

# THE IMPACT OF CELL PHONE USE ON SOCIAL NETWORKING AND DEVELOPMENT AMONG COLLEGE STUDENTS

~ Mikiyasu Hakoama & Shotaro Hakoyama

Central Michigan University  
989-774-3743

## Abstract

Cell phones have become increasingly popular in recent years. While people of various ages find cell phones convenient and useful, younger generations tend to appreciate them more and be more dependent on them. Based on a survey conducted in a mid-size, Midwestern university, college students' cell phone use was examined. The survey consisted of 44 questions that dealt with various aspects of cell phone use, such as cell phone ownerships, time spent for cell phone calls, monthly cell phone bills, communication networks, text messaging, and cell phone dependency. The survey results indicated that, of the 501 responses, 99% owned cell phones and nearly 90% of them have had cell phones for more than three years. The results also showed significant gender differences in several aspects of cell phone use. Multiple interpretations of the findings are discussed.

**Key Words:** mobile, dependency, social, network, technology

## **Introduction**

### **Cell Phone Popularity**

The cell phone is one of the most rapidly growing new technologies in the world (Rebello, 2010). In 2001, cell phone subscriptions were less than a billion worldwide with the majority of the subscriptions from the developed countries. At the end of 2010, however, cell phone subscriptions had reached five billion worldwide with subscriptions from developing countries outnumbering that of the developed countries (Kelly, 2009; Rebello 2010).

Cell phones have become quite popular in a short time among the younger generations. A study in Norway, for example, reported that almost 100% of 16 year-olds owned a cell phone in 2001 while less than 20% of 16 years olds owned them in 1997 (Ling, 2001). For cell phone users, this possession has become as important as wallets (International Telecommunication Union, 2004).

### **Influence of Cell Phones**

The increased popularity of cell phones in recent years has attracted research attention. Some of the common cell phone related research topics include cell phone use while driving (Caird, Willness, Steel, & Scialfa, 2008; Horrey & Wickens, 2006; McCartt, Hellinga, & Braitman, 2006), cell phone etiquette (Lipscomb, Totten, Cook, & Lesch, 2007), cell phone cultures and behaviors (Campbell & Park, 2008; Bakke, 2010; Ling, 2004), text messaging (Pettigrew, 2009), health risks from cell phone radiation

(Anna, Kari, & Anssi, 2006), and cell phone dependency/addiction (Billieux, Linden, D'acremont, Ceschi, & Zermatten, 2007; Ezoe et al., 2009; Zulkerfly & Baharudin, 2009).

Recent studies suggest that cell phones have evolved into something more than a simple communication tool, gaining its own place in various aspects of social interaction. For instance, a qualitative study on Australian adolescents revealed that cell phones play an integral part in the lives of young Australians (Walsh, White, & Ross, 2008). Some of the participants in the study reported very strong attachment to their cell phones; they felt as though their cell phones were part of them. In another qualitative study, Bond (2010) examined children's cell phone use and concluded that cell phones were fundamental tools with which the children maintain and manage their relationships contributing to reinforced peer ties.

Among the cell phone users in romantic relationships, a higher number of voice calls was associated with positive relationship qualities (Jin & Peña, 2010). Other studies reported that the presence of cell phones provide a higher sense of security in potentially harmful situations. This has contributed to an increase in cell phone value, leading cell phone users to perceive cell phones as a must-have tool (Nasar, Hecht, & Wener, 2007; Walsh et al., 2008).

### **Cell Phone Dependency**

Many people develop dependency to new technological devices as they become increasingly integrated into their daily lives (e.g., Block, 2008; Pies, 2009; Choliz, 2010). For example, some view that excessive Internet use, along with pathological gambling,

should be included in DSM-V as behavioral addiction (Block, 2008; O'brien, 2010; Pies, 2009). Similarly, excessive use of and dependency on the cell phone may be considered an addictive disorder (Chóliz, 2010).

