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Introduction

We are pleased to introduce you to our summer 2017 issue. Overall, the *IAFOR Journal of Psychology & the Behavioral Sciences* covers a variety of topics about applications of psychological theories and principles in educational settings, improvement of mental health conditions, human development, psychological outreach services and community development, family studies and professional practice, as well as articles addressing the needs of at-risk children, youth and families, and vulnerable populations.

The journal is an internationally peer-reviewed and editorially independent interdisciplinary journal associated with The International Academic Forum's conferences on Psychology & the Behavioral Sciences. This issue is devoted to several interdisciplinary studies that represent diverse topics, cultures and disciplines in the fields of psychology and the behavioral sciences. All papers published in the journal have been subjected to the rigorous and accepted processes of academic peer review. Some of the articles are original submissions and some are significantly revised versions of previously presented papers or published reports in IAFOR's conferences and proceedings.

We would like to express our deep appreciation to all reviewers for taking time from their busy schedules to review each assigned manuscript, offer their professional expertise, and make recommendations for improvement of these published manuscripts. Also, we would like to take this opportunity to acknowledge the hard work of our support staff at IAFOR who were involved in the publication of this journal.

Please note that we are seeking manuscripts for our upcoming autumn 2017 issue. Below is the link to the journal's webpage for your attention; please review this webpage to become familiar with the journal's objectives and the submission guidelines for authors:

ijpbs.iafor.org

If you have any questions, please do not hesitate to contact us. Otherwise please send your manuscript to the journal's editors via the manuscript submission form available on the journal website. Thank you for considering this invitation and we look forward to hearing from you soon.

Best regards,

Dr Sharo Shafaie, PhD

Dr Deborah G. Wooldridge, PhD

**Editors, *IAFOR Journal of Psychology & the Behavioral Sciences*
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Pleasure, Arousal, and Dominance Mood Traits Prediction Using Time Series Methods

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Abstract

Independent mood traits comprise three primary components – pleasure, arousal, and dominance (Mehrabian, 1996). Forecasting these traits is beneficial for several subjects, such as behavioral science, cognitive science, decision making, mood disorders treatment, and virtual character development in artificial intelligence. In this study, an extended model is proposed to predict independent mood components based on the emotion and mood history of 108 individuals with different backgrounds and personalities. Emotion history of all these individuals was recorded hourwise for six days, and their daily mood history obtained. The proposed model consists of various types of statistical forecasting methods, such as Holt-Winter's additive model and seasonal time series model, by integrating current known appraisal theories and aided by mood history probability distribution. The predicted values for the seventh day and the trend of the outcome results reveal that: (1) Pleasure mood trait trend varies significantly between individuals, but it can be considered as predictable; (2) Arousal mood trait is unpredictable for a short time interval; however, it is possible to have close predictions over long time intervals. (3) Dominance mood trait can be predicted for a short time interval, but not for a long time interval. These findings can shed light on the way mood states and behavior of human beings can be predicted.

Keywords: mood prediction, emotion forecasting, time series, decision making

During the last few decades, finding a model to describe and predict mood states has played a significant role in many fields of study, such as behavioral science, artificial intelligence, and mood-related disorders studies. Developing such models for predicting mood states can be used to identify possible treatments for mood-related disorders. Therefore, researchers in the field of psychology were mostly interested in using such models for treating disorders such as depression and different types of bipolar mood disorders (Daugherty et al., 2009; Ortiz et al., 2015). In addition, developing a virtual character to be used in a humanoid robot and video games is the other most frequent usage of mood states forecasting models in the field of artificial intelligence and entertainment industries, respectively (Egges et al., 2003; Kazemifard et al., 2006; Gebhard, 2005; Kasap et al., 2009).

The most basic model to describe how objects, agents, and events are appraised based on personalities of individuals was introduced by Ortony, Clore, and Collins (OCC) in the early 1990s (Ortony et al., 1990). The OCC model can be divided into three branches: (1) Appraisal of events to be found pleasant or not with respect to the agent's goals; (2) Actions of the agents to be approved or denied; and (3) Appraisal of liking or disliking objects based on behavior of the agent (Kazemifard et al., 2006). On the other hand, Mehrabian introduced a model based on three almost independent mood traits – Pleasure, Arousal, and Dominance (PAD) – to describe emotion and mood states (Mehrabian, 1996). Again, the ALMA approach was introduced as the combination of the OCC and PAD models by mapping OCC emotions to PAD mood components (Gebhard, 2005). Each mood state has been defined over time by the three PAD mood components, and can be updated by the occurrence of emotion states and previous mood states.

In the proposed approach, these PAD mood traits are updated and forecast based on the OCC, Mehrabian, and ALMA models by using time series forecasting methods, information regarding personality traits, estimated emotion states, and mood history probability distribution of individuals. In this methodology, a mapping from personality traits to PAD space is used to assign the initial mood state for each PAD component (Mehrabian, 1996; Gebhard, 2004), and a proposed formula is applied to update the mood states based on emotion and mood states history (Mehraei & Akcay, 2016). In the forecasting stage, time series methods are used to predict the possible emotion states, and mood states history is applied to assign probabilities to the predicted mood states.

Methods

Sampling and Data Collection

The sample in this study consists of 108 volunteers, who are mostly international students or staff at Eastern Mediterranean University. Since these volunteers were born in different countries, they have diverse backgrounds and values. Therefore, it was essential to collect information about their personality type. In this study, OCEAN personality traits – which are Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (Mehrabian, 1996) – were measured for each individual (Goldberg & Lewis, 1992). Moreover, the most significant emotion that each individual felt hour by hour in his/her awake time for six days was recorded by making the volunteers keep the questionnaire with them for the whole week. The possible emotion states were described to the volunteers carefully before they started filling the questionnaire to make their answers accurate for the study. The initial number of volunteers was 150, but 42 of them were eliminated from the study because there was either some missing data or signs of reluctance on their part in filling the forms. The reliability of their answers was tested by checking whether the trend of their emotional states was random

or not. 108 of the initial sample size satisfied the conditions and were selected for being processed.

