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When Do People Seek Internet Counseling? Exploring the Temporal Patterns of Initial Submissions to Online Counseling Services

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ABSTRACT

Internet counseling can be a valuable resource for people who cannot seek mental health care due to various reasons. The aim of this study was to analyze the time patterns of first-time contacts made by clients to online counseling services. Data from two online counseling service providers, encompassing 3,291 people, were analyzed. The results showed that people tended to contact online counselors during the seasons with less sunlight (winter and autumn), and during evening and afternoon. There were no pronounced day-of-week effects. These results support, to some extent, the seasonality and time-of-day patterns related to mental disorders and help-seeking.

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Online counseling; mental health; time patterns; healthcare utilization

Introduction

World Health Organization (WHO, 2004) defines mental health as "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community." Mental health is not merely the absence of mental illness, but rather a spectrum of well-being (Galderisi et al., 2015). According to WHO's World Mental Health Surveys, the global lifetime prevalence of mental disorders ranges from 12%–47% (Kessler et al., 2007). Yet, people often do not seek help for mental health problems. There are several treatment-seeking barriers involved, including the stigma associated with mental illness, lack of financial resources, the amount of energy and time seeking help takes, or simply that people do not know where to find adequate services (Tartakovsky, 2013). One of the solutions that could tackle these mentioned limitations could be Internet counseling, defined here as an exchange of information between the client and the

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Color versions of one or more of the figures in the article can be found online at www.tandfonline.com/wths.

counselor through computer-mediated communication technologies, because it is typically anonymous, lower cost or free, and available anywhere and at any time.

Online mental health interventions

While the very first electronic interventions were developed as early as in the 1960s (Grohol, 2004), the first *online* interventions were the online support groups and bulletin board services that started to emerge with the rise of the personal computer in the 1970s and 1980s (Grohol, 2004). Online counseling in the form of e-mails started in the mid-1990s; around the same time, psychoeducational websites were gaining popularity as well. This online counseling growth was facilitated by developments in hardware and software, Internet-based communication technology and web design that made long-distance communication effective and comfortable (Grohol, 1999, 2004).

According to Barak, Klein, and Proudfoot (2009), a web-based intervention is "a primarily self-guided intervention program that is executed by means of a prescriptive online program operated through a website and used by consumers seeking health- and mental-health related assistance." Barak and Grohol (2011) divide online mental health interventions into five categories: online counseling and psychotherapy, psychoeducational websites, interactive interventions, online support groups and blogs, and other types of interventions. The effectiveness of online interventions is similar to the effectiveness of face-to-face interventions (Barak, Hen, Boniel-Nissim, & Shapira, 2008).

This article focuses on Internet counseling. Internet counseling is difficult to define, as different authors offer different ideas of what Internet counseling is. Alleman (2002) defines Internet counseling as an ongoing, interactive, text-based, electronic communication between the client and a mental health professional aimed at behavioral or mental health improvement. Richards and Vigano (2012) offer a wider definition of online counseling as the use of computer-mediated communication technologies for the delivery of therapeutic interventions by a professional counselor in cyberspace. Mallen and Vogel (2016) define Internet counseling as:

> Any delivery of mental and behavioral health services, including but not limited to therapy, consultation, and psychoeducation, by a licensed practitioner to a client in a non-face-to-face setting through distance communication technologies such as the telephone, asynchronous e-mail, synchronous chat, and videoconferencing.

According to Baker and Ray (2011), Internet counseling is the intentional exchange of information intended to remedy a problem the client presents to the counselor or therapist.

In addition to different definitions, many similar terms are used interchangeably, including e-therapy or e-counseling, cybertherapy or cybercounselling, online counseling (Richards & Vigano, 2013), eHealth, web-based therapy, web-counseling (Barak et al., 2009), and intherapy (Lange, van de Ven, & Schrieken, 2003). According to Grohol (1999), Internet counseling is not a form of psychotherapy, but rather similar to coaching or guidance. However, Richards and Vigano (2012) define Internet counseling as a therapeutic intervention and the definition offered by Mallen and Vogel (2016) does not rule out therapeutic approach either. Taking into account the characteristics of the counseling services used in this study, which are outlined later in the introduction, we use a definition similar to that of Baker and Ray (2011) of Internet counseling as an exchange of information between the client and the counselor with the aim of solving the client's problem.