Factors associated with pathological cell phone dependency have been examined (e.g., Ezoë, Toda, Yoshimura, Naritomi, Den, & Morimoto, 2009; Bianchi & Phillips, 2005). Ezoë and colleagues (2009) found that extraversion, neuroticism, and unhealthy lifestyle were associated with cell phone dependency among female Japanese nursing students. Bianchi and Phillips (2005) also found that high extraversion was associated with the problematic cell phone use but they failed to identify neuroticism. Youth (Bianchi & Phillips, 2005) and low self-esteem (Bianchi & Phillips, 2005; Zulkerfly & Baharudin, 2009) were also associated with problematic cell phone use. Other contributing factors to problematic cell phone use include a number of social calls made, a number of functional features on the handset, and the duration of cell phone use (Zulkerfly & Baharudin, 2009). In addition, earlier adoption of cell phone use was correlated with a greater number of cell phone interaction partners, a greater number of average monthly incoming and outgoing calls and text messages, higher monthly phone bills, and higher emotional attachment to cell phones (Geser, 2006).

### **Gender Differences in the Use of Cell Phones**

Previous findings on gender differences in the use of cell phone are mixed (Junco, Merson, & Salter, 2010; Bianchi & Phillips, 2005; Wei & Lo, 2006). Females spent more time talking on the cell phones than men (Junco, Merson & Salter, 2010). Females

were also more likely than men to make and receive more family-oriented as well as social-oriented calls (Wei & Lo, 2006). This social use of the cell phone among females is congruent with previous findings on the use of conventional telephones (Bianchi & Phillips, 2005; Smoreda & Licoppe, 2000; Wei & Lo, 2006). In addition, females consistently displayed higher levels of attachment to their cell phones (Geser, 2006). Regarding the overall time spent on the cell phone and problematic cell phone use, however, Bianchi and Phillips (2005), failed to identify any significant relationship with gender, concluding that the cell phone is a gender neutral device.

### **Theoretical Perspective**

Erikson (1968), in his psychosocial theory, describes adolescence as a period of searching for identity. Adolescents struggle with identifying who they are, to what group they belong, and whom they want to be. Elkind (1967), in his theory on adolescent egocentrism, pointed out heightened self-consciousness during adolescence. Adolescents become extremely self-conscious and pay significant attention to what peers think of them. Both Erikson and Elkind highlighted increased peer influence on adolescent development. An empirical study also confirmed that adolescents are particularly susceptible to trends, fashions and styles, which make them more willing to adopt new technological devices and certain behavioral characteristics (Ling, 2001).

Nested in a subculture of language, music, and clothing as well as social values, peer influence is expected to play a role in acquiring knowledge, skills, and devices in the area of communication, especially as they become readily available. In addition,

adolescents' tendency to value a sense of belongingness to their peer groups is likely to influence their decisions to acquire a cell phone as well as their perceptions of cell phones as a social-relationship-maintaining tool.

Both theoretical perspectives and previous empirical studies suggest that the recent rapid increase in cell phones has influenced multiple aspects of our daily lives, particularly those of young adults. The aim of the current study, therefore, is to examine how important it is for college students to own a cell phone, to what extent they communicate on the cell phone, with whom they frequently communicate, how serious cell phone dependency has become, as well as general cell phone use (e.g., prevalence, purpose, cost, history). Gender differences were also examined to provide additional evidence that clarifies current controversial findings. Financial responsibility (who is responsible for the cell phone cost), a scarcely examined topic, was also examined.

It is hypothesized that age, gender, and cell phone history (how long one has owned a cell phone) are associated with students' perception of cell phone importance and with cell phone dependency. It is also hypothesized that older students are more likely to be responsible for the cell phone subscription cost.

## **Method**

### **Survey Instrument**

In order to examine current cell phone use among college students, an anonymous survey was developed. The survey consisted of 44 questions that dealt with various aspects of cell phone use, including cell phone ownership, time spent on cell

phone calls, monthly cell phone bills, communication networks, text messaging, and cell phone dependency. While most questions were multiple choice, a few open-ended questions asked students their views of advantages and disadvantages on owning a cell phone. Demographic information (e.g., age, gender, ethnicity, student status, work status) was also collected.

### **Procedure**

Participants were recruited from students enrolled in courses in Human Development in a mid-sized, Midwestern university during 2009-2010. Extra credit was offered to those who participated in this survey. Students were given a few days to fill out the survey and submit to the designated place. It took 20-30 minutes to fill out the survey. A total of 501 surveys were returned and analyzed. SPSS was utilized to analyze quantitative data.