Initializing and Updating Mood States

The initial mood state for each individual was measured by a mapping from OCEAN personality traits into Mehrabian's PAD space (Mehrabian, 1996; Gebhard, 2004). This mapping is defined as following: (1) Pleasure = $0.21 \times \text{Extraversion} + 0.59 \times \text{Agreeableness} + 0.19 \times \text{Neuroticism}$, (2) Arousal = $0.15 \times \text{Openness} + 0.3 \times \text{Agreeableness} - 0.57 \times \text{Neuroticism}$, and (3) Dominance = $0.25 \times \text{Openness} + 0.17 \times \text{Conscientiousness} + 0.6 \times \text{Extraversion} - 0.32 \times \text{Agreeableness}$.

To update mood states, the same proposed formula was applied which was used in the previous study (Mehraei & Akcay, 2016). In this formula, mood states are updated by considering them as a function of previous mood and emotional states. Since changes in emotion states are more sensitive to time compared to mood states, a mood update is applied after the occurrence of 12 emotion states. The formula is as follows: $M_{12t} = W_1 M_{12t-12} + W_2 \phi(e)$, where

$$\phi(e) = \frac{e_{12t} + e_{12t-1} + \dots + e_{12t-11}}{12}, \quad t \text{ represents time scale, } M_{12t-12} \text{ is the previous mood, } \phi(e) \text{ is}$$

the history of previous emotion states, and W_1, W_2 are coefficients as weights. The values to be assigned as coefficients can be measured based on individual's possible mood swings. For example, we expect patients suffering from bipolar mood disorders or panic disorders to experience mood swings much more than healthy individuals (Bowen et al., 1994). Therefore, the value of the coefficient should be considered bigger in such patients and to have a higher weight for the last 12 emotion states rather than the weight for the previous mood. In the present study, these coefficients are considered as constant coefficients since the volunteers were selected randomly with no record of mental illness.

To measure emotion history function values in the formula, the average of the last 12 emotion states were considered. Each of these emotion states was recorded by using the OCC model to distinguish between possible emotions. ALMA's approach to mapping from the OCC emotions to Mehrabian's PAD independent mood traits is illustrated in Table 1 (Gebhard, 2005).

Emotions	P	A	D
ADMIRATION	0.5	0.3	-0.2
ANGER	-0.51	0.59	0.25
DISLIKING	-0.4	0.2	0.1
DISAPPOINTMENT	-0.3	0.1	-0.4
DISTRESS	-0.4	-0.2	-0.5
FEAR	-0.64	0.6	-0.43
GLOATING	0.3	-0.3	-0.1
GRATIFICATION	0.6	0.5	0.4
GRATITUDE	0.4	0.2	-0.3
HAPPY FOR?	0.4	0.2	0.2
HATE	-0.6	0.6	0.3
HOPE	0.2	0.2	-0.1
JOY	0.4	0.2	0.1
LIKING	0.4	0.16	-0.24
LOVE	0.3	0.1	0.2
PITY	-0.4	-0.2	-0.5
PRIDE	0.4	0.3	0.3
RELIEF	0.2	-0.3	0.4
REMORSE	-0.3	0.1	-0.6
REPROACH	-0.3	-0.1	0.4
RESENTMENT	-0.2	-0.3	-0.2
SATISFACTION	0.3	-0.2	0.4
SHAME	-0.3	0.1	-0.6

Table 1: Mapping from OCC into PAD.

Forecasting Emotion Traits by Time Series Methods

Time series analysis is a statistical method to describe, analyze, and predict the behavior of systems based on discrete time dimension. In other words, time series is a recorded data set based on time, and its main application is to predict unknown future data by using observed data. This method has been applied in many fields and topics such as finance and econometrics (Enders, 2004), climate and weather forecasting (Lau & Weng, 1995), and social sciences (McCleary et al., 1980). There are different types of time series methods, and choosing the appropriate one is essential to develop an accurate model.

In our study, emotion states of each individual were recorded based on time, and time series as a forecasting method seemed an appropriate model to predict its possible emotion states. Since pleasure, arousal, and dominance mood traits are considered to be independent of one another (Mehrabian, 1996), time series methods were applied to each one of these components separately. The statistical software package, which has been used to choose between time series various types, is the 20th version of Statistical Package for Social Sciences (SPSS).

PAD Mood Traits Prediction

The aim of this study was to predict the possible PAD mood traits of each individual at the end of the week by having information about the individual's personality and his/her emotion states time series data for the first six days.

The possible values for each of PAD components are between -1 and 1. To distinguish between mood states, it is essential to categorize them based on the combination of positive/negative signs for each of these PAD components. These mood groups are illustrated in Table 2 (Mehrabian, 1996).

+P +A +D	Exuberant	-P +A +D	Hostile
+P +A -D	Dependent	-P +A -D	Anxious
+P -A +D	Relaxed	-P -A +D	Disdainful
+P -A -D	Docile	-P -A -D	Bored

Table 2: Mood groups based on PAD traits.

Based on the emotion states time series data, it was possible to predict the trend of each PAD traits by using time series methods. Moreover, it was possible to update mood states based on the proposed formula and assigning them to one of the groups provided in Table 2. However, it has been noticed that for all individuals, there are times when one or some components of PAD mood traits are not predictable. In such cases, it is essential to consider mood history probability distribution of each individual to predict certain unknown PAD traits at the end of the sixth day. If someone does not experience a particular mood state within six days, it does not mean that the person will not experience it during the seventh day. Thus, the probability that such mood states occur in the corresponding mood history probability distribution shouldn't be equal to zero. Therefore, 20 percent of prospects are considered to be the mood states of an individual that he/she did not experience during the previous week.