Internet counseling is mostly text-based—the client and counselor communicate via e-mail, chatrooms or forums—but video and voice calls are also used (Barak et al., 2009). Internet counseling can be divided into synchronous and asynchronous counseling (Suler, 2008). Synchronous counseling means that the client and the counselor are communicating in real time, using text chat or video calls. In the case of asynchronous communication, both the client and the counselor reply to each other's letters with a delay when it suits them. Although e-mail and forums are often considered asynchronous modes of communication, it is worth noting that both can be used for synchronous communication (Suler, 2008).

Advantages and disadvantages of Internet counseling

The strongest advantage of Internet counseling is its availability (Harris & Birnbaum, 2014). With traditional face-to-face counseling, limiting factors may include availability of time and transport, client's mobility (Barnett, 2016), and the cost of counseling (Riemer-Reiss, 2000). These limitations do not necessarily apply to Internet counseling. Furthermore, Internet counseling makes help accessible to people when there are not enough mental health specialists or when they are waiting for treatment in specialized mental health services (Trull & Ebner-Preimer, 2009). Although mental health professionals such as (clinical) psychologists, therapists, and psychological counselors are often the ones offering Internet counseling (Chester and Glass, 2006), some online interventions are provided by trained volunteers (Dowling and Rickwood, 2013), as is the case with one of the online counseling services used in the current study. This helps to lessen the workload of mental health professionals providing traditional therapy and counseling, as well as making primary help more available. It

has also been found that Internet counseling and other online interventions are effective prevention strategies in the case of subthreshold depression and reduce the incidence rate of major depression, thus further reducing the workload of mental health specialists (Cuijpers et al., 2017). Stigma has a small to moderate deterrent effect on help-seeking for mental health problems (Clement et al., 2015). Label avoidance—e.g., not seeking the institutions that mark them (e.g., mental health care)—can be one of the most significant ways in which stigma impedes care seeking (Corrigan, 2004). Internet counseling allows the client to retain their anonymity, which means that they can communicate more freely without having to fear judgement (Richards & Vigano, 2013). This can help clients feel safer and less vulnerable, which can have a facilitative effect on establishing and maintaining the therapeutic alliance (Harris & Birnbaum, 2014). In the case of text-based counseling, the chat history can be saved and available for later consultation, which allows the client to reread, rehearse, and reinforce the solutions discussed with the counselor (Rochlen, Zack, & Speyer, 2004).

Internet counseling also faces several challenges, of which the most substantial is the lack of nonverbal clues such as facial expressions and gestures (Rochlen et al., 2004). The lack of nonverbal communication clues in the case of text-based counseling may render evaluating the full extent of the client's problems difficult (Haberstroh, Parr, Bradley, Morgan-Fleming, & Gee, 2008). If the counseling is text-based, both the client and the counselor must be able to express themselves in writing. Internet counseling may not be effective if the client does not feel comfortable expressing themselves in writing (Rochlen et al., 2004). The aforementioned factors, especially the lack of nonverbal clues, may lead to misunderstandings between the client and the counselor (Harris & Birnbaum, 2014). In the case of asynchronous counseling, the delay in communication may lead to anxiety for both the client and the counselor (Richards & Vigano, 2013). However, it is worth mentioning that these challenges arise in the case of text-based counseling, but not in the case of video calls, which are synchronous and allow the client and counselor to see and hear each other. It has been found that video calls have demonstrated equivalent efficacy and reported client–counselor rapport compared to face-to-face care (Richardson, Frueh, Grubaugh, Egede, & Elhai, 2009).

There are several ethical aspects that have to be taken into consideration, as well. For example, asynchronous Internet counseling might not be the best solution for a client crisis, because the response by counselor might arrive too late to be of any help (Finn & Barak, 2010). There is a downside to anonymity as well: verifying a client's identity becomes critical when serious issues such as psychoses, sexual abuse, suicide, or intimate partner violence are raised (Harris & Birnbaum, 2014). Security and privacy must also

be taken into consideration and the nature of online counseling necessitates the use of encrypted communication (Barak et al., 2009; Lustgarten & Elhai, 2018).