### **Participants**

Of the 499 participants who identified their gender, 340 (68.1%) were females and 380 (76.2%) were aged 20 or younger (mean=19.78, SD=2.88); 88.8% (442/498) were white; 96.4% (482/500) single. Further, 98.0% (490/500) were fulltime students, 34.7% of which (170/490) had a par-time or fulltime job.

## **Results**

### **Cell Phone Use in General**

It was revealed that 99% of the participants owned a cell phone and more than 90% of them reported that they have owned a cell phone for more than three years. Of

those who owned a cell phone, 7.1% reported that their cell phones were prepaid phones. It was also found that only 16.8% paid their cell phone bills, 8.1% paid partial bills and more than 75% did not pay at all.

Furthermore, nearly 30% of the participants did not have any idea of how much their cell phone bills were. Of those who knew their phone bills, 54.7% spend less than \$50 per month for their cell phones. While 55.6% reported that they spend less than 30 minutes a day talking on the cell phone excluding texting, 20.3% reported that they talk more than one hour per day. Regarding the main use of their cell phones, except for a very small number of participants who reported their main cell phone use to be business (.8%) or emergency (2.8%), more than 90% reported that their main use was private.

### **Financial responsibility**

Because so many students reported that they did not know how much their monthly phone bills were, this section examined factors associated with whether or not the participants knew their phone bills. There was a significant association between knowing their phone bills and gender  $X^2(1, n = 489) = 14.179, p = .021$ . Nearly 82% of male students knew their phone bills; only 65.1% of female students did. Similarly, compared with the participants aged 21 and older, those aged 20 or younger were more likely not to know their monthly phone bills  $X^2(1, n = 489) = 11.628, p = .000$ . While 82.9% of those aged 21 and older knew their phone bills, only 66.4% of those aged 20 or younger did.

Gender and age were associated also with paying one's own cell phone bills,  $X^2(2, n = 492) = 6.866, p = .03$ , and  $X^2(2, n = 492) = 40.535, p = .000$ , respectively. While 31.6% of males reported that they pay their phone bills fully or partially, only 21.3% of females reported to do so. Also, while 45.3% of those aged 21 and older paid their cell phone bills fully or partially, only 18.4% of those aged 20 and under did.

Financial responsibility was also associated with students' work status  $X^2(4, n = 493) = 29.029, p = .000$ . Among those with a fulltime job, 52.9% reported that they paid their cell phone bills and 11.8% reported that they paid partially. Among those with a part-time job, 23.5% reported that they were fully responsible and 7.8% partially responsible. However, only 11.5% of those with no job reported that they were responsible and 8.0% were partially responsible.

### **Importance of Owning a Cell Phone**

Students' perceptions of the importance of having a cell phone was examined by creating a composite score based on two Likert scale questions that assessed the importance of having a cell phone. Females reported higher importance score than males,  $t(493) = -4.836, p = .000$ .

Of the multiple factors examined, four predictors were identified: length of cell phone ownership, age at first cell phone ownership, length of cell phone use per day and gender,  $F(7, 477) = 9.468, p = .000$ . These four variables were accounted for 10.9% of the variance in the cell phone importance score.

### **Cell Phone Communication Network**

Factors associated with cell phone communication network were examined. One of the questions asked the participants to identify the most frequent person they talked on the cell. Of those who responded, 47.5% reported that they talk with family members (e.g., mother), followed by friends in general (26.9%), and particular friends such as close friends (25.6%).

Gender was found to be associated with the most frequent person of contact,  $X^2(2, n = 377) = 12.851, p = .002$ . Women were more likely to talk to their family members, followed by particular friends, and friends in general (51.2%, 27.8%, and 21.0%, respectively). Men were almost equally likely to talk to family members and friends in general (40.0% and 38.4%, respectively), followed by particular friends (21.6%).

Changes in the participants' social world due to owning a cell phone were examined. The participants were asked to select one of the three options: closeness with close friends has increased, social world has expanded by having more opportunities to get to know more people, and family bond has increased. More than one half (57.8%) reported that their existing relationships strengthened; 25.1% reported that their family bond has increased; 14.3% reported that their social network has expanded.

While there was no gender difference observed on the change in social relationships, age group was a significant predictor,  $X^2(2, n = 460) = 26.513, p = .000$ . Among the respondents aged 20 and under, nearly two thirds (61.5%) reported that their existing friendships have been strengthened, followed by increased family bond

(20.7%) and expanded social network (17.8%). On the other hand, less than one half (47.3%) of the older respondents (aged 21 and older) reported that their existing friendships have been strengthened, followed closely by increased family bonds (44.6%). A few reported that their social network has expanded (8.0%).