Results and Discussion

The advantage this study has over the previous one (Mehraei & Akcay, 2016) lies in its larger sample size. In the previous study, the way mood states could be predicted by using time series methods was described. However, significant results could not be obtained for the data because it was gathered from only three individuals. In this study, the data are recorded from 108 volunteers and thus offers significant results.

As expected, personality traits of these individuals differed significantly from each other. As soon as the OCEAN personality traits of the individuals were obtained, their initial PAD traits were also measured by the mapping explained in section 2.2. For example, for one of the individuals Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism were found to be 0.65, 0.97, 0.35, 0.60, and 0.45, respectively. Therefore, by using the mentioned mapping from OCEAN personality traits to PAD (Mehrabian, 1996; Gebhard, 2004), the participant's initial pleasure, arousal, and dominance traits were found to be 0.51, 0.02, and 0.34, respectively.

The mapping illustrated in Table 1 made it possible to create time series data for emotion states regarding PAD mood traits. Different types of time series forecasting models were suggested by using SPSS for each mood component of each individual with 95 percent confidence. It has been observed that the trends for pleasure mood component differed significantly from one person to another, but it had a predictable direction for more than 98 percent of individuals. On

the other hand, arousal mood component seemed to have different trends compared to the pleasure trait. In this study, the short and long time intervals were considered to be at least one day and a month respectively. By considering the long time interval, arousal trait had either increasing or decreasing trend for more than 90 percent of individuals, but for the remaining individuals, the trend of this component seemed to be random. It has been observed that dominance mood trait is hard to predict over a long time interval. However, it was predictable in a short time interval for more than 87 percent of individuals. Output results for all predictable mood components showed values more than 0.75 as stationary R-squared for the emotion states time series data. Therefore, such results proved that these data are indeed time-dependent, and time series methods are appropriate tools to predict PAD mood traits. The summary of the output results for all 108 individuals is illustrated in Table 3. The possible types of time series methods for these emotion states data were Autoregressive (AR), Moving Average (MA), Seasonal, and Holt-Winter's Additive. The relative frequency percentages for these time series models are shown in Table 3 component-wise. The p-value for testing all of these models was considered to be significant where less than 0.05.

Type of time series	Pleasure (P)	Arousal (A)	Dominance (D)
AR	3%	3%	1%
MA	68%	2%	28%
Seasonal	26%	42%	56%
Holt-Winter's Additive	1%	43%	2%
Random data	2%	10%	13%

Table 3: Relative frequencies of appropriate time series models for PAD components.

To overcome the randomness problem which was observed in particular PAD mood components of some individuals, mood history probability distribution was helpful. The updated mood states for each day were calculated as explained in section 2.2. Occurrence frequencies for each mood states from Table 2 were calculated after checking all updated mood states. Finally, the relative frequency of each mood group was considered as probabilities. As explained in section 2.4, relative frequencies were corrected by assigning 20 percent probability to those mood groups with zero frequencies, and 80 percent to those with frequencies more than one.

It was possible to predict all PAD components for some individuals based on their emotion states time series data. Therefore, their mood states could be updated easily from the proposed formula in section 2.2 and could be predicted by assigning predicted signs to PAD components and choosing the corresponding mood group from Table 2. On the other hand, one or more PAD components were not predictable for some individuals. For example, pleasure and dominance were predictable for one individual, and it was clear that this person's corresponding signs will be positive at the end of the week. To predict the arousal component, the person's mood history probability distribution can be helpful. As an example, the probability distribution for mood history of this person is demonstrated in Table 4. Therefore, in the case of negative or positive arousal, the person's mood group will be bored or anxious by 0.32 and 0.68 probability by considering Tables 2 and 4. Such predictions had 95 percent confidence because the p-values considered in all the time series forecasting methods were less than 0.05.

Mood traits	Frequency	Probability
Exuberant	1	0.11
Dependent	2	0.23
Relaxed	1	0.11
Docile	0	0.07
Hostile	1	0.11
Anxious	2	0.23
Disdainful	0	0.07
Bored	0	0.07

Table 4: Mood history probability distribution for a random individual from the sample.

Conclusion

The proposed prediction models were applied to 108 individuals. The data related to their personality and emotion history were obtained, and their mood states were updated daily. PAD traits for each individual were predicted with 95 percent confidence level and compared with their actual PAD traits at the end of the week. The comparison of updated mood states based on recorded actual data with time series predictions revealed that more than 86 percent of predictions regarding the mood group were correct. Therefore, it is demonstrated that time series methods are appropriate approaches to predict PAD components. The obtained results validate Alma's approach (Gebhard, 2005) and our previous work (Mehraei & Akcay, 2016). As a future work, Stochastic Hybrid Petri Nets (SHPNs) can be used as a mathematical modeling tool to improve the accuracy of PAD traits predictions.

Interesting observations were made when the trends of PAD traits in these 108 individuals were compared. The results showed that trends of each PAD components were different from one person to another. However, there were some meaningful conclusions when PAD traits were considered separately as they are independent of each other. Pleasure mood trait has various trends, but these trends are predictable. On the other hand, arousal trait is harder to predict in a short time interval, but it is easier to predict whether it would have a positive or negative sign in a long time interval because its trend has either increasing or decreasing trend in a long time interval in most of the individuals. However, dominance trait is very difficult to predict for a long time interval, but it is predictable for most of the people in a short time interval. These results show that mood predictions should be made componentwise by forecasting PAD traits. In future studies, SHPNs can be used to model these independent mood traits separately to find potential treatments for mood related disorders, such as depression and different types of bipolar disorders. Identifying such potential treatments will be possible by targeting various components and manipulating process rates in the proposed SHPN model.