As availability is one of the strongest advantages of Internet counseling, it is surprising that there is virtually no research on *when* people seek online counseling. Only Richards (2009) mentions that of 50 submissions made to the Trinity College online counseling system, 77% were made outside of the regular office hours (Monday to Friday 9:00 a.m. to 5 p.m.) and 29% were made on weekends. As further information regarding when people usually contact counseling services online is scarce, we will outline some aspects that affect mental health and help-seeking behaviors, including seasonality of mental health problems and factors predicting health care utilization.

Theory: Seasonality, day of week, and diurnal effects of mental health problems

Seeking mental health information online is more likely, if a person is currently experiencing mental health distress or has a history of mental illness (Powell & Clarke, 2006). Associations between mental health problems and seasons have been noted long ago, as Rosenthal and colleagues (1984) describe seasonal affective disorder with characteristic recurrent depressions that occur annually on the same time each year. During winter, people receive less exposure to sunlight. With the latter being the major source of vitamin D for most humans, seasonal variation (with wintertime lows) is found in the major circulating form of vitamin D (Holick & Chen, 2008). Vitamin D deficiency may affect mental health through several different mechanisms, including temporary discomfort, depression and fatigue in otherwise healthy individuals (Humble, 2010). Systematic review and meta-analysis by Anglin and colleagues (2013) is consistent with the hypothesis of low vitamin D concentration being associated with depression in adults.

In addition to vitamin D deficiencies' role in affective disorders and mediation of brain reactions, Ayers and colleagues (2013) pose other possible explanations of the seasonality of mental health information seeking:

1. Environmental factors (e.g., changes in daylight hours) influence circadian rhythms and physiologic irregularities in the body that affect mood.
2. Omega 3 consumption is higher in summer and lower in winter, as its deficiency is associated with depression, bipolar disorder, and schizophrenia.
3. Longer summer days create opportunities for social engagement.

4. Summer allows for outdoor exercise, with increased physical activity being associated with improved mental health. Thus, people are more likely to experience lower mood and seek counseling in winter rather than summer.

Although there is little research on day of week effects on mental health, there is evidence that during the week, mood varies according to a pattern. While it is important not to conflate mood with mental illness, mood and mood instability are an important part of mental health and the latter is often present in various mental disorders (Patel et al., 2015). In a national survey of 340,000 Americans, Stone, Schneider, and Harter (2012) found that there is strong support for better mood on Fridays and weekends compared to the rest of the week. No "Blue Monday" effect emerged, as Mondays were not different from the other weekdays. The perception of Blue Mondays is likely prevalent due to the extreme contrast in mood from Sunday to Monday. Helliwell and Wang (2014) found that people reported significantly more happiness, enjoyment, and laughter, and significantly less anxiety, sadness, and anger on weekends than on weekdays. However, in both studies, day of week effects were higher for people who work full-time and lower for those who are retired.

Diurnal mood variation (DMV) with early morning worsening is considered a classic symptom of melancholic features of major depressive disorder (Courtet & Olie, 2012). However, Morris and colleagues (2007) found that of the patients who experienced DMV, only 31.9% reported morning worsening, while 19.5% and 48.6% reported afternoon and evening worsening. Data from Twitter has been used to study mood variation during the day. Golder and Macy (2011) found that negative affect was the lowest in the morning and increased throughout the day. Lampos, Lansdall-Welfare, Araya, and Cristianini (2013) found that joy peaks mid-morning and decreases during the day. Anger and sadness showed a mid-morning peak as well, but stayed relatively stable throughout the day, whereas, fear was stable during the day and increased in the evening. These findings are supported by Dzogang, Lightman, and Cristianini (2017), who found similar patterns of good mood in the morning which decreases during the day.

Theory: What factors predict seeking healthcare?

What predicts whether someone seeks healthcare? One of the most common theoretical frameworks to answer that question is the behavioral model of health care use (Andersen, 1968; Andersen, 1995), or the Andersen healthcare utilization model (AHUM). AHUM posits that seeking

healthcare and using healthcare services is primarily driven by three factors: (a) predisposing factors, (b) enabling factors, and (c) need.

