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Perceived stress and self-regulation as predictors for Internet addiction in Palestinian youth

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Abstract

Objectives: The current study was designed to investigate the relationship between perceived stress, self-regulation, and Internet addiction in Palestinian Youth. **Methods:** A correlational study was conducted to examine the relationship between study variables. A random sampling technique was used to recruit participants from An-Najah National University (ANNU). 556 students participated, including 178 males and 378 females. **Results:** The findings showed a statistically significant positive correlation between Internet addiction and perceived stress ($r = .24, p < .01$); the regression analysis for predicting Internet addiction found that perceived stress contributes in a way that was statistically significant towards explaining variance in Internet addiction. Results also showed a statistically significant negative correlation between Internet addiction and self-regulation ($r = -.23, p < .01$). **Conclusion:** The study indicated that participants scored within the mild level of Internet addiction. While Internet addiction was positively correlated with perceived stress and negatively correlated with self-regulation, perceived stress was also negatively correlated with self-regulation. Further research into this relationship may be critical in devising interventions to reduce stress and increase self-regulation to combat Internet addiction among Palestinian youth.

Keywords: Internet addiction, Perceived stress, Self-regulation, Palestine.

الضغوط المدركة والتنظيم الذاتي ودرجة تنبؤهما بإدمان الإنترنت لدى الطلبة الجامعيين

ملخص

أهداف الدراسة: هدفت الدراسة إلى فحص العلاقة بين الضغوط المدركة والتنظيم الذاتي وإدمان الإنترنت لدى الطلبة الجامعيين الفلسطينيين، كما هدفت الدراسة إلى فحص القدرة التنبؤية للضغوط المدركة والتنظيم الذاتي بإدمان الإنترنت.

الأدوات: إستندت الدراسة الحالية إلى المنهج الارتباطي، الذي يهتم بفحص إتجاه العلاقة وقوتها بين متغيرات الدراسة المختلفة. تكونت عينة الدراسة من 556 طالب وطالبة من طلبة جامعة النجاح الوطنية في فلسطين، وقد بلغ عدد الطلبة الذكور المشاركين بالدراسة 134، في حين بلغ عدد الطالبات الإناث المشاركات بالدراسة 410، وقد تم إختيار أفراد عينة الدراسة بإستخدام الطريقة العشوائية البسيطة من خلال قوائم الطلبة المسجلين في أحد المساقات الإجبارية في الجامعة.

نتائج الدراسة: أظهرت نتائج الدراسة أن درجة إدمان الإنترنت لدى أفراد الدراسة كانت ضمن المستوى الخفيف، كما أظهرت النتائج وجود علاقة إرتباطية موجبة دالة إحصائياً بين إدمان الإنترنت والضغوط النفسية، ووجود علاقة إرتباطية سالبة بين إدمان الإنترنت والتنظيم الإنفعالي، وأظهرت النتائج كذلك وجود علاقة إرتباطية سالبة دالة إحصائياً بين التنظيم الذاتي والضغوط المدركة.

الخلاصة: أظهرت نتائج الدراسة الحالية وجود علاقة إرتباطية موجبة دالة إحصائياً بين إدمان الإنترنت، والضغوط المدركة ($r = .24, p < .01$)، وأشارت نتائج تحليل الإنحدار أن الضغوط النفسية المدركة تتنبأ بدرجة دالة إحصائية بإدمان الإنترنت لدى الشباب الفلسطينيين، وأظهرت النتائج كذلك وجود علاقة إرتباطية سالبة دالة إحصائياً بين الضغوط المدركة والتنظيم الذاتي ($r = -.23, p < .01$). بناءً على تلك النتائج، توصي الدراسة بضرورة إجراء مزيد من الدراسات المستقبلية التي تتناول متغيرات الدراسة الحالية، وتهدف إلى خفض الضغوط النفسية، وتحسين التنظيم الذاتي للحد من إدمان الإنترنت لدى الطلبة الجامعيين.

