

Effects of Self-tracking on Personal Distress among Psychology Professionals and Trainees

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Abstract— Self-tracking is the process of observing, collecting, and accumulating data about oneself. It has featured as a central practice in health promotion and healthcare. Self-tracking falls under the umbrella of ‘*Quantitative Self*’. It is beneficial in the sector of mental health, as it helps users investigate psychological issues that can be linked to their immediate habits, and eventually look into their health and well-being in a more pervasive way. Personal distress is a self-centered aversive reaction that outcomes from the understanding of another’s distress. Psychologists are vulnerable to the effects of Personal distress, which if left unchecked may lead to burnout and impaired professional competence. The study aims to better understand the Impacts of Self-Tracking on Personal Distress in Psychology students and professionals. It will examine the feasibility of collecting & monitoring everyday mood through a self-tracking app: - “Daylio”. To attain this objective a sample of 20 Psychology Professionals & Trainees were taken for the interventional study. The study has two hypothesis, first, There will be a significant difference between pre and post-test scores of Personal Distress in Psychology Professionals & trainees and second, There will be a significant impact of Self Tracking on Personal Distress in Psychology Professionals & trainees.

All the statistical analyses will be conducted through IBM SPSS software version 20 and Content analysis. Paired sample t-test will be used to find the significant difference between pre and post-test scores. Content Analysis will be used to find the significant impact of Self-tracking on Personal Distress in Psychology Professionals and trainees.

The results revealed that self-tracking might have no significant impact on the level of personal distress experienced by the participants and It implies that self-tracking may not be an effective method for managing personal distress. Although, it might have a positive impact on Participant’s self-awareness and mood.

Index Terms: Self-tracking, personal distress, mood, empathy, mental health

INTRODUCTION

Significance of Self-tracking

Self-tracking has been at the centre of health promotion and healthcare for centuries. People have paid attention to the minute details of their bodily functions and more recently their mental states, their nutritional intake, body weight, drug use, and exercise habits, as part of attempting to achieve health-related goals or to manage illness and disease. The ‘*quantified self*’ to describe digital self-tracking has taken on particular cultural resonance. This term first emerged in 2007, when two Wired magazine editors, Kevin Kelly and Gary Wolf coined it to describe behaviours that they had observed among colleagues and friends involving the use of digital technologies such as apps and wearable devices to generate detailed personal information about their bodies and elements of their everyday lives (Lupton, 2017). They began organizing meetings of people interested in self-tracking and eventually launched a website: The Quantified Self. Over the past few years, a fascination with self-tracking and its implications for concepts of self, identity, social relations, and embodiment has gained attention in sociological and other social research (Lupton, 2017).

Self-tracking is beneficial, as it helps users investigate psychological issues that can be linked to their immediate habits, and eventually look into their health and well-being in a more pervasive way. Self-tracking helps in focusing on accomplishments and positive behavior, along with making them aware of the effects of variables (e.g mood or TV watching) that could be impacting their mental and physical

health. (Beudin, Intilla, Morris, 2006). Mood tracking and visualization can help students improve academic performance (Ruiz et al., 2016). Self Tracking is a kind of *Personal informatics*. The research literature on self-tracking highlights that there are distinct bodies of literature that differ in terms of their disciplinary embedding and associated research interests. The application of self-tracking has been studied under the domains of Health care, interaction design and systems development research, and the implications of self-tracking have been discussed under a critical-sociological lens in terms of surveillance, labour and loss of privacy. The application of self-tracking in the health care sector has been studied through interdisciplinary work on health informatics systems at the intersection of computer science and health studies. This strand of research centres on how self tracking technologies may be used by citizens to prevent and identify health issues with a view to optimizing health care services and the sector as such (Swan, 2009, 2012).