The main predisposing factors are a person's sociodemographic (e.g., age, gender) and psychological (e.g., mental dysfunction, cognitive impairment, autonomy) characteristics, and health beliefs. In addition, genetic factors have been considered as predisposing factors (Andersen, 1995); it could be elaborated that genetic differences might lead to differences in psychological traits, such as personality (McCrae et al., 2000). It could be argued that, as mentioned earlier, mental health related stigmas—or the perception of them in psychologically diseased—could be considered as predisposing factors. These elements are usually low in mutability.

Enabling factors are the resources that facilitate mental health seeking, such as community factors (e.g., availability of the healthcare personnel and facilities), and personal resources (e.g., income, health insurance, and travel and waiting times). Andersen (1995) notes that these factors, in contrast to other parts of the AHUM model, have a high degree of mutability. This is also the aspect where online settings (versus physically, face-to-face-present environments) can supersede the access to and utilization of counseling as a healthcare service.

Need embodies both the person's perceived (e.g., how people see their own general health and functional state) and actual (e.g., experiencing symptoms of illness) need for healthcare. The degree of mutability is somewhat questionable, rather leaning to the low side (Andersen, 1995).

It should be noted that the AHUM model has been revised and refined according to the proposed emerging model in Andersen (1995), with added feedback loops between the model components, and by using health outcomes as the endpoint of the model (whereas earlier models emphasized the utilization itself as the outcome). However, these components are not relevant to the current article, as we are dealing with only the initial, first-time contacts between clients and online counseling service providers.

According to the core of the AHUM, therefore, it could be argued that seeking counseling could depend on (a) predisposing factors, such as person's age, gender, personality traits, cognitive impairment, etc.; (b) enabling factors, such as the availability of a counseling service, person's income, health insurance, and travel and waiting times; (c) need for counseling, either perceived (does the person feel the need for receiving counseling?) or actual (does the person experience mental health problem related symptoms/discomfort?).

As discussed before, online counseling can solve certain access-related problems that may arise during help seeking. While predisposing factors and need also play an undisputable role in the utilization of online counseling, the main advantages of Internet counseling relate to the enabling

factors. In order to participate in a more traditional, face-to-face session, the person typically needs to sign up for the session, wait for the date and time until the meeting occurs, and travel to the physical session site. This all consumes probably more time, money, and effort than the online session and thus it can increase the probability of the person deciding not to seek counseling after all. Of course, this all presumes that the potential client knows where and how to look for counseling.

However, providing the service online could help decrease the costs of resources, and could elevate the motivation to "see" the specialist. For example, the two counseling service providers used in this study offer free Internet counseling, which means that the financial limitations of help-seeking are eliminated. Furthermore, user interfaces allow contact with online counseling service providers (or counselors themselves) directly and without too much cognitive need. In some situations, the potential client could send a direct e-mail to the counselor straight from the e-mail box displayed on the website of the service provider, as is the case with the service providers used in this study. In addition, typically, the counseling-seeker does not need to spend additional resources related to registering for and participating in a session, such as making an appointment over the phone or traveling to the counseling center or clinic. Also, it could be argued that the waiting time until the initial session could be shorter. For instance, online counseling (especially asynchronous) makes it possible for the service to be available virtually all the time, and it could be relatively simpler to start the counseling session online by sending the counselor an e-mail or a message.

The aim of this study

As mentioned earlier, one of the strongest advantages of Internet counseling is its availability: typically, it is possible to contact an online counseling service provider virtually any time, especially if the service is asynchronous in nature. However, the literature on this topic is limited, and the current study aims to advance that. By analyzing when people turn to online counseling, it is possible to gain insights into the workflow of such services and see how online aspects of counseling could be helpful in asking for and receiving help with mental health problems. The main goal of this study is to provide insights into potential time patterns of clients contacting online counseling service providers for the first time. As there is virtually no previous literature on the temporal patterns of seeking counseling online, we base our hypotheses on other factors that can influence mental health and help-seeking behaviors. Thus, we propose the following hypotheses:

H1: Of weekdays, most first-time contacts are made on Mondays and Tuesdays. This hypothesis is based on the work by Stone and colleagues (2012) who found that these days could be the emotional lowpoints of the week. People can be especially susceptible to lower mood on Mondays due to the extreme contrast in mood from Sunday to Monday, as it has been shown that people report significantly more happiness and enjoyment on weekends than business days (Helliwell & Wang, 2014). We expect to find statistically significant differences between these days and other days of week on Internet counseling initiation.