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Introduction

This study examines perceived stress and self-regulation as predictors for Internet addiction in Palestinian Youth. Researchers argued that college students' greater accessibility and use of the Internet, freedom, autonomy from authority, large periods of unstructured time, and encouragement given from school faculty and administration to use the Internet leave students more vulnerable to Internet abuse (Kandell, 1998; Ni et al., 2009; Niemz et al., 2005). The Internet is being used extensively all around the world, and the number of users is increasing daily. As such, computers and the Internet have become an essential part of our lives today, especially among adolescents and youth, and its problematic use leading to physical and psychological problems has been examined in many studies (Mahamid & Berte, 2018a, 2018b; Panicker & Sachdev, 2014; Velezmoro et al., 2010).

Research on Internet addiction has demonstrated that greater use of the Internet is associated with some social and psychological variables, such as declines in the size of one's social circle, depression, loneliness (Kraut et al., 2002), lower self-efficacy and life satisfaction (Berte et al., 2019), psychological distress (Al-Gamal et al., 2014), low self-esteem (Bozoglan et al., 2014), anxiety and stress (Seifi, 2014), and sleep disorders (Park, 2014). Previous studies suggest that adolescents who experience stress might be at risk of Internet addiction (Che et al., 2017; Chen et al., 2017; Jun & Choi, 2015; Sanghvi & Rai, 2015; Wang et al., 2015).

The first focus of this study is to examine the correlation between Internet addiction and perceived stress. Previous studies have indicated a significant positive correlation between perceived stress and Internet addiction (Bibbey et al., 2015; Chou et al., 2015; Jie et al., 2014; Kim et al., 2016; Li et al., 2016; Liu et al., 2018; Nassehi & Arbabisarjou, 2016). These studies have shown that individuals who are highly skilled in the area of self-regulation are generally less likely to engage in addictive behaviors. These individuals are also better equipped to cope with challenging situations and handle stress more effectively. While there is a wealth of data to support these conclusions, few studies regarding this phenomenon have been conducted in non-Western societies. No previous research was found to test

perceived stress and self-regulation as predictors for Internet addiction among Palestinian youth.

The living situations of youth in the occupied territories of Palestine is fraught with environmental stressors (e.g., militarization, poverty, lack of employment opportunities, cultural pressures, etc.) and few positive social outlets due to the restrictions on movement between communities, a lack of recreational facilities, and cultural standards of gender separation. In this situation, in the face of heightened stressors and few alternative avenues for socialization, it is likely that vulnerability towards the easily accessible and unrestricted social networks of social media could easily lead to excessive and maladaptive use (Mahamid & Berte, 2018a). The following study examines this premise by investigating the role of perceived stress and self-regulation as predictors for Internet addiction in Palestinian youth.

Theoretical Background

Internet addiction

The Internet, which has grown rapidly since its development in the 1990s, has become a major part of daily life. However, Internet usage can become excessive and uncontrolled (Chou et al., 2014). The Internet is an indispensable part of students' daily lives, as they use it for both educational and non-educational activities. Although this technology has been considered a positive change in the communication field and a critical requirement of modern life, excessive use of the Internet can lead to Internet addiction disorder (Nassehi et al., 2014).

Internet addiction (alternatively labeled with terms such as Internet dependence and problematic Internet use) has commonly been defined as high engagement with various Internet activities that the individual experiences as uncontrollable, and that has negative consequences for their physical and mental health, social relationships, and school or work performance (Kim et al., 2016). The American Psychiatric Association (APA) has included Internet gaming disorder as a preliminary diagnosis in Section III of the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (2013).

Internet dependence, a behavioral addiction, is characterized by symptoms such as the inability to restrict excessive use, continued use despite

psychological, physical, and social damage, and feelings of anxiety, aggression, and extreme irritability when Internet access is restricted (Odacı & Çelik, 2016).

Difficulties with time management and interpersonal relationships in adolescents have also been reported to be very common, due to addicts spending more time on the Internet than interacting with people in reality (Lai et al., 2013). In addition, adolescents with Internet addictions have been found to have academic difficulties due to excessive Internet usage (Li et al., 2016).

Internet addiction has been linked to stress and negative emotions among adolescents (Jun & Choi, 2015). However, little is known regarding the psychological mechanism associated with academic stress and its link with Internet addiction (Błachnio & Przepiorka, 2015). Stress is a state, or psychological process, in which the individual finds their physical and psychological well-being in a threatening situation (Yang et al., 2018). In fact, experiencing stress depends on how the individual perceives different situations and events. A situation may be safe for one person, but may be perceived as a threat for someone else (Busari, 2016).