Personal Informatics

Personal informatics is a field that is based on collecting data of self on different aspects and reflecting on it. The purpose is achieved by utilizing self-tracking technologies. In less than a decade, a steady stream of new smartphone applications and wearable mobile sensors that allow users to monitor sleep, food intake, exercise, blood sugar, mood, and a host of other physiological states and behaviours has permeated the consumer health landscape, bearing the promise of cheaper, better, and more efficient healthcare (Sharon, 2017). Just as it is important to manage health behaviours such as sleep and exercise, the HCI community has long recognized the importance of tracking psychological elements of health (Kelley, Lee, & Wilcox, 2017). Personal informatics systems provide an edge over simply trying to remember and recall information about the self because pure self-reflection can lack accuracy. This can be a result of the fact that people have limited memory, and cannot directly observe some behaviors (e.g., sleep quality), and may not have the time to constantly and consistently observe some behaviors (e.g., manually counting steps throughout the day). Reflecting by using memory alone makes it difficult to see patterns and trends. People may also

not have the expertise or knowledge to make the correct conclusions about their observations.

The Experience of Personal Distress

Personal distress is an extreme and aversive empathic response. Psychologists are vulnerable to the effects of personal distress, which if left unchecked may lead to burnout, vicarious traumatization, and impaired professional competence. Psychologists are trained to provide high-quality services to others to rectify their emotional distress, behavioral and relationship dysfunction, and a wide range of suffering in these individuals. Yet, failure to engage in adequate self-care or the lack of client-practitioner boundaries puts psychologists at great risk of experiencing personal distress. Even though mental health professionals (MHPs) are committed to caring for others and derive great satisfaction from these activities, this satisfaction alone is not sufficient to sustain them throughout a professional career. As professionals, they can overlook the significance of creating a sustainable balance between caring for their clients and caring for themselves (Wise, Hersh, & Gibson, 2012). First explicated by McCann and Pearlman (1990), vicarious traumatization refers to a transformation in cognitive schemas and belief systems resulting from empathic engagement with clients' traumatic experiences that may result in "significant disruptions in one's sense of meaning, connection, identity, and world view, as well as in one's affect tolerance, psychological needs, beliefs about self and other, interpersonal relationships, and sensory memory" (Pearlman & Saakvitne, 1995, p. 151). Figley (1995) defined secondary traumatic stress as "the natural and consequent behaviors and emotions resulting from knowing about a traumatizing event experienced by a significant other—the stress resulting from helping or wanting to help a traumatized or suffering person". Figley (1995, 1996, 2002) has also coined the term compassion fatigue as a more "user-friendly" term to describe the phenomena of secondary traumatic stress. Though there are some differences between vicarious traumatization and secondary traumatic stress/compassion fatigue in terms of theoretical origin and symptom foci, all three terms refer to the negative impact of clinical work with traumatized clients. As such, henceforth we will use the term compassion fatigue to refer to the negative effects on

clinicians due to work with traumatized clients—except where a cited author has a clear preference in terminology. In addition to deteriorating the satisfaction of clinical work, the effects of compassion fatigue also impair the professional competence of clinicians of (Figley, 1996, 1999). Clinical social workers experiencing compassion fatigue are believed to be at higher risk to make poor professional judgments such as misdiagnosis, poor treatment planning, or abuse of clients than those not experiencing compassion fatigue (Rudolph, Stamm, & Stamm, 1997).

Mobile Mental Health Applications

Mobile phone health applications offer the benefit of immediate response to the outcome of this monitoring via delivery of mental health information based on changes in a real-time emotional state. Beiwinkel, T., Hey, S., Bock, O., and Rössler, W. (2017) worked on the advancement of a Mobile Health intervention based on self-tracking among cell phone clients with mental distress. A sample of 186 cell phone clients was enrolled with moderate to high symptoms. A month, the mediation will be contrasted with a self-observation without intervention bunch and control group. Phone interviews were directed, a month post-intervention, and a twelve-week follow-up to evaluate and concentrate on results. Furthermore, information from the client's everyday activities gathered during self-tracking will be utilized to explore hazard and defensive elements of emotional well-being in genuine settings. The outcomes were improvement of emotional well-being, further developed prosperity, helping attitude, client enactment, mentalities toward psychological wellness administrations, cell phone application quality, client fulfillment & commitment. Along these lines, this review will permit us to show the adequacy of a cell phone application as a broadly available and minimal expense mediation to work on emotional well-being on a populace level. It additionally permits distinguishing new appraisal approaches in the field of mental health study. Mood-quantification applications can be useful in many ways. People who suffer from mood disorders such as depression, bipolar, and anxiety can utilize such applications to gauge a sound understanding of their moods, for example, which activities trigger negative moods. Women who want to track their moods and

behaviours around their menstrual cycles every month can also use these applications.

