarakat Pemukim di Sekitar Bandar Udara Internasional Jakarta Soekarno-Hatta (Influences of Airport* Noise Activities to Community of Residents around Soekarno-Hatta Jakarta International Airport). Unpublished Thesis. University of Indonesia, Jakarta, in Vanadila, V. Occupational Noise Limits in Indonesia, and Techniques and Problems of Industrial Noise Hearing Conservation Programs.

Tajuddin, M. R. (2011). "The true spirit of the azan". *Malaysiakini.* Retrieved on Jan 17 2011 from www.malaysiakini.com/news/153635

Thornhill, T. (2012). "What's causing the mysterious sounds coming from the sky that are so loud they set off car alarms ?". Daily Mail Online. Retrieved on 5 March 2012 from http://www.dailymail.co.uk/sciencetech/article-2110523/Whats-causing-mysterious-sounds-coming-sky-loud-set-car-alarms.html#ixzz31mtbc8vX

Vanadila, V. (2012). *Occupational Noise Limits in Indonesia, and Techniques and Problems of Industrial Noise Hearing Conservation Programs,* S2820903. Retrieved from www.academia.edu/.../occupational_noise_limit...

Verdon, J. (2003). *La nuit au Moyen Age.* Paris: Hachette.

Visordown News. (2013). *Dispute over loud motorcycle proves fatal.* Retrieved from www.visordown.com/motorcycle-news.../dispute-over...fatal/22620.html

Walker, M.P. (2009). *Sleep Deprivation III: Brain consequences - Attention, concentration and real life.* Lecture given in Psychology 133 at the University of California, Berkeley, CA.en.wikipedia.org/wiki/Sleep_debt .

Witchel, H. (2010). *You are what you hear.* Algora Publishing. ISBN-10: 0875868045.

World Health Organisation. (2009). Night Noise Guidelines for Europe. Copenhagen: WHO Regional Office for Europe, Scherfigsvej 8 DK-2100, ISBN 978 92 890 4173 7.

World Health Organisation. (2011). *Burden of disease from environmental noise. Quantification of healthy life years lost in Europe. I*SBN: 978 92 890 0229 5. *Retrieved from www.euro.who.int/.../burden-of-disease-from-environmental-noise.-qua.*

Yoo, S. S., Gujar, N., Hu, P., Jolesz, F. A., & Walker, M. P. (2007). "The human emotional brain without sleep - a prefrontal amygdala disconnect." *Current Biology,* Vol. 17, No. 20, R877-R878. Retrieved on Oct. 23, 2007 from www.current-biology.com.