Some results indicate that defective self-regulation plays a crucial role in the maintenance of Internet addiction (Billieux & Linden, 2012; Cimino & Cerniglia, 2018; Tokunaga, 2015; Tokunaga, 2017; Yildiz, 2017; Xu et al., 2015; Yang et al., 2018). Self-regulation is defined as a proactive process in which people organize and manage their thoughts, emotions, and behaviors to achieve goals (Zimmerman, 2000). In the updated cognitive-behavioral model of problematic Internet use, deficient self-regulation is also understood as a component of Internet addiction (Błachnio & Przepiorka, 2015; Casale, Primi, & Fioravanti, 2015).

Overall, the literature shows that Internet dependence is the subject of frequent research and is regarded as a widespread problem, particularly among youth (Akin & İskender, 2011; Koc, 2011; Mahamid et al., 2019; Morahan-Martin, 2005; Ozdemir et al., 2014; Young & Rogers, 1998)

Internet addiction and perceived stress

Perceived stress entails perception or assessment of threat coupled with a lack of resources to combat the stressor, irrespective of the actual threat

or tax on resources (Velezmoro et al., 2010). There are different sources of stress that students may encounter during their academic lives. The most reported sources of stress among university students include academic load (Kausar, 2010), being far away from home (Wiseman, 1997), interpersonal difficulties with lectures (Reddy et al., 2018), and financial difficulties (Heckman et al., 2014).

One model that is valuable for understanding stress among university students is the Person-Environment Model (Misra & McKean, 2000). This model suggests that individuals can consider stressful events as demanding or frightening. The perception of educational goals as a challenge generates stress, and in turn this stress creates a sense of competence and enhanced learning capability. However, perception of education as a threat generates a different type of stress, which brings forth hopelessness and a foreboding sense of loss, thus leading to unproductive behaviors such as Internet addiction (Khan & Kausar, 2013).

Al-Gamal et al. (2014) reported the prevalence of Internet addiction among university students in Jordan is 40%. They argued that Internet addiction was associated with high perceived stress among students, and those who used positive problem-solving techniques were more likely to experience lower levels of Internet addiction.

Yan et al. (2012) proposed that university students face many challenges from school, peers, family, and external stress, including stressful life events, which might pave the way for problematic use of the Internet. Although stressful life events are crucial to the development of Internet addiction (Akin & İskender, 2011), stressful life events do not lead to the same degree of Internet addiction for all youth, possibly because of individual differences in responses to life stress. For example, an avoidant coping style and maladaptive cognitions could mediate the relationship between stressful life events and Internet addiction (Banyard, 2005).

Findings from studies researching the correlation between perceived stress and Internet addiction are inconsistent. Most studies indicate a significant positive correlation between perceived stress and Internet addiction (Deatherage et al., 2014; Park, 2019; Velezmoro et al., 2010), while other studies showed no significant correlation between perceived stress and Internet addiction (Ko et al.,

2007; McNicol & Thorsteinsson, 2017). Possible explanations for these inconsistencies in findings could include a diversity of research tools, as well as unique ethnic characteristics of the populations studied (Chen et al., 2017).

The purpose of the current study is two-fold: (1) to examine correlations of perceived stress and Internet addiction among Palestinian university students; and (2) to observe the relationship between self-regulation and Internet addiction.

Self-regulation and Internet addiction

According to LaRose et al. (2003), the relationship between Internet addiction and deficient self-regulation can be explained by a classical conditioning process. That is, people's uncontrollable use of the Internet can happen when Internet use becomes the only way to relieve depression or stress (Kanthawongs et al., 2016). When Internet use becomes excessive, it causes problems in people's lives. Those negative life consequences may deepen dysphonic moods, leading to further reliance on the Internet for relief. Therefore, deficient self-regulation has been positively related to Internet addiction (Xu et al., 2015).

Social cognitive learning theory, as developed by Bandura (1993), suggests that an individual's self-regulatory mechanism can influence their level of self-control. Self-regulation is also defined as one's ability to focus on predetermined goals without distraction. People's failure to self-regulate might cause their Internet usage to increase (Morahan-Martin, 2005). Consequently, this situation is likely to turn into an Internet addiction. Therefore, students who have higher levels of self-regulation would show lower addictive Internet behaviors (Kanthawongs et al., 2016).