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Implicit Environmental Attitudes: Critique and Technique to Promote Awareness

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Abstract

Attitudes toward the environment are understood in psychological science as the result of separate mental systems, one conscious and the other unconscious, and capable of affecting behavior outside of awareness. For example, the common incongruity between what people say about global sustainability and what they do about the environment has been explicated by the influence of implicit environmental attitudes. This study examined the operational adequacy of the commonly used Implicit Association Test (IAT) by directly asking participants to report their recognition of behavioral influences whilst performing an IAT. An analytic technique of awareness assessment was introduced to improve on traditional post-experimental questioning, by requiring a constrained report that provided introspective access to task-related knowledge in awareness. Results revealed participants were very aware of their IAT response latencies, they accurately recognized IAT features that produced those latencies, and the validity of this awareness predicted their test scores, challenging the claim to attitude effects of which individuals are unaware. Thus, the critical evaluation showed the IAT method to be inadequate as a measure of environmental attitudes that are implicit. Applications of the awareness assessment technique are discussed for evaluating tests of implicit cognition, and for promoting individual mindfulness of one's own environmental attitude.

Keywords: implicit attitudes, environment, IAT, consciousness

In the face of overwhelming evidence for global climate change, many individuals remain unconcerned in their consumer choice behavior (e.g., Brooks, Oxley, Vedlitz, Zahran, & Lindsey, 2014) and their product choices are slow to change (e.g. Weber, 2006). To be sure, individuals often express their willingness to make more environmentally sustainable choices (e.g. Spence, Poortinga, Butler, & Pidgeon, 2011) and their agreement with pro-environmental attitudes. Beattie and Sale (2009) reported about 70 percent of surveyed individuals expressed a preference for low carbon products recognized by carbon footprint information on product labels. In addition, the resistance to more sustainable behavior is not attributable to insufficient knowledge about climate change (Pidgeon, 2012). The goal of such investigations within environmental psychology is to discover the factors that underlie individual resistance to sustainable behavior, ultimately to enhance sustainable development and its education.

One account of the incongruity between what some people say and what they do regarding the environment is provided by cognitive psychology's dual-processing metatheory that hypothesizes two kinds of social cognitions: explicit conscious attitudes that individuals report and implicit attitudes that influence social behavior unconsciously (Greenwald & Banaji, 1995; Wilson, Lindsey, & Schooler, 2000). This traditional view postulates that explicit and implicit mental representations are processed in separate mental systems, the former conscious and deliberative and the latter automatic and outside of awareness (Bargh & Chartrand, 1999; Evans, 2008; Kihlstrom, 1987; 1999; Sherman, Gawronski, & Trope, 2014). Accordingly, resistance to environmentally sustainable behavior might be explained by the unconscious attitudes that individuals harbor towards the environment that both contradict their consciously expressed desires toward sustainable development and influence their behavior "invisibly" as cognitions outside of awareness.

The question of what cognitions are conscious (explicit) and what are not (implicit) is central to all areas of modern psychology. Developments in the area of implicit social cognition (Bargh & Chartrand, 1999; Wilson, et al., 2000) have brought about increasing interest in forms of self-knowledge that are inaccessible to consciousness, including our implicit social attitudes and the automatic effects they have on our thoughts and behaviors (Greenwald & Banaji, 1995; Greenwald & Nosek, 2008). Many attitudes have been shown to exert influence outside of awareness, including unconscious biases toward racial groups (Berdik, Wax, & Tetlock, 2007; Sargent, Kahan, & Mitchell, 2007), political parties (Hawkins & Nosek, 2012), and implicit attitudes toward behaviors such as alcohol consumption (e.g., Palfai & Ostafin, 2003). Implicit attitudes have been recently suggested as the underlying cause of unconscious pro-environmental behavior as well (Beattie & McGuire, 2012; 2015). For example, to test the effectiveness of product carbon labelling on consumer cognitions, Beattie and McGuire (2015) measured eye movements over images of consumer items containing carbon footprint information and participants' explicit attitudes toward environmentally-friendly products. Implicit environmental attitudes were also assessed with a version of the ubiquitous implicit association test (IAT; Greenwald, McGhee, & Schwartz, 1998). On each trial of the basic IAT paradigm, respondents quickly match evaluative attributes (e.g., pleasant, unpleasant) to target items (e.g., spider and flower) under the assumption that response times to match will be fast when a target is associated with an attribute relative to trials when the target is not as strongly associated (De Houwer, 2002; Greenwald, et al., 1998). Using these measures, Beattie and McGuire (2015) reported the characteristic dissociation between implicit and explicit measures of attitude toward the environment. Participants' implicit environmental attitudes, operationalized as difference scores on the IAT, were unrelated to self-reported preferences for environmentally sustainable products.

With respect to the unconscious behavioral impact of implicit attitudes, Beattie and McGuire (2015) reported one finding, that participants with positive difference scores on the IAT (pro-environment implicit attitudes) were more likely to fix their eyes first on the carbon label information than other spaces on the product images. The conclusion drawn from this apparent pre-conscious motor effect was that carbon labelling may be effective for those consumers “with the right implicit attitude” (p. 253). We questioned this interpretation on two methodological grounds. First, by presenting product images as the stimulus targets for environmental IAT categorizations, the finding may signify the operation of implicit attitudes but it remains possible the object of those attitudes so measured was not the global environment but rather the particular product images repeated in the stimulus set (Beattie & McGuire, 2015, p. 272), or product labelling itself. Second, beyond the null relationship obtained with explicit attitudes, no systematic analysis was reported to confirm that the attitudes measured by IAT response times were indeed unconscious, making it uncertain whether the IAT measured anything fully implicit *or* truly environmental. Furthermore, no evidence was given for the IAT’s suitability to measure implicit cognitions of non-social categories such as consumer product sustainability or what pre-conscious eye movements could mean for our understanding of environmental psychology beyond the limited test of product label effectiveness. To address these concerns severely and shed light on the level of awareness individuals might achieve regarding the influence of their own environment-related associative cognitions, we set out to examine the operational adequacy of the IAT as a measure of environmental attitudes that are implicit.

