Potentiality of *taubah* (Islamic repentance) and listening to the Holy Quran recitation on galvanic skin response

Urme Binte Salam*, Muhammad Nubli Abdul Wahab and Ahmad Bin Ibrahim

University Malaysia Pahang, Lebuhraya Tun Razak, 26300, Gambang, Kuantan, Pahang, Malaysia.

Accepted 28 January, 2013

*Corresponding author. E-mail: urmechy@ymail.com. Tel: +60169456620, +6095493120.

**Taubah** and listening to the Holy Quran recitation are highly recognizable Islamic repentance to the Muslim community. Undoubtedly, these beliefs can flourish people's mind and soul. Therefore, this repentance has a miraculous power to reduce anxiety and stress like psychological pessimistic matters from one's mind. Besides this, listening to the Holy Quran recitation can relieve and calm a disturbed mind. Consequently, this repentance may be used as the therapeutic agents in some cases. In this work, the authors make use of *taubah* and listening to the Holy Quran recitation as stimuli in psychophysiological research, via galvanic skin response (GSR), an objective method for realizing the changes of emotional response of subjects. The results show that GSR can be used as a measure of mental states by listening to the Holy Quran. The effect of listening to the Holy Quran recitation on GSR is compared with that of *taubah*. Both *taubah* and listening to the Holy Quran recitation display changes on GSR; however the former reflects the greater changes than the latter.

**Key words:** Taubah, listening to the Holy Quran, galvanic skin response and psychophysiology.

**INTRODUCTION**

The overture for the study of the functioning of different systems involving the control of emotion was very common in the past decades. Both positive and negative emotion is effectively regulated by various cognitive strategies (Kober and Ochsner, 2011). For human adaptation, the capability to control emotion is so important (Ochsner and Gross, 2005), for instance in anxious individuals experience more negative emotion (Campbell-Sills et al., 2011). Psychophysiological actions are extensively used to recognize the functioning of internal systems of the body through the response of the skin to an emotional stimulus. Commonly, typical psychophysiological experiments deal with some cognitive, emotional or behavioral stimulus changes and measure the alternations due to the application of electrocardiogram (ECG) and other biofeedback approaches (Marroquin et al., 2004; Drevets, 2001; Bush et al., 2001).

Notably, emotions or feelings are subjective, which involve the experiences of arousal, happiness or unhappiness and some particular effects of cheerfulness, sadness, anger, fear, surprise and disgust. Emotion is often associated with communicative approaches, for instance, smiling and minor physiological responses such as the changes of heart rate, sweating and skin resistance (Burleson, 2003). These changes can determine the activity of autonomic nervous system in response to emotional stimulus (Hagemann et al., 2003).

On the other hand, according to Muslim's faith, *taubah* is believed to be one of the powerful tools for any person's positive psychological changes and persuades people from doing any other misdeeds. *Taubah* (repentance) is known as the regret and sadness that happen in the heart when anyone remembers his or her sin (http://www.islam.org). It is the act of shunning sin and strongly resolving to abstain from the same sin in future; it controls a person from sin. Besides this intention, a complete effort is made to pay off the precedent shortcoming. During *taubah*, participants should recollect their misdemeanors and offer penitence with soul attentiveness to Allah. Apart from this, regular recitation of Holy Quran is another proved mind therapeutic agent. Believing in God helps individual to increase the strength against any types of complications. Reading Holy Quran...
beneath one’s voice or loudly can be a stimulant for creating physiological and psychological responses such as mystical music (Kavari, 2011), which is considered in this study.

Galvanic skin response (GSR) is a psychophysiological phenomenon, which displays the changes of skin conductance in micro Siemes (µS) unit by skin containing sweat glands (Shi et al., 2007; Brignell, 2010; Nagai et al., 2004). It is performed in several ways such as: by reducing skin resistance, decreasing impedance or adjusting the potential of response to a target or alerting stimulus. The necessary requirement for GSR is the presence of active sweat glands, by which any individual can get an idea about his sympathetic nervous system (Minhas et al., 2010; Fuller, 2005). It is supposed that sweat spreads laterally, raises the ducts, moisturizes the stratum corneum and lessens its resistance. Nevertheless, the epidermal membranes of skin are aptly permeable for the response to the neural stimuli, and skin resistance with decreasing mode of GSR response has also been considered (seal and Otero, 2001). Whilst satisfactory explanation is not available now for the above phenomenon, it is recognized as a parameter for the functioning of sympathetic division of the autonomic nervous system (Kreibig, 2010; Wilfrid, 2007). GSR is a reachable and responsive index of sympathetic nervous activity, reflecting centrally induced changes in peripheral autonomic arousal. Research is also used for verifying GSR, which can be used as an objective indicator of user’s cognitive load level in real time, with very fine granularity (Shi et al., 2007). GSR is recognized as a somatic marker device (Mardiyono and Songwathan, 2009 Balogun, 2011; http://www.butler.edu/media) which could be useful for monitoring the psychological changes during the experience of Islamic approaches (Mardiyono, 2009; Haque, 2004). Several studies have found that these approaches are utilized to reduce anxiety and stress (Mardiyono, 2009; Haque, 2004), (Saad et al., 2010). Moreover, the authors thought that skin resistance as well as thermo vascular response varies during taubah.