The literature features a number of studies on the relationship between self-regulation and Internet addiction. For example, Blachnio & Przepiorka (2016) explored whether insufficient self-control and self-regulation strategies in Facebook users are related to Facebook addiction. Results indicated that dysfunctional self-control systems put Facebook users "at-risk" of Facebook addiction. Similar findings were obtained by Yildiz (2009), who reported that external-dysfunctional emotion regulation, internal-dysfunctional emotion regulation, and internal-functional emotion regulation

significantly predicted both Internet addiction and smartphone addiction. In another study, Kwan & Leung (2016) investigated the relationships between parenting style, attachment style, self-regulation, self-esteem, and smartphone addiction. Results showed that parenting and self-regulation influenced Smartphone addiction. Furthermore, Foroughia et al. (2019) found that self-regulation negatively moderates the relationship between entertainment needs and Facebook addiction.

Palestinian university students are faced with a lack of security and dissolution of social structures, and factors which threaten their physical, emotional, and social development. The lives and well-being of these students, their friends and families are at risk daily. They may experience the loss of or separation from family members, and uprooting or expulsion from their homes. Their parents may become unemployed, and relations within families can be dramatically altered. However, responses to living in a context of violence and trauma are not universal in nature and can manifest in a range of mild-to-severe psychological and social problems. Traumatic and environmental factors in Palestinian society may lead to self-dysregulation among youth, which may lead to excessive internet use (Evren, 2018; Giacaman et al., 2007; Mahamid & Berte, 2018b).

Based on previous research findings, the current study was designed to answer the following questions:

1. What are the levels of Internet addiction, perceived stress, and self-regulation among Palestinian youth?
2. Are there significant correlations between Internet addiction, perceived stress, and self-regulation among Palestinian youth?
3. To what extent does perceived stress and self-regulation predict Internet addiction among Palestinian youth?

Research hypotheses:

1. Perceived stress is positively correlated with Internet addiction among Palestinian youth.
2. Self-regulation is negatively correlated with Internet addiction among Palestinian youth.
3. Self-regulation is negatively correlated with perceived stress among Palestinian youth.

Methodology

Participants

A random sampling technique was used to recruit participants at An-Najah National University (ANNU), using every 7th student to solicit for study purposes. Five hundred and fifty-six students participated, including 178 males and 378 females. 49.6% of the participants were from cities, 46.4% from villages, and 4.0% from refugee camps. 87.8% were undergraduate students, and the remainder were graduate students. 82.2% studied humanities, and 24.8% studied subjects in the sciences. The sample was selected from those who agreed to answer the study instruments. 640 questionnaires were distributed and 556 were completed and analyzed. The study was submitted for review by the An-Najah Institutional Review Board (IRB), and received approval before the study was administrated.

Measures

The Internet Addiction Test (IAT), (Young, 2012) was used to measure the level of addictive Internet behaviors. It consists of 20 items that measure mild, moderate, and severe levels of Internet addiction. Examinees responded to each statement with a number from 1 to 5 on a Likert scale continuum, indicating the extent to which they engage in a particular behavior. Mahamid and Berte (2018) validated the scale in a Palestinian context by using construct and content validity; the scale ended with 19 items to test Internet addiction, and Cronbach's alpha coefficients also indicated high internal consistency for the total scale (0.87).

The scale includes information on demographics, Internet usage, and perceived negative effects of Internet use on personal performance. The scale also measures Internet use according to the following criteria:

1. Controlled Use (20 – 49 points): Average on-line use; may include periods of excessive Internet use, but use is generally within expected quantity and without negative social, vocational, economic or academic consequences.
2. Occasional to Frequent Problem Use (50 – 79 points): Occasional negative impact of Internet use or frequent excessive use without impact.

3. Significant Problematic Use (80 – 100 points): Internet use causes significant problems or life challenges, including distress when unable to use and continued use despite negative impact.