Researchers of implicit social cognitions and the behaviors they predict often use performance-based measures (a) to observe the attitudes indirectly by their behavioral influence and (b) to avoid the confounding influence of deliberative conscious mental processing (Greenwald & Banaji, 1995; Greenwald, McGhee, & Schwartz, 1998). The implicit status of the predictive attitudes is typically confirmed by responses to post-experimental questions that indicate participants had no awareness of the experimental manipulation or its influence on their behavior (Chartrand & Bargh, 2002; see Dulany, 2002 for a critical summary). It is noteworthy that such open-ended non-analytic approaches to awareness assessment appear to be driven by the theory they are intended to confirm (Dulany, 2003). These assessments often fall short of telling what we can know about ourselves (Nisbett & Wilson, 1977) because they require as evidence a report from awareness that is nothing less than some knowledge of the experimental hypothesis, as though participants could guess the researcher’s notions of the criterion of awareness of the effects of manipulations. To address these concerns in the implicit cognition literature, the present evaluation of the environmental IAT contributed an analytic approach to awareness assessment. Our technique collected self-reports of conscious contents during test that were constrained to simple judgments rather than open-ended propositional expressions, and with varying validity of report, for the detection of participants’ awareness of IAT trial features and behavioral influences of different trial types if they exist.

Scores from the IAT typically correlate poorly with explicitly reported attitude scales as theory would predict (see Garwonski & Bodehausen, 2006), although the measure’s reliability limitations have been shown (e.g. Sargent, et al., 2007). Additional research has brought into doubt the automatic and unconscious status of attitudes measured as associations by the IAT (Hahn, Judd, Hirsh, & Blair, 2014; Nosek & Smyth, 2007), providing further motivation to critically examine the IAT as a measure of implicit environmental attitudes. Hahn, et al. (2014), for example, investigated the assumption that implicit and explicit social attitudes explain unique aspects of behavior (Angerström & Rooth, 2011; Dempsey & Mitchell, 2010) by demonstrating that individuals are very accurate in predicting, consciously and explicitly, their

IAT results. Furthermore, it appears IAT measurements can be deliberately reduced and reversed (Blair, 2002; Blair, Ma, & Lenton, 2001). These findings would appear troubling for the IAT's continued use as a measure of any implicit cognitions.

The following investigation of whether IAT scores operationalize positive (or negative) environmental attitudes that are hypothetically implicit was accomplished by collecting directed self-reports that were constrained or focused toward the detection of recognizable behavioral influences intended by the theory of the test (Dulany, 2003). We first anticipated replication of the statistical dissociation between implicit environmental attitudes measured by IAT and participants' statements of explicit attitude (Beattie & McGuire, 2015). Regarding the present study's salient contribution, the critique of IAT for environmental attitudes, we used an analytic conscious report technique to address two empirical questions: (1) Are participants aware of their attitude toward the environment as it is evoked on test trials? And, if so, (2) does the level of this awareness, indexed by the validity of conscious reports, predict individual environmental IAT scores? Valid conscious reports of the impact of IAT trial manipulations, their attribution to IAT attitudinal categories, and their reliable prediction of IAT performance would contribute serious challenges to the operational value of the IAT as a measure of attitudes outside of awareness.

Methodology

Participants

Volunteers were 34 undergraduate students (24 women) attending a private four-year university in the US state of Kentucky who received academic credit in their general psychology class for participating. Participants ranged in age from 18 to 23.5 years ($M = 19.2$), all were English-speaking and only one self-identified as not White. The data collected from all participants were included in the analysis. Prior to the study participants gave their written consent to participate, informed by statements of minimal risk, confidentiality, means of data protection, and their right to revoke the agreement for any reason, in accordance with the university's human research protections committee and the ethical standards of the American Psychological Association.

Measures of Environmental Attitude

Adapted from Greenwald et al. (1998) and similar to Beattie and McGuire's (2012) measure, the IAT for environmental attitudes was a computerized indirect measure of the relative strengths of positive and negative environment-related associations. On each trial the test presented one member from one of 10 pairs of exemplar images matched for function and pictorial orientation but clearly opposed in their environmental sustainability (e.g. a line of coal rail cars and a row of windmills; plastic bag and recycle bin; traditional light bulb and high-efficiency light bulb). By pressing the "E" or "I" keys on the keyboard, participants categorized the images as either environmentally-friendly or environmentally-unfriendly and individual evaluative words as either pleasant or unpleasant in meaning. The evaluative words presented for categorization in the IAT were:

- (1) Pleasant: Joy, Love, Peace, Wonderful, Pleasure, Glorious, Laughter, Happy
- (2) Unpleasant: Agony, Terrible, Horrible, Nasty, Evil, Awful, Failure, Hurt

Each IAT consisted of 5 blocks of categorization trials, with 20 trials in blocks 1, 2, and 4 and 30 trials in blocks 3 and 5. The first block presented simple categorizations of the exemplar images as "Eco-friendly" or "Not eco-friendly." The second block collected response times for

simple categorizations of the words as either “Pleasant” or “Unpleasant.” Starting with the third block, a mixture of image and word trials were presented in which both the eco-friendly and pleasantness categories remained on the computer screen and were congruently presented together, from a pro-environment perspective, on the left or right for response (e.g. Eco-friendly with Pleasant). A reversal of response sides was presented for only image categorizations in the fourth block. In the final fifth block there was again a mixture of image and word trials for which the eco-friendliness and pleasantness category labels were incongruently presented to the left or right (e.g. Eco-friendly with Unpleasant). Under these common IAT arrangements participants who associate environmentally-friendly exemplars with “pleasant” and environmentally-unfriendly images with “unpleasant” should respond faster on trials in block 3 where the category pairings are Pleasant/Eco-friendly and Unpleasant/Not eco-friendly and more slowly on trials in block 5 where the category pairings are Pleasant/Not eco-friendly and Unpleasant/Eco-friendly. A score is computed (D-score, Greenwald et al., 1998) from block mean reaction times that serves as a measure of the individual’s level of positive or negative environmental attitude.