The evidence base for the use of apps in the treatment of mental health conditions is most developed for the treatment of mood disorders. Meta-analytic evidence now supports the modest effectiveness of app-based interventions in improving self-reported symptoms associated with depression (Firth et al., 2017) and anxiety (Goreis et al., 2020). There is also developing evidence that digital interventions, including apps, can be effective in the reduction of suicidal ideation (Torok et al., 2020)

We used the mobile-based application Daylio. Daylio is a Mood Tracking application that handles the observing unpleasant states of daily existence. Daylio was made by Relaxio S.R.O. It is available both on Android and iOS stages. The application is a miniature journal-based application that empowers the tracking of the client's current temperament or mood without any hustle. The application's configuration is straightforward. It additionally shows the disposition history in a diagram configuration to help clients monitor their temperament. (Azham Hussain et al., 2020). Daylio utilizes a 5-point smiley framework for mood evaluation. It urges individuals to record their mood/temperaments and exercises consistently. Research uncovered that the Daylio is a successful, reliable, and proficient application. In any case, a detailed examination demonstrated that some concerns should be focused upon. Fixing these issues will positively work on the achievement and execution of the application and attract more clients.

MoodPrism App was utilized to finish a short mood questionnaire and in application evaluations and figure their responses into a mindset journal for a month on a sample of 234 middle-aged females who were chosen for this research. Hierarchical and mediation regressions were used to do statistical analysis. The results revealed that app engagement improves mental well-being and reduces the symptoms of depression and anxiety. Bakker, D., & Rickard, N. (2018), analyzed the viability of a self-monitoring mobile phone application by exploring the connections between application commitment and emotional wellness results. Smartphone apps are being utilized progressively for psychological well-being purposes, however proof of their adequacy stays restricted. These impacts were interceded by

improvement in self-awareness for emotions, however just for members who were clinically diagnosed. Awareness for Mental Health and Coping self-efficacy didn't play mediating roles. Further exploration is expected to uncover different systems that mobile mental health apps can use since Findings propose that other mediating influences might have not been estimated, and future examinations could confirm the discoveries by utilizing elective approaches, for example, correlation with a control group.

Kelley, Lee, and Wilcox (2017) worked on two pieces of research & they were directed to comprehend self-tracking for distress and mental health in understudy populations. Latest examinations with understudy populaces have analyzed the attainability of gathering ordinary temperament, movement, and social information. In any case, these examinations don't represent understudies' encounters and moves embracing self-following advancements to help mental health objectives. In the first place, center gatherings and card arranging exercises with fourteen understudy wellbeing experts uncover master points of view on the value of following for three situations. Additionally, an internet-based overview with a sample of 297 analyzes individual encounters with self-following and perspectives toward imparting self-followed information to other people. Discoveries attracted from these investigations to describe understudies' inspirations, difficulties, and inclinations in gathering and survey self-tracking information identified with mental wellbeing, and we contrast discoveries among understudies and analyzed psychological maladjustments and those without. They close with a conversation of difficulties and openings in utilizing self-tracking for mental health, featuring a few plan contemplations.

Challenges to the Use of Mental Health Applications

The mix of advanced cells, wearable sensor gadgets, and web-based media offer better approaches for observing and advancing mental and actual prosperity. In this commitment, they portray ongoing advancements in the field of versatile medical care (or mHealth), by zeroing in specifically on versatile emotional well-being applications. In the first place, we inspect the potential advantages related to this methodology, giving models from existing ventures.

Then, we recognize and clarify potential contrasts in the center between versatile emotional wellness and portable prosperity applications. At last, they talked about a few open difficulties related to the execution of this vision, going from the absence of proof-based approval to protection, security, and moral worries.

Other challenges include:

Safety Issues

There is limited research on the potential risks associated with mental health app use. Evaluation studies of certain apps often do not mention adverse events, although some have reported negative outcomes, for example, those reported with the use of a mindfulness app. (Clarke & Draper, 2020) Inaccurate app content can also pose safety concerns. Content reviews of mental health apps report that app content curated by non-researchers and non-clinician teams do not strongly follow evidence-based guidelines and can, in rare instances, include unsafe information that can pose a risk to the user.