H2: Among days of the week, the least first-time contacts are initiated on weekends. Weekends are usually a time of relaxation and socializing, with people reporting feeling happier and less anxious and sad on weekends than on weekdays. This hypothesis is based on findings by Stone and colleagues (2012) and Helliwell and Wang (2014) who showed that people experience more positive affect on weekends, as well.

H3: Of time-of-day, we hypothesize that the most first-time contacts are made in the evenings. It has been shown that people's mood tends to worsen during the day, which may prompt them to seek help in the evening, when negative affect is the highest (Dzogang et al., 2017). It could also be the case that people have more time to deal with their mental health when they are not actively engaging in tasks demanding cognitive resources, such as learning at school or working at a workplace with a typical nine-to-five day. It is also possible that people prefer to seek help when they have more privacy, such as in the evenings after work or school has ended.

H4: Of seasons, the most first-time contacts are made during winter and autumn months (September to February). As there is less sunlight during those months, people lose a major source of vitamin D, which in turn can cause seasonal depression, fatigue, and discomfort (Holick & Chen, 2008; Rosenthal et al., 1984), which may prompt them to seek counseling.

Data from the two most popular online counseling service providers (in terms of consumers/clients), Lahendus.net and Peaasi.ee, of Estonia that encompass more than 3,000 first-time contacts of clients are analyzed. Both websites offer asynchronous, text-based counseling completely free of charge. Help-seekers can write to the counselors at any time and receive an answer within 2–5 days. In Lahendus.net, the counselors are psychology students who are supervised by qualified psychologists. The counseling takes place through the Lahendus.net web-environment, meaning that help-seekers must create an account to contact a counselor. In Peaasi.ee, the counselors are mental health specialists and the counseling is provided by e-mail. The focus group of both websites is 13–27 year olds, but the services are open to people of all ages.

This study focuses only on first-time contacts due to the data that was available. Specifically, the frequencies of first-time contacts are investigated in times of day (morning, daytime, evening, night time), days of week, and seasons of the year based on months (winter, spring, summer, autumn).

Table 1. The characteristics (age group and gender) of the sample.

	Male	Female	NA	Total
Until 12	9	69	0	78 (2.4%)
13–18	71	436	139	646 (19.6%)
19–26	168	518	476	1,162 (35.3%)
27 and older	206	558	590	1,354 (41.1%)
NA	12	22	17	51 (1.5%)
Total	466 (14.2%)	1,603 (48.7%)	1,222 (37.1%)	3,291 (100%)

Method

Sample

The sample comprised 3,291 people who contacted one of two most popular online counseling service providers (in terms of the number of clients; Lahendus.net, and Peaasi.ee) in Estonia for the first time. Lahendus.net provided the data for 1,743 first-time contacts, and Peaasi.ee dataset included 1,548 people. The sample breakdown in terms of age groups and gender is shown in Table 1.

Procedure and measures

Both data providers delivered the authors of this article the data of their clients' first-time contacts. The dataset was completely de-identified, and does not allow for the identification of people who contacted one of the online counseling service providers.

It is important to note that Lahendus.net and Peaasi.ee provided us the data on different levels of aggregation due to differing data storage and privacy policies. As Lahendus.net only provided data about first-time contacts, the data of recurrent contacts were removed from the Peaasi.ee dataset. Both datasets included timestamps of the first contact (dates and times). Additional characteristics of the dataset are described in Table 2. Age was aggregated to age groups in the Peaasi.ee data set as follows (in years): under and including age 12, 13–18, 19–26, 27, and older.

Data analysis

The data analysis was carried out in RStudio (R Core Team, 2017). In addition to R's base package, *dplyr* (Wickham & Francois, 2016) was used to process and transform the data. Heatmaps as graphical illustrators of the frequency of first-time contacts were created with *ggplot2* (Wickham, 2009), *directlabels* (Hocking, 2015), *viridis* (Garnier, 2016), and *ggExtra* (Attali, 2016). In each graph, we have used a full hour of the day on the y-axis. Additionally, age in Lahendus.net data was aggregated to age groups as in Peaasi.ee dataset. For hypothesis testing, we used the Marascuilo proportion testing method (Marascuilo & McSweeney, 1967; Snedecor & Cochran, 1989).