To assess participants’ explicit attitude for this correlational study, participants answered two questions on the back of the awareness assessment response sheet. First they wrote a rating value on a Likert scale that assessed explicit liking of an environmentally-friendly lifestyle from 1 (“I strongly prefer non-sustainable and eco-unfriendly living”) to 5 (“I strongly prefer sustainable and eco-friendly living”). The second question was an open-ended statement: “Please write about your feelings on climate change and making environmentally sustainable choices.”

Procedures

Participants were invited to complete a “sustainable products test” in groups of five or less on desk-top computers in an interactive computer lab on campus. After brief instructions on the IAT categorization task, participants began with 20 practice trials that presented each exemplar image once for categorization as “Eco-friendly” or “Not eco-friendly” followed by blocks of IAT trials for which response times were collected. During testing participants were interrupted randomly between trials from one to three times on the critical mixed category trial blocks to provide reports from awareness of two types: (a) an estimate of the number of trials over the last 10 that seemed difficult, and (b) a rating along a 7-point Likert scale of the amount of hesitation on the previous trial. The verbal prompts to elicit these reports were printed, and the reports were written, on a separate assessment sheet next to the computer. Upon completion of the IAT participants answered questions about their experience and their considered reasons why some trials were more difficult than others. Participants took approximately 20 minutes to complete the IAT and verbal reports.

Results

Mean difference scores (D-score) for implicit attitude and scores from the explicit environment-friendliness scale revealed the sample was not dissimilar to previous samples in which implicit attitude was observed (e.g. Beattie & McGuire, 2012). The mean D-score of 1.31 ($SE = .36$) from this environmental IAT and the modal rating value of 4 ($M = 4.17$, $SE = .14$) from the explicit attitude question (“moderately prefer sustainable consumables”) both indicated a similar positive attitude toward the environment in the present sample. Also in alignment with previous findings (Beattie & McGuire, 2015), there were 8 participants (23.5%) with negative D-scores indicating a cognitive bias away from pro-environment attitudes although every one scored their explicit attitude Likert rating as 4 or 5 and confirmed these

strong positive environmental attitudes in their open-ended responses. Correlation analysis also resulted in a replication of the characteristic null relationship between IAT scores measuring implicit attitude and participants' explicit attitude ratings, $r(32) = -.02$, as can be seen in Figure 1.

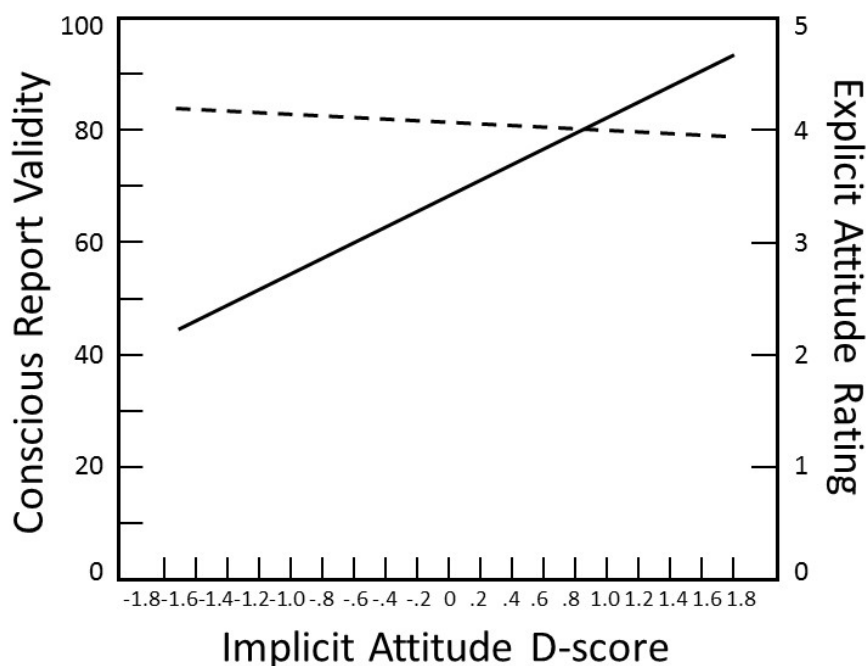


Figure 1: Simple least squares regression lines for D-scores as a function of conscious report validity and as a function of explicit attitude rating ($n = 34$).

Further to the central question regarding participant awareness of their implicit environmental attitudes measured by IAT, a thorough analysis of the conscious reports first required a metric by which conscious features of the categorization task could be validated against what actually happened during test. More than accuracy, report validity indexes the degree of correct awareness. That is, for the analysis of awareness the actual IAT served as the benchmark for what *should be* contents in participants' awareness, to the extent they are aware of them and according to the theoretically intended task demands. Furthermore, because we obtained conscious reports constrained to identify participant awareness of task-related events, and because the conscious reports took place at random interruption points identifiable in the trial-by-trial data, the analytic technique provided the necessary validation of conscious reports for the present critical evaluation of the environmental IAT's adequacy. Accordingly, reports of hesitancy in awareness were validated by reliable positive correlation between participants' hesitancy ratings and their reaction times for the trial in question, $r(32) = .41$, $p < .01$, clearly demonstrating that during the IAT these participants became aware of the influence of their own environment-related associations on their trial-by-trial response times.