When controlling for gender, ethnicity was significantly associated with change in social network among female students  $X^2(2, n = 313) = 8.918, p = .012$ . Nearly two thirds (61.5%) of the White students reported that their existing friendships have been strengthened; 25.9% reported an increased family bond; 12.6% reported that they have expanded their social network. Among non-White students, however, less than one half (45.7%) reported that their existing friendships have been expanded; nearly one third (31.4%) reported that their social network has expanded. Only 22.9% reported that their family bond had increased.

Another question assessed the impact of owning a cell phone by asking the participants what would happen to their social network if they did not have a cell phone. Nearly 15% of the respondents reported that their social life would be absolutely damaged if they did not have a cell phone; 22.2% reported that their social life would not change. Others felt it would damage social life to some extent. Gender was found to be associated with this response,  $X^2(3, n = 488) = 9.739, p = .021$ . While 17.1% of the female students reported that not having a cell phone would absolutely damage their social life, only 9.7% of the male students did.

### **Cell Phone Dependency**

More than one half (55.6%) of the respondent reported that they talk less than 30 minutes a day on the cell while 20.4% reported that they talk more than one hour a day. Gender was associated with time spent per day on the cell,  $X^2(2, n = 493) = 19.355, p = .000$ . Among the male participants, 69.7% talked less than 30 minutes a day on the cell and only 11.6% talked more than 60 minutes a day. Among the female participants, however, only 49.1% spent less than 30 minutes on the cell while 24.6% spent more than 60 minutes a day on the cell.

Another question asked students what they would do when their cell phones break down. More than one half (59.5%) reported that they would buy another one right away. Only 1.1% reported that they would try to live without one. Others reported that they could wait at least a week or two for getting a new one. Again gender was a significant predictor,  $X^2(3, n = 472) = 19.374, p = .000$ . Women were much more likely to report that they would go buy a new one right away than were men (66.5% and 45.8%, respectively).

### **Discussion**

Almost all the participants (99%) in this study reported that they have a cell phone and more than 90% of them have owned one for more than three years. It was revealed that 75% of the students who own a cell phone did not pay at all for their cell phone expenses, and 29.5% of those who had a cell phone did not even know how much their cell phone bills were. It seems surprising to find that, in regard to cell phone

subscriptions, so many college students are financially dependent on their parents. However, it is understandable why so many students depend on their parents and some students do not even know their phone bills, when considering that many of these respondents have owned a cell phone since they were in high school. It also makes sense that older age and having a job contributed to the cell phone bill responsibility. However, these findings do not explain why female students remained to be more financially dependent than male students when there was no difference in work status between the two groups.

Females were found to perceive the cell phone as more important than males. This is consistent with the previous finding (Wei & Lo, 2006). Predictors of the cell phone importance identified in this study include history (length of cell phone ownership), age when a cell phone was first obtained, time spent per day on the cell, and gender. This is consistent with previous studies that examined factors associated with excessive cell phone use (Zulkerfly & Baharundin, 2009; Geser, 2006).

The female participants in the current study spent significantly more time on the cell phone than the males. This is congruent with previous findings (Junco, Merson, & Salter, 2010; Wei & Lo, 2006). While Bianchi and Phillips (2005) reported a contradictory finding, this study enhances the majority view that women are more prone to use cell phones. When the participants were asked what they would do when their cell phones break down, only 1.1% reported that they would try to live without one. This is a very clear indication that the cell phone has truly become an integral part of college student

life. Again, women were much more likely than men to report that they would buy one right away, indicating greater cell phone dependency among women.