Table 2. The type and structure of the data from two online counseling service providers.

	Lahendus.net	Peaasi.ee
Data collection time	Nov. 2001 until Jan. 2017	Nov. 2013 until Feb. 2017
N (first-time contacts)	1,743	1,548
Variables	Age,a gender,[a] region[a]	Age group,[a] gender,[a] region[a]

[a]The clients were not obligated to disclose this information.

Table 3. The number of first-time contacts for online counseling by different times.

General time period	Breakdown of time periods	*N*	%
Seasons	a. Winter (Dec.–Feb.)	1,022	31.05[c]
	b. Spring (Mar.–May)	753	22.88
	c. Summer (June–Aug.)	601	18.26[a]
	d. Autumn (Sep.–Nov.)	915	27.80
Dark/light seasons	a. Autumn/winter	1,937	58.9[b]
	b. Spring/summer	1,354	41.1[a]
Time of day	a. Night (12:00 a.m.–05:59 a.m.)	340	10.33[c,d]
	b. Morning (06:00 a.m.–11:59 a.m.)	547	16.62[c,d]
	c. Afternoon (12:00 p.m.–5:59 p.m.)	1,140	34.64[a,b]
	d. Evening (6:00 p.m.–11:59 p.m.)	1,264	38.41[a,b]
Day of week	Monday	608	18.47
	Tuesday	531	16.13
	Wednesday	490	14.89
	Thursday	534	16.23
	Friday	406	12.34
	Saturday	349	10.60
	Sunday	373	11.33
	Average of all weekdays	470.14	
	Average of business days (Mon.–Fri.)	513.80	
	Average of weekends (Sat.–Sun.)	361	

Superscripted letters in the proportion (%) column indicate to statistically significant ($p < .05$) differences between the corresponding groups in comparison.

Results

The frequencies of first time online counseling contacting by different time periods are presented in Table 3. In addition, notations are added to indicate the statistically significant differences in proportions.

Most of the first-time contacts were initiated during the darker seasons (Autumn/Winter). Of seasons, significantly more first-time contacts were initiated in the winter than in the summer. There were significantly more first-time contacts made during the afternoons and evenings than during morning and night time. Most first-time contacts were initiated on Mondays and the least on Saturdays, but no significant differences between days of the week were found.

To illustrate the results, the frequency of first time contacts during specific times are depicted in heatmaps as follows. In Figure 1, the frequencies of first time contacts are presented by weekdays and times of day over the whole dataset; in Figure 2, these statistics are grouped by seasons of year.

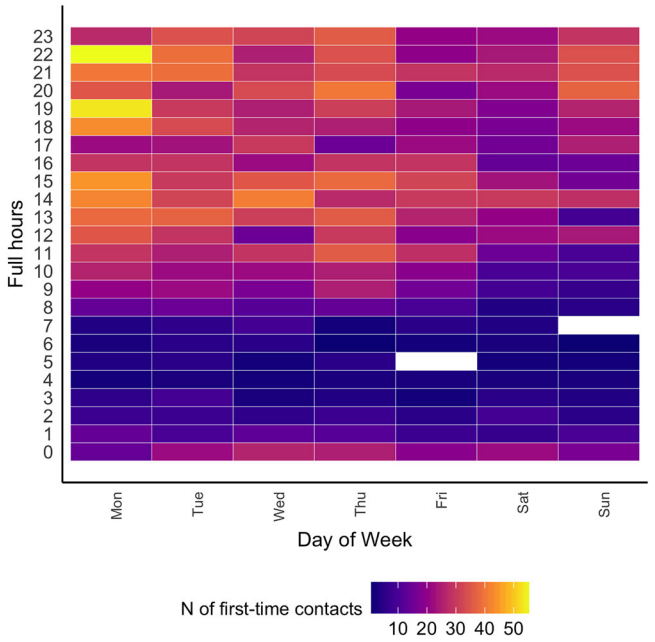

Figure 1. The number of first time contacts by weekdays and time of day. *Note.* White blanks on the graph represent missing values. Full hours = the time interval was between y:00 to y:59 (e.g., 13:00 to 13:59, etc.).