Conscious reports of trial difficulty provided for the IAT evaluation a manipulated variable that should not be in awareness during a test of unconscious cognitions. The correspondence between the reported number of difficult trials and the number of trials that should have been

slow by experimental manipulation, served as the report validity. For example, if there were a report of four difficult trials over the last 10 where the data record revealed five of those trials were manipulated to be difficult, then the report validity score was assigned a scaled value of .80 for the conscious recognition of 80 percent of those trials. Task difficulty in awareness for trials presenting weakly associated exemplar images was confirmed by the report validity sample mean, .68 ($SE = .15$), and by significant positive correlation between the number of difficult trials reported and the number of difficult trials determined by actual task demands, $r(32) = .72, p < .001$. The validities of reported trial difficulty, however, did not show a relationship with ratings of explicit attitude. Thus, it appears there was no connection in this sample between participants' preference for sustainable living and their awareness of this particular behavioral influence of IAT trials. Nevertheless, in their written responses to open-ended questions a total of 28 participants (82.4 percent) correctly attributed difficult trials to mismatching categories or the mixing of labels. And finally, with a validity score for each participant's conscious report of IAT difficulty, our systematic assessment of awareness also made possible an analysis of the predictability of those report validities. Implicit environmental attitudes measured by IAT scores were reliably predicted by the conscious report validities, $r(32) = .54, p < .001$. As shown in Figure 1, higher D-scores (stronger pro-environment associations) corresponded with greater validity of task difficulty awareness during the IAT.

Discussion

Reporting on their study of attitudes to the environment and visual targets on product labels, Beattie and McGuire (2012) argued that the attitudes controlling our environmentally sustainable behavior "may not even be available to introspection and may be represented unconsciously in the brain" (p. 318). Such claims of unconscious representation are commonplace because they follow the cognitive theoretical tradition of dual processes (Evans, 2008; Kihlstrom, 1999; Wilson, et al., 2000) that assumes two kinds of mental representation in separate cognitive systems, one explicit and the other implicit (Bargh & Chartrand, 1999; Greenwald & Nosek, 2008). The usual dissociation of consciously explicit beliefs from the behavioral influence of attitudes outside of awareness (Garwonski & Bodehausen, 2006) is taken in support of the standard dual-processing cognitive model, and was repeated in the present data for environmental attitudes in particular. Nonetheless, as associations presumed to be unconscious mental representations, participants were surprisingly aware of the impact of their attitudes toward the environment as evoked during the test. Valid recognition of implicit attitudes accords with recent research questioning the IAT as a measure of purely implicit cognitions (Hahn, et al., 2014). Contrary to the assumptions underlying implicit association tests (Greenwald, et al., 1998), not only were participants greatly aware of the difficult categorisation trials, the validity of this awareness predicted their IAT scores, and the task difficulty was accurately attributed to incongruent category targets in free responses. From these critical results it appears the IAT is inadequate as a measure of environmental attitudes that are outside of awareness.

To the degree participants were aware of the influence of their environment-related attitudes they could be said to have discriminated the IAT trials on the basis of events passing in their awareness. They could tell, over varying degrees of report validity, which trials took more time and why. The analytic technique began with an analysis of task-related stimulus features of which participants could become aware, making possible the construction of the directed conscious reports and their provision of quantifiable validity against real events. Collecting these constrained reports appears to be an effective method for achieving introspective access

to representations that should be mental representations unavailable to conscious awareness (Greenwald & Banaji, 1995; Kihlstrom, 1987; Lewicki, et al., 1992; Wilson et al., 2000). One implication of using the awareness assessment technique is the potential discovery of predictive contents in awareness within other areas of implicit cognition. For example, constrained verbal reports of prime manipulations (e.g. Grecco, Robbins, Bartoli, & Wolffe, 2013; Shanks, et al., 2013) may reveal contents in awareness that are related to primed facilitation (behavior) previously considered inaccessible to awareness.

Another implication for sustainable development education is the ease with which introspective access to these associative attitudes toward the environment can be achieved. Accordingly, individuals who express preference for sustainable living but otherwise persist in choosing environmentally harmful products might receive training to recognise and respond to the resulting contents in awareness evoked by their own environment-related associations (Rudman, McLean, & Bunzl, 2013). Alternatively, simply learning to be mindful of one's own hesitations when making product choices may assist in aligning those choices with the consumer's explicit environmental beliefs and attitudes. In perhaps numerous ways, the analytic technique to awareness assessment may have applied value in the discovery of potential objects of our conscious awareness that would otherwise remain hidden, outside of awareness, and considered a function of the cognitive unconscious by theory.

On evidence of the IAT's prediction from the validity of conscious reports of trial difficulty, it may be said that the influence of environment-related associations evoked by IAT trials were available in awareness. For each participant their reported task awareness can be characterized as a symbolic mental representation of an event captured in conscious memory, in this case a representation of the duration of their responses intended by the logic of the IAT trials. An alternative interpretation to the standard dual-processing view of unconscious influence (e.g. Beattie & McGuire, 2015) is to posit that symbolic mental representation is a cognitive function exclusive to consciousness; what is not conscious are the complex associative relations that connect conscious mental episodes that cannot be mentally represented as objects of awareness in the first instance. In the present case, we might say implicit environmental attitudes are not unconscious representations of a mental type, i.e. becoming active in a separate mental system that operates automatically and outside of awareness. Instead they are the interrelations of environment-related associations themselves that, when activated, produce the logical IAT response times which can themselves become symbolically represented contents of consciousness available to introspective report. Further investigation of conscious accessibility from an analytic posture is necessary before the nuanced assumptions of alternative approaches to implicit cognition can be competitively tested.