One of the main questions in this study was to examine the cell phone in relation to social networking. Consistent with previous findings (Wei & Lo, 2006), female students were more likely to communicate with their families. Women were also more likely to use their cell phones to communicate with particular friends such as boyfriends and close friends than with friends in general. The male participants in this study, however, were equally likely to talk with families and with general friends. They were least likely to talk with particular friends. This may explain partially why women tend to spend more time on the cell phone. Communicating with general friends is more likely to be instrumental and the calls tend to be brief while conversation with close friends could be extensive. When it comes to the participants' perceptions of how owning a cell phone impacted their relationship dynamics, despite the fact that they were more likely to talk with their family members, only 25% of the respondents reported that their family bond increased. Instead, a majority reported that their existing friendships had strengthened. This finding supports previous findings that indicated that women use their cell phones for social rather than instrumental use (Smoreda & Licoppe, 2000; Bianchi & Phillips, 2005). However, further analysis revealed that this tendency was more prevalent among White females than non-White females. While for both groups, more participants reported that their existing relationships had strengthened, non-White students were much less likely than White to

report so (45.7% and 61.5%, respectively). Non-White females were much more likely than their White counterparts to report that their social next work has expanded (31.4% and 12.6%, respectively).

Most teenagers may acquire cell phones without thinking very much about how cell phones impact their social lives. Or, many parents may provide cell phones to their children, hoping to improve parent-child communication and also to use as a tracking device. However, possession of the cell phone in the teenage years may have unexpected influences on the developmental outcomes of the children. If the teenage years are a period of identity search (Erikson, 1968) as well as a period of heightened self-consciousness (Elkind, 1967), the impact of the cell phone may be greater than one could assume. Excessive use of the cell phone by those who had acquired one at an earlier age and the long history of being a cell phone owner both predicted the cell phone dependency.

In additions, friendship dynamics may be altered or may become more complex. The influence of the close relationship may be heightened. The cell phone may become too important and indispensable for some to the extent of pathological dependency. Teenage years are a period of reaching out for the possibilities, of meeting new people, of exploring the world. However, if the cell phone is being used to maintain existing relationships rather than to connect to new people, the world of the teenagers and their future possibilities may be shrinking instead of expanding. The younger students in the current study tended to use their cell phones for connecting with their existing friends

more than their older counterparts. Congruent with both Erikson's (1968) and Elkind's (1967) perspectives, this is a clear indication that the cell phone impacts teenage children in their socialization process.

Like any new technological advancement, the cell phone has its advantages and disadvantages. If not careful, one may be overwhelmed by one of the most influential communication tools made available in recent years.

### **Conclusion**

This examination of cell phone use revealed that the cell phone is not only a must-have tool for college students but also for high school students. As found in other cultures (Ling, 2001), cell phones seem to be must-have tools for high school juniors and seniors.

Gender differences were revealed in multiple aspects of cell phone use. Females, especially White females, were more likely to depend heavily on the cell phone for maintaining their social relationships. The cell phone has also contributed to younger people becoming more financially dependent on their parents. While it was beyond the scope of the current study, many issues related to the cell phone use are yet to be examined. The use of the cell phone while driving has taken lives of many teenagers. Public manners among the frequent cell phone users have been questioned. Obsession to text messaging has created issues especially among teenagers. The cell phone has already become an indispensable tool in the modern society. The efforts must be made to continually examine the impact of the cell phone on multiple aspects of human

development. Future research that focuses on the impact of the cell phone in relation to behavioral, social and personality development among younger generations are strongly needed.

## References

- Anna, L., Kari, T., & Anssi, A. (2006). Meta-analysis of mobile phone use and intracranial tumors. *Scandinavian Journal of Work, Environment & Health, 32*, 171-177.
- Bakke, E. (2010). A model and measure of mobile communication competence. *Human Communication Research, 36*, 348-371.
- Bianchi, A., & Phillips, J. G. (2005). Psychological predictors of problem mobile phone use. *CyberPsychology & Behavior, 8*, 39-51.
- Billieux, J., Linden, M., D'acremont, M., Ceschi, G., & Zermatten, A. (2007). Does impulsivity relate to perceived dependence on and actual use of mobile phone? *Applied Cognitive Psychology, 21*, 527-537.
- Block, J. J. (2008). Issues for DSM-V: Internet addiction. *The American Journal of Psychiatry, 165*, 306-307.
- Bond, E. (2010). Managing mobile relationships: Children's perception of the impact of the mobile phone on relationships in their everyday lives. *Childhood, 17*, 514-529.
- Caird, J. K., Willness, C. R., Steel, P., & Scialfa, C. (2008). A meta-analysis of the effects of cell phones on driver performance. *Accident analysis and prevention, 40*, 1282-1293.
- Campbell, S. W., & Park, Y. J. (2008). Social implications of mobile telephony: The rise of personal communication society. *Sociology Compass, 2*, 371-387.
- Chóliz, M. (2010). Mobile phone addiction: Point of issue. *Addiction, 105*, 374.
- Elkind, D. (1967). Egocentrism in adolescence. *Child Development, 38*, 1,025-1,034.
- Erikson, E. (1968). *Identity: Youth and crisis*. New York: Norton.
- Ezoe, S., Toda, M., Yoshimura, K., Naritomi, A., Den, R., & Morimoto, K. (2009). Relationships of personality and lifestyle with mobile phone dependence among female nursing students. *Social Behavior and Personality, 37*, 231-238.