Low Engagement

Research studies and public app deployments have consistently shown low engagement. A review of individual user data from over 100 000 participants of health app studies, including depression, found that the average period of engagement was just 5.5 days (A. Pratap, E.C. Neto, P. Snyder, C. Stepnowsky, N. Elhadad, D. Grant, M.H. Mohebbi, S. Mooney, C. Suver, J. Wilbanks, *et al.*, 2020). Similarly, examination of engagement with popular mental health apps from commercial marketplaces found that only 4% of users who downloaded a mental health app opened it again after 15 days (A. Baumel, F. Muench, S. Edan, J.M. Kane, 2019)

Privacy concerns

In both public and research contexts, the privacy of personal digital data is a key issue, spanning questions of confidentiality, appropriate information handling, and data security. Indeed, data privacy has been a consistent concern amongst potential users of digital mental health services, including apps (J. Proudfoot, G. Parker, D. Hadzi Pavlovic, V. Manicavasagar, E. Adler, A. Whitton, 2010)

METHODOLOGY

Sample:

Our sample consisted of 20 participants who had completed their undergraduate degree in psychology and were either trainees pursuing their masters or were mental health professionals.

Purposive sampling technique

- Educational qualification: - (Must have completed graduation in psychology)
- Gender: - Men, women, other
- Inclusion criteria: Participant must be pursuing (or have completed) M.A and above in psychology, Diploma, Ph.D., MPhil (students pursuing BA in Psychology were excluded)

Measures:

Personal Reactivity Index: It is a multi-dimensional assessment of empathy, created by Davis, M. H. (1980). The Scale has a strong Cronbach's alpha of 0.82. The scale has 4 subscales-Perspective Taking, Fantasy, Empathic Concern, and Personal Distress, each composed of 7 unique items. The scale comprises 28-items on a 5-point Likert scale going from "Does not describe me well" to "Describes me very well". We borrowed items related to personal distress and empathy from the Interpersonal Reactivity Index, organized them into a google form, and shared them before the intervention, and after the end of 10 days when the intervention was complete.

Daylio: Daylio is a Mood Tracking application that all the participants were supposed to download on their respective devices. Daylio was developed by Relaxio S.R.O. It is available both on Android and iOS stages. The application is a miniature journal-based application that empowers the tracking of the client's current temperament or mood without any hustle. Daylio utilizes a 5-point smiley framework for mood evaluation. It urges individuals to record their mood/temperaments and exercises consistently. The client initially chooses a state of mind or mood from the given spectrum of mood options. Exercises around that mood can also be recorded, lastly, they can record notes for additional subtleties. Individuals can record their mindsets however many occasions they need in one day. They can even redo the mood tracking by supplanting the current symbols with their own and renaming those symbols. Also, Individuals can likewise alter the action screen by adding their exercises and additionally practising symbols. (Beenish & Chaudhary, 2016).

S.NO	Name of tool	Author	Sub Scale	No. of Items	Reliability and Validity
i	Interpersonal Reactivity Index	Davis, M. H. (1980)	Personal distress	07	Cronbach reliability alpha(α): 0.82
ii.	Daylio App	Relaxio S.R.O	Mood	5-point emoticon (emoji) scale	

Design:

We studied two variables under our present study, the independent variable being self-tracking and the dependent variable being personal distress. Our study followed an interventional design. The study took place over ten consecutive days, wherein our participants had to provide us with daily mood reports after they logged their mood into the Daylio application on their devices.

Hypotheses:

H1: There will be a significant difference between pre and post-test scores of Personal Distress in Psychology Professionals & trainees.

H2: There will be a significant impact of Self Tracking on Personal Distress in Psychology Professionals & trainees.

RESULTS

Table 1: Difference in Pre & Post scores of Personal Distress of psychology Professionals after 10 days of Mood Tracking.

PAIR.1	Paired Samples Test							
	Paired Differences							
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
			Lower	Upper				
Pretest-Posttest	-.05000	4.13553	.92473	-1.98549	1.88549	-.054	19	.957

Table 1. represents the mean and standard deviation of Pair 1 that came out to be -.05000 & 4.13553. Hence, no significant difference was found in the Pre and post-test of Personal Distress of Psychology Professionals after 10 days of Mood Tracking at t value -.054 and P-value .957.