The Self-Regulation Questionnaire (Erickson et al., 2018) was used to measure the level of perceived self-regulation. It consists of 22 items that measure a student's perceived level of proficiency in the four essential components of self-regulation: planning, monitoring, controlling & reflecting. Examinees responded to each statement with a number from 1 to 5 on a Likert scale continuum, indicating the extent to which they endorse that particular belief. A committee of 10 psychology experts reviewed the items of the scale for content validity and comprehensiveness. The researchers used a score of 80% agreement between experts for the inclusion of each item. Accordingly, minor modifications were made on the basis of feedback from committee members. In order to test reliability of the scale, Cronbach's alpha formula was used among a sample of 60 university students independent of the study sample (i.e., a reliability sample); Cronbach's alpha coefficients indicated a high level of reliability for the total scale (0.87).

The Perceived Stress Scale (PSS) (Cohen, 1998) was used to test students' perception of stress. It consists of 10 items that measure the degree to which situations in one's life are appraised as stressful. Items were designed to determine how unpredictable, uncontrollable, and overloaded respondents find their lives. The questions in the PSS ask about feelings and thoughts throughout the last month. In each case, respondents are asked how often they have felt a certain way. Examinees responded to each statement with a number from 1 to 5 on a Likert scale continuum, indicating the extent to which they endorse that particular belief. A committee of 10 psychology experts reviewed the items of the scale for content validity and comprehensiveness. The researchers used a score of 80% agreement between experts for the inclusion of each item. Accordingly, minor modifications were made on the basis of feedback from committee members. In order to test reliability of the scale, Cronbach's alpha formula was used among a sample of 60 university students independent of the study sample (i.e., a reliability

sample); Cronbach’s alpha coefficients indicated a high level of reliability for the total scale (0.80).

Statistical analysis

Self-report questionnaires were analyzed using Statistical Package for Social Sciences (SPSS) 25.

Means, standard deviations, and percentages were used to test the degree of Internet addiction, perceived stress, and self-regulation among university students. Pearson’s Correlation Coefficient was also conducted to test the relationship between Internet addiction, perceived stress and self-regulation among participants. A regression analysis was performed to test the causal relationship between perceived stress, self-regulation, and Internet addiction.

Results

Participants scored within the mild level of Internet addiction, with medium scores on perceived stress and high scores on self-regulation (Table 1).

Table 1

Means and standard deviations for research variables (N=556)

Variable	Mean	SD	Min	Max
Internet addiction	43.59	16.30	10	92
Perceived stress	18.84	3.87	5	30
Self-regulation	76.08	8.26	43	98

As shown in Table 2, Internet addiction was positively correlated with perceived stress and negatively correlated with self-regulation, while perceived stress was negatively correlated with self-regulation.

Table 2

Correlations among study variables (N=556)

Measures	(1)	(2)	(3)
(1) Internet addiction	-	.24**	-.23**
(2) Perceived stress		-	-.27**
(3) Self-regulation			-

**p < 0.01

The data confirms Hypothesis 1. Results of Table 2 show a statistically significant positive correlation between Internet addiction and perceived stress ($r = .24, p < .01$). The regression analysis for predicting Internet addiction (Table 3) found that perceived stress contributed in a way that was statistically significant towards explaining variance in Internet addiction ($B = .68, SE = .18, \beta = .16$).

Table 3

Regression to predict Internet addiction (N=556)

Variable	B	SE	β	t	p	95% CL
Self-regulation	-.369	.08	-.18**	-4.36	.000**	[-.53 - .20]
Perceived stress	.688	.18	.16**	3.81	.000**	[.33 - 1.04]
Gender	-.251	1.93	-.005	-.13	.89	[-4.06 - 3.55]
Faculty	-.067	2.66	-.001	-.02	.98	[-5.30 - 5.17]
Place	.256	1.17	.009	.21	.82	[-2.05 - 2.57]

**p < 0.01

Results also confirmed Hypothesis 2. Table 2 shows a statistically significant negative correlation between Internet addiction and self-regulation ($r = -.23, p < .01$). The regression analysis for predicting Internet addiction (Table 3) found that self-regulation contributed in a way that was statistically significant towards explaining variance in Internet addiction ($B = -.36, SE = .08, \beta = -.18$).

Hypothesis 3 was also confirmed. Table 2 shows a statistically significant negative correlation between self-regulation and perceived stress ($r = -.27, p < .01$).

Discussion

This study aimed to test the role of perceived stress and self-regulation as predictors for Internet addiction in Palestinian university students.