- Geser, H. (2006). Pre-teen cell phone adoption: Consequences for later patterns of phone usage and involvement. *Sociology in Switzerland: Sociology of the Mobile phone*. Retrieved from [http://socio.ch/mobile/t\\_geser2.pdf](http://socio.ch/mobile/t_geser2.pdf)
- Horrey, W. J., & Wickens C. D. (2006). Examining the impact of cell phone conversations on driving using meta-analytic techniques. *Human Factors*, 48, 196-205.
- International Telecommunication Union (2004). *Social and Human Considerations for a more Mobile World Background Paper*. Retrieved from <http://www.itu.int/osg/spu/ni/futuremobile/>
- Jin, B., & Peña, J. F. (2010). Mobile communication in romantic relationships: Mobile phone use, relational uncertainty, love, commitment, and attachment styles. *Communication Reports* 23, 1, 39-51.
- Junco, R., Merson, D., & Salter, D. W. (2010). The effect of gender, ethnicity, and income on college students' use of communication technologies. *Cyberpsychology, Behavior, and Social Networking*. 13, 6, 619-627.
- Kelly, T. (2009, May). *Mobile 2.0 beyond voice? Research agenda*. Keynote address at International Communication Association preconference, Chicago, IL.
- Ling, R. (2001): Adolescent Girls and young adult men: Two subculture of the mobile telephone Kjeller, Telenor Research and development R&D Report 34/2001). [http://www.telenor.no/fou/program/nomadiske/articles/rich/\(2001\)Adolescent.pdf](http://www.telenor.no/fou/program/nomadiske/articles/rich/(2001)Adolescent.pdf)
- Ling, R. (2004) *The mobile connection: The cell phone's impact on society*. San Francisco: Morgan Kaufman.
- Lipscomb, T. J., Totten, J. W., Cook, R. A., & Lesch, W. (2007). Cellular phone etiquette among college students. *International Journal of Consumer Studies*, 31,46-56.
- McCartt, A. T., Hellinga, L. A., & Braitman, K. A. (2006). Cell phones and driving: Review of research. *Traffic Injury Prevention*, 7, 89-106.
- Nasar, J., Hecht, P., & Wener, R. (2007). 'Call if you have trouble': Mobile phones and safety among college students. *International Journal of Urban and Regional Research*, 31, 863-873.

- O'Brien, C. P. (2010). Commentary on Tao et al. (2010): Internet addiction and DSM-V. *Addiction*, 105, 565.
- Pettigrew, J. (2009). Text messaging and connectedness within close interpersonal relationships. *Marriage & Family Review*, 45, 697-716.
- Pies, R. (2009). Should DSM-V designate "Internet addiction" a mental disorder? *Psychiatry*, 6, 31-37.
- Rebello, J. (2010). *Global wireless subscriptions reach 5 billion*. Retrieved from <http://www.isuppli.com/Mobile-and-Wireless-Communications/News/Pages/Global-Wireless-Subscriptions-Reach-5-Billion.aspx>
- Smoreda, Z., & Licoppe, C. (2000). Gender-specific use of the domestic telephone. *Social Psychology Quarterly*, 63, 238-252.
- Walsh, S. P., White, K. M., & Ross, M. Y. (2008). Over-connected? A qualitative exploration of the relationship between Australian youth and their mobile phones. *Journal of Adolescence*, 31, 77-92.
- Wei, R., & Lo, V. (2006). Staying connected while on the move: Cell phone use and social connectedness. *New Media Society*, 8, 53-72.
- Zulkefly, S. N., & Baharudin, R. (2009). Mobile phone use amongst students in a university in Malaysia: It's correlates and relationship to psychological health. *Open Journal of Scientific Research*, 37, 2, 206-218.