Discussion

Main findings

The results point to considerable seasonal and temporal trends in seeking help from Internet counseling. Winter months from December to February accounted for 31% of the initial contacts made. Although there is little reference material regarding time patterns of seeking online counseling, our current results might reflect seasonality in seeking health information online. According to Ayers and colleagues (2013), mental health queries in the United States and Australia followed seasonal patterns with winter peaks and summer troughs.

A majority of first-time contacts with Internet counseling providers were made during the evenings and afternoons. This temporal preference may be influenced by school or work routines—people might feel more comfortable or safe reaching for help in their home, with less possible disturbances. This notion is supported by the fact that contacting an online counseling service provider on Saturdays and Sundays took place earlier, compared to contacts made on business days.

The distribution of first-time contacts within the week indicates to a strong preference for making the contact during business days, with Monday being the day with most people seeking counseling. However, the

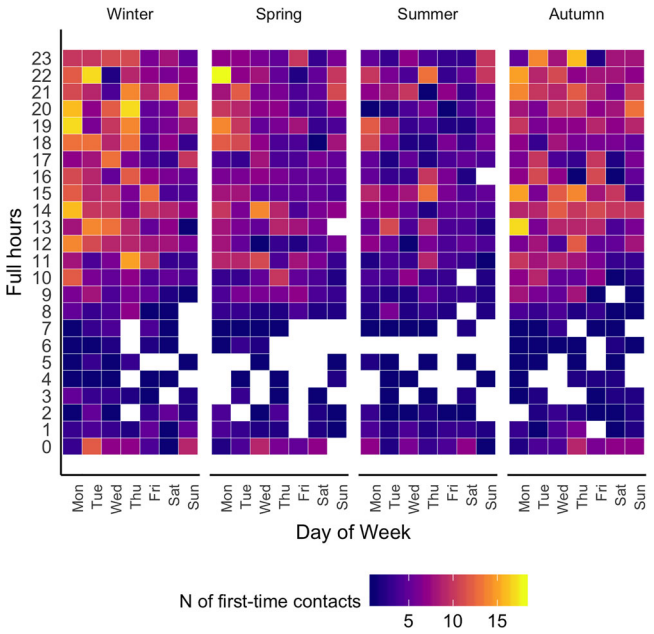

Figure 2. The number of first time contacts by weekdays, time of day, and seasons of the year. *Note.* White blanks on the graph represent missing values. Winter = December to February; Spring = March to May; Summer = June to August; Autumn = September to November. Full hours = the time interval was between y:00 to y:59 (e.g., 13:00 to 13:59, etc.).

proportions of people contacting an online counseling service on Mondays and Tuesdays did not differ statistically significantly from other days of week in pairwise comparison. Thus, our first hypothesis is rejected.

Similarly, pairwise comparisons between one of the weekend days (Friday, Saturday, Sunday) with other weekdays did not result in statistically significant differences in proportions of people contacting online counseling service for the first time, suggesting the rejection of our second hypothesis.

According to our third hypothesis, we expected that the most first-time contacts with an online counseling service are made during the evenings. While the number of first-time contacts differed statistically significantly between evenings (6:00 p.m.–11:59 p.m.) and morning time (6:00 a.m.–11:59 a.m.), and evening and night time (12:00 a.m.–5:59 a.m.), the difference between afternoon (12:00 p.m.–5:59 p.m.) and evening first-time contacts was not statistically significant. Therefore, the third hypothesis is partially supported. However, it should be noted that the categorization of afternoon time also probably included the times when people had finished working or their school classes were over by that time, keeping the idea of people contacting an online counseling service after cognitively demanding activities still possible.

People do make the most first-time contacts with an online counseling service provider during the seasons of the year when there is less light. The results suggest that seeking online counseling and actually contacting a counselor is statistically significantly higher during autumn and winter months than in summer and spring. Thus, the fourth hypothesis is supported. One possible explanation is that people experience mental health problems that could be associated with seasonal changes in sunlight that is a major source of vitamin D. Vitamin D deficiency may affect mental health and cause temporary discomfort, depression, and fatigue (Humble, 2010). This, in turn, might motivate some people to seek (online) counseling.