Perceived stress and Internet addiction

Perceived stress was positively associated with Internet addiction, which supports the first

hypothesis of the present research. These findings are consistent with studies indicating that perceived stress has a negative effect on student performance (Bozoglan et al., 2013; Kim et al., 2016; Li et al., 2016; Liu et al., 2018; Odacı & Çelik, 2016; Panicker & Sachdev, 2014; Velezmoro et al., 2010), is linked to Internet addiction, and is a possible predictor of Internet abuse (Busari, 2016; Hawi & Samaha, 2017; Jameel et al., 2018; Li et al., 2016; Song & Park, 2019; Tas, 2019; Ye, 2005). Although it is not possible to determine any causal relationships, though a bidirectional relationship may exist, it is possible that those who have pre-existing psychological problems may use the Internet as a means of stress relief. Similarly, it is possible that the high level of stress associated with college life may lead some individuals to abuse the internet use. Additionally, the Internet's saturation with social and emotional content may be especially attractive to college students eager to explore their life and social relations.

Our findings are consistent with similar studies, for example Samaha & Hawi (2016), who explored whether satisfaction with life, mediated by perceived stress, facilitates smartphone addiction. The results showed that a risk of smartphone addiction was positively related to perceived stress and negatively related to satisfaction with life.

Yan et al. (2013), investigated the relationship between recent stressful life events and Internet addiction in college students. The results indicated that, compared with non-addicted subjects, subjects with severe Internet addiction experienced more stressful life events.

Further, Akin and Iskender (2011) examined the relationships between Internet addiction, anxiety, and stress among university students. Results revealed that Internet addiction was positively predicted by stress and anxiety among university students.

Self-regulation and Internet addiction

A negative relationship between self-regulation and Internet addiction was found, which supported the second hypothesis of this study and is consistent with earlier studies (Billieux & Linden, 2012; Błachnio, & Przepiorka, 2015; Kwan & Leung, 2016; Tokunaga, 2015; Tokunaga, 2017; Yildiz, 2017). In general, people with self-regulation difficulties engage more frequently in thoughts related to unpleasant situations involving failure and

negative emotions. Moreover, they do not look for solutions and may use virtual reality to improve their mood and escape from real world problems (Billieux & Linden, 2012). Adolescents' Internet addiction may be increasing because they are not able to regulate their emotions against daily stressors. Adolescents with Internet addictions may be using smartphones and the Internet more frequently as a way to avoid negative emotions.

Griffiths (1999) emphasized that adolescents with high levels of Internet and smartphone addiction may be putting in efforts to regulate their emotions by using the Internet and smartphone excessively. In addition, Ching & Tak (2017) found a significant correlation between self-regulation and addiction among teenagers; participants with low self-regulation skills for impulse control and goal setting behavior had a higher risk of problematic behavior and substance use. Furthermore, Rouis et al. (2011) found that students who were more self-regulated were able to control their presence on Internet platforms more effectively. In another study, Mahapatra (2018) revealed that loneliness and self-regulation were considered as the main antecedents for smartphone addiction among adolescents in India.

This study has several limitations, providing areas of opportunity for future studies. First, it focuses on self-regulation, perceived stress, and Internet addiction among Palestinian university students; in order to generalize the findings, comparative studies in a different context should be carried out. Second, the study was entirely based on quantitative data collected via self-report instruments completed by participants, Therefore the data are personal and idiosyncratic, participants may not be able to provide the level of detail, or use the concepts, that the researcher is interested in. Third, self-regulation and perceived stress scales and their psychometric characteristics had not previously been tested with this specific population, therefore atypical results cannot be fully ruled out.

Conclusion

The current study supports previous findings demonstrating that perceived stress was significantly and positively related to excessive and problematic Internet addiction among university students. A significant negative correlation was observed between self-regulation and Internet addiction among

participants. Increasing self-regulation and reducing stress levels would be beneficial in reducing Internet addiction among university students. Further studies are recommended to test the relationship between current study variables and other related variables that may explain variance in Internet addiction among youth.

Ethical Approval

All procedures performed in this study involving human participants were in accordance with the ethical standards of University's Research Ethics Board, the American Psychological Association (APA, 2010) and with the 2013 Helsinki Declaration.

Informed Consent

Informed consent was obtained from all participants.

Compliance with Ethical Standards

Conflict of Interest

The authors declare that they have no conflict of interest. No funding was received for this study.

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