Thus, in this study, taubah and recitation of Holy Quran, as two of the effective Islamic stimuli for real perfection and mental relaxation technique are considered as a research tool with biofeedback devices. In this context, GSR can be considered as the physiological assessment appliance for fulfilling the specific target. Therefore, the authors tried to utilize GSR for monitoring the consequence of taubah and compared it with the response obtained from experiments with recitation of Holy Quran.

RESULTS AND DISCUSSION

Figure 1 shows the actual GSR responses at normal condition and its changes are due to taking up of taubah in mind and listening to the Holy Quran recitation for each individual. From this experiment, it is observed that at normal condition, individuals with minimum responses have their responses increased after doing taubah and listening to the Holy Quran. Moreover, it was also observed that the effect of taubah on GSR was more remarkable than listening to the Holy Quran recitation.

It is well known that, in GSR, when a subject becomes cheerful or gloomy, the physiological change is observed with an increasing trend. GSR may provide an indication of emotional states during recitation. Like other psychophysiological measures, the quality of the emotional response cannot be distinguished only from GSR. The kind of emotion can only be obtained by a multi-parametric autonomic recording (Vemet-Maury, 1999). In listening to the Holy Quran recitation, it was observed that the expected falling responses were found in the respondents who were more or less involved with the recitation. Subjects who were not involved in or not enjoying the recitation always gave an ineffective response. The result indicates that GSR can result in performance of objective emotional response during the experience of the Holy Quran recitation. Likewise, it was observed that GSR showed the level of concentration during taubah. It was also found that if the subject is
distracted during taubah the response may be declined. The results show that the effect of taubah on GSR is more predominant than that of the recitation of the Holy Quran.

Table 1 shows the paired sample statistics, where the mean and standard deviation (SD) for the change of GSR at normal condition and its changes due to taubah and listening to the Holy Quran recitation are seen. At normal condition, the mean of percentage of GSR change was 31.08 (SD=11.32). Holy Quran recitation promotes mental satisfaction resulting in increase in response, and it settles around 35.24 (SD=11.71). On the other hand, after doing taubah the calculated mean of GSR changes was 40.48 (SD=13.11), indicating the advancement of satisfaction level than the effect of Holy Quran recitation. Specifically, a group of subjects was chosen, and everyone listened to the same type of Surah, and also performed the taubah. Thereafter, due to these two activities, their positive reception levels should constitute an ordinary distribution. Therefore, GSR also represents a normal delivery, and there is a proactive impact on emotional level in listening to the Quran recitation. The increasing trend of GSR in terms of the degree of response can be considered as an indication of the emotional level due to listening to the recitation of Holy Quran. On the other hand, the mean GSR value obtained from taubah effect indicates that it was more effective than listening to the recitation of the Holy Quran.

Tables 2 and 3 contain the data for paired samples correlations and tests, respectively. The correlation values for pair 1 (0.98) and pair 2 (0.97) indicate that due to the application of Holy Quran recitation and taubah, the change of GSR value does not vary in wide range. In Table 3, the mean differences and t values for pair 1 (-4.16, -9.65) and pair 2 (-9.40, -13.47) indicate that after the Holy Quran recitation, the subjects were a bit distressed than doing taubah. Moreover, it is also clear that the response increased more remarkably due to taubah. In the analysis of the effect of Holy Quran recitation and taubah, the latter was significant (Sig. (2-tailed)=0.00 for both pairs). In the recitation, sensory perception is used as a stimulus. However, in taubah, the subjects enthusiastically participate in the control of their heart/mental state and GSR. This could be the reason why taubah gives a higher response than recitation. Therefore, if these two techniques are used as methods to reduce anxiety and stress, taubah may prove to be more effective on an average subject. However, for any subject, taubah is involved with proper guidance; whereas listening to Quran recitation does not involve any instruction like taubah. The consistency of the results also indicates that GSR can be applicable like any other
Figure 1. Percentage of GSR changes at normal condition, and the effect of taubah and listening to the Holy Quran recitation on GSR.

Figure 2. GSR responses in percentage with time for an individual; blue line: for taubah, red line: for Holy Quran recitation; purple and green line: at normal condition.

psycho-physiological measurement for monitoring the physiological transformations in response to the stimulus of emotion.

Figure 2 shows the GSR responses in percentage with time for an individual. It is observed that at normal condition, the response indicating line resides in the
lower position and also varies randomly, with time. However, due to taubah and Holy Quran recitation the pattern of response is almost the same but somewhat random with increasing mode.

Conclusion

To conclude, it can be said that listening to Holy Quran recitation and taubah nominally reduce stress, anxiety or any other pessimism which has a remarkable effect on GSR. The stability of the optimistic mental changes is also noticeable during the research. Although the implementation of taubah is related to proper guidance, the effect of taubah on mental changes is more effective than listening to the Holy Quran recitation.

ACKNOWLEDGEMENT

The authors appreciate the financial support of Universiti Malaysia Pahang under the fund of GRS120324 and RDU110384.

REFERENCES