In addition, these findings can be placed within the context of the AHUM. Specifically, providing online counseling does seem to improve the limitations of some enabling factors, especially those that relate to the accessibility of counseling. It seems that people do reach out to online counselors during evenings, which are outside of the traditional office hours. However, it could not be derived from this article the extent to which resources are or could be saved due to potentially lower costs of consultations, decreased waiting time, and not having to travel (and spend both time and money on that). Though these relationships were not the focus in this study, they certainly are relevant to be addressed in future works.

Contribution, limitations, and ideas for further research

The main contribution of this study is providing empirical evidence about when people contact an online counseling service for the first time. To our knowledge, no studies concerning this have been published to date. Online counseling provides several advantages over traditional, face-to-face counseling sessions, as one can contact a counseling professional remotely, asynchronously, and with far less resources. The current article suggests, based on the analysis of e-mail timestamps, that later hours and colder and darker periods of the year could be the times when a lot of people might be seeking counseling. In addition, research on seasonality in mental health problems might indicate that these times are most popular due to higher tendency of people experiencing psychological problems. These results can be beneficial for improving the work of Internet counseling service providers, who can anticipate increased demands during evenings, darker seasons, and beginnings of the week.

Monitoring millions of users' health queries online can reveal the presence of a flu-like illness (Ginsberg et al., 2009) and is a novel approach to epidemiology; it could be, similarly, that monitoring and analyzing mental health related search terms could provide an estimate of people experiencing mental ill-health. Dodds, Harris, Kloumann, Bliss, and Danforth (2011)

used Twitter as a vast data source in order to explore experiential happiness as they provided a means to measuring, describing, and understanding the well-being of large populations. Both the pronounced weekly cycle and daily temporal patterns of happiness are similar to the findings in the current article: people tended to be least happy at the beginning of the week in Dodds and colleagues (2011), and people in the current study vastly contacted an online counseling service on Mondays.

The qualitative aspects of first-time contacts with an online counseling service provider cannot be derived from timestamps, meaning that the possible explanations of why people turned to a counselor remain hypothetical in this article. The data could benefit from including either symptoms or keywords associated with the nature of the reason for contacting. This could lead to a better understanding of clients' motives for contacting the online counseling service provider. Furthermore, the interval between becoming aware of the decline in one's health and seeking online counseling deserves research, as the delay in seeking help online might be considerably shorter compared to taking action in real life.

It would be interesting to compare the results of this study to the data from online counseling service providers from other countries and cultures. It is quite likely that all of these service providers possess the meta-data (such as timestamps) of their correspondence, and it could give a better understanding if the findings of this study are replicable elsewhere and if they are somewhat universal. Knowing the motivations and reasons for contacting the counseling services could also add a lot to the literature. This could be achieved either by qualitative methods (which in the case of the current study that involved more than 3,000 e-mails would be extremely resource demanding) or quantitatively (by applying text mining algorithms—on the premise of ensured client anonymity and confidentiality). Comparing the use of online counseling services to 24-hour phone hotlines and other alternative mental health services could also provide valuable insights into the role of Internet counseling in the mental healthcare network. Finally, it could be beneficial to learn about the economic and societal impact of online counseling. Do people who turn to online counseling service save time, money, some other resource? Of course, these questions are out of the scope of the current study. This article, however, could serve as an empirical starting point for background knowledge and/or hypothesis testing in such studies.

Conclusions

The aim of the current study was to analyze the timestamps of first-time online counseling contact initiations in order to understand if there are

certain times across a given year, week, or day when contacting the online counseling service for the first time is more frequent. The results showed that of days of week, Mondays tend to have more first-time contacts but the trend is not statistically significant. Of seasons, winter and autumn months tend to have more traffic than spring or summertime. People also contact an online counseling service more often during afternoons or evenings. These results are somewhat consistent with what the studies on seasonality of mental health issues have found. This article is the first to present the timestamp analysis of first-time contact initiation by client with an online counseling service provided, and could serve as an empirical starting point for time-pattern analysis in this domain in further studies. In addition, our findings indicate to the advantages that online counseling (vs. face-to-face sessions) might bring, as the access to counseling is better, and the costs could be lower. However, the latter conclusion needs additional analysis.

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