Content Analysis:

Content analysis was conducted to identify the global themes in our study. This was done using the responses we collected through our feedback form which we made and shared via a Google form. We were able to find themes, and the most common themes we saw were Improvement in mood, the convenience of self-tracking, making self-tracking a regular habit, and the perceived benefits of self-tracking.

Table 2: Themes that emerged in the present study

<i>Global Theme</i>	<i>Basic Themes (codes)</i>
Improvement in mood	<ul style="list-style-type: none"> ● Identification of mood patterns ● Stability in mood
Convenience of self-tracking	<ul style="list-style-type: none"> ● User-friendly application ● Accessible app interface ● Mood tracking is convenient ● Time-efficient
Making self-tracking a habit	<ul style="list-style-type: none"> ● Easy to keep up with ● Desire to recommend to others
Perceived Benefits of self-tracking	<ul style="list-style-type: none"> ● Increase in self-awareness ● Convenient form of self-care ● Organization of emotions ● Emotional regulation ● Emotional stability

Table 2. Represents the global themes and the corresponding sub-themes that emerged when analyzing the responses provided to us via the feedback form.

INTERPRETATION AND DISCUSSION

The objective of the study was to study the effects of self-tracking on the personal distress of psychology professionals and trainees. Self-tracking is the process of observing, collecting, and accumulating data about oneself. It has featured as a central practice in health promotion and healthcare. Self-tracking is a vital part of personal informatics. Personal distress is a self-centered aversive reaction that results from the understanding of another's distress, and its management is crucial for practitioners. The purposive sampling technique was used to select 20 psychology trainees and professionals. The data was collected using a google form and daily mood reports were collected using the Daylio app. Additionally, the elaborative feedback collected aided in performing the content analysis. The Hypothesis for our study was:

H1: There will be a significant difference between pre and post-test scores of Personal Distress in Psychology Professionals & trainees.

H2: There will be a significant impact of Self Tracking on Personal Distress in Psychology Professionals & trainees.

SPSS, version 20 was used and the statistical analysis was done using paired sample t-test and Content analysis. After the analysis, the mean and standard deviation of Pair 1 came out to be -.05000 & 4.13553. Hence, no significant difference was found in the Pre and post-test of Personal Distress of Psychology Professionals after 10 days of Mood Tracking at t value -.054 and P-value .957. This implies that Self-tracking might not result in lower levels of Personal distress. Hence, hypotheses H1 and H2 were rejected and there's no recent study to support this result.

The results of the content analysis showed that most of the participants felt that there was an improvement and their mood after 10 days of continuous self-tracking. Most of them also agreed that self-tracking was very convenient. Participants reported that they experienced an increase in self-awareness and some of them even viewed self-tracking as a form of self-care.

However, the results also showed that most participants did not see a change in their empathy levels after regular self-tracking. This implies that self-tracking might have negligible or no impact on empathy levels. However, this can be an outcome of a small sample size or a limited duration of intervention.

CONCLUSION

Self-tracking consists of observing, collecting, and accumulating data about oneself. The study aimed to study the effects of self-tracking on the personal distress of psychology professionals and trainees. As per the results, there is no significant difference in the pre-test and post-test results of the participants, and there is a negligible impact on the level of personal distress experienced by the participants, this means that both our hypotheses have been rejected. This implies that self-tracking might not be the best tool for reducing personal distress that is experienced by psychology trainees and mental health professionals. The study however was able to reflect how self-tracking was beneficial in other ways- the participants saw it as a form of self-care and a way to

boost self-awareness, participants mentioned how self-tracking motivated them to self-reflect. Regular self-tracking also aided mood stability. Most participants also added that they would recommend self-tracking to others as well.

LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

The limitations of the study include - the limited duration of intervention, possible lack of intrinsic motivation on the part of the participants, and relatively smaller sample size

As per the results, there is no significant difference in the pre-test and post-test results of the participants, and there is a negligible impact on the level of personal distress experienced by the participants, this might be due to the small sample size and brief intervention period of 10 days. In future research with a bigger sample size and extensive period of intervention, might result in more significant results.

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