Methodologically, the present research and analytic technique limit what can be known of the nature of environmental attitudes because direct evidence of environment-related associations in awareness was not provided, only awareness of associative strength during task performance in terms of the behavioral impact consciously recognised. We believe our approach effectively probed sufficient contents in awareness for the purpose of IAT evaluation because, by scientific standards, an adequate measure of any hypothetical construct would never produce an awareness of the measure's intention or its operational features that could confound test results. The awareness assessment technique also placed constraints (by design) on the conscious contents to be reported. Consequently, what remains are additional researchable questions regarding awareness of implicit attitudes such as whether categorisation of exemplar images of sustainability predicts subsequent IAT performance as Hahn, et al. (2014) found for social attitudes. As a first attempt at collecting conscious reports related to a measure of implicit

cognition, some latitude was taken in terms of the demands of the report and the timing of assessment interruptions. Participants were only invited to report on difficult trials in awareness, yet awareness of other features of the categorisation task might be examined such as rapid or flowing categorisations, recognition of particular stimuli associated with decision hesitancy or multiple errors, decreasing response times to the point of automaticity, emotional affectivity and emotionality of responses evoked by the exemplars, etc. In addition, random interruptions of the IAT may have interfered with its performance in ways that place the resulting scores in doubt. Additional research may require alternative schemes for collecting concurrent conscious reports. For example, the presentation of implicit test trials might be paced at fixed intervals and conscious elicited regarding participant awareness of keeping the pace and of missed trials counted as errors. Finally, as a critical evaluation of the implicit test, the present research did not include a performance measure external to the environmental IAT (e.g. visual fixation points, product purchases) to demonstrate under what conditions the hypothesized influence of implicit attitudes on sustainable behavior becomes available to consciousness.

We began this critique by questioning the claim that attitudes toward the environment influence behavior outside of awareness. Examination of the IAT used to observe and measure these implicit attitudes produced valid conscious reports that would seem to be a challenge to the methodological assumption that the test operationalises attitudes that are unconscious. In their empirical report Beattie and McGuire (2015) observed, “Currently, despite the plethora of research on self-report attitudes to the environment we actually know very little about the nature of implicit attitudes in this important domain.” (p. 256). On the present finding that sampled behavioral influences of implicit attitudes were accessible in conscious awareness, we agree with this observation and add that psychology will continue to “know very little about the nature” of environmental attitudes whilst researchers continue to measure those hypothetical attitudes with versions of the IAT. In our evaluation of the implicit test, an analytical approach to awareness assessment was taken that may prove to be an effective tool for gaining introspective access to various implicit cognitions and to their influences on one’s own behavior. Whether the technique assists the scientific scrutiny of other implicit tests, the environmental attitudes examined in the present study were not implicit in the sense of operating outside of awareness. Before more claims are made to the unconscious influence of environmental attitudes, continuing research should contrast the present findings with an awareness analysis applied to other implicit tests. Rather than attempting to explain individual resistance to sustainable behavior as a dissociation of environmental attitudes from separate explicit and implicit mental systems, we suggest that an analysis of conscious awareness in ongoing investigations may provide the empirical basis for introspective procedures that promote environmental awareness, personal attitude mindfulness, and positive behavior change toward the environment. The psychological detection and analysis of environmental attitudes available to conscious awareness seems a good place to start.

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Indigenization of Depression: Understanding its Impression, Expression and Experiences Among Selected Indigenous Peoples (IPs) of Luzon, Philippines

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Abstract

Depression is an alarming psychological condition among indigenous peoples throughout the world. While ethnic minorities are identified as a population that is vulnerable to mental health problems, depressive disorders have significant cultural variation in clinical presentation. Using Interpretative Phenomenological Analysis (IPA), this study aims to understand how indigenous people experience the manifestation of their depressive symptoms, based on the context of their cultural knowledge. The central question that this phenomenological study purports to answer is: How do indigenous people collectively characterize their cultural understanding on the impression, expression and experiences of depression? Thus, this paper presents the results of a phenomenological analysis of the lived experiences of various ethnic groups from Cordillera and Sierra Madre mountains, namely the Aetas, Dumagats, and Igorots, and different tribal groups such as Kangkanaey, Bago, Ibaloi, Kiangnan, and Aplai. A total of 15 elderly members representing each tribe were purposively selected to take part in the study; in-depth interviews, focus group discussions and story-telling were the methods used. The findings recommend an audible call for a culturally sensitive guided intervention for this special population that requires a holistic approach.

Keywords: depression, indigenization, indigenous peoples (IPs), phenomenology

Depression is one of the most common psychiatric disorders presented to general practitioners but is rarely recognized in ethnic minority populations. However, it does occur everywhere and affects members of ethnic groups. The rate of depression is increasing, and the disorder is nearly twice as common among the poor as among the wealthy (Kleiman, 2004). Mental health problems are interpreted and manifested differently according to race and ethnic group, since cultural and ethnic factors are sometimes obstacles to appropriate care for minorities (Frichner, 2010). Minority group individuals may experience depressive symptoms that are undiagnosed, underdiagnosed, or misdiagnosed for cultural, linguistic, or historical reasons (American Psychological Association, 2002). Depression is a universal phenomenon, yet the expressive ones are greatly influenced by one's native cultural history (Akincigil et al., 2012). Therefore, we must recognize the ways of understanding the illness, expressions of symptoms, and help-seeking patterns that may vary across and within different cultures. Depression is experienced, expressed, and communicated differently in every culture (Mers, et al., 2010).

According to the World Health Organization (2012), depression is projected to become the second-largest contributor to the global burden of disease by 2020, as well as the most common mental condition across the globe. Within the last decade, depressive experience and disorder has emerged as one of the world's biggest health and social problems (Bhui, 2011; Kleinman, 2004). As a result of the increased worldwide risk and burden of depressive disorders, it is essential that researchers improve their understanding of the complex cultural differences related to this problem, and thus learn how to provide a culturally appropriate method to address mental health issues (Schweder, 2001).

In the context of this paper, indigenization of the people under study brought out different voices and ways of knowing within particular socio-historical and cultural locations, and established a local basis for social work practice (Gray, 2010). Such a role is reposed to the value of culture as an influence on their coping mechanism in battling unwanted psychological episodes such as depression. Indigenization is a term that elucidates the native identity of a collective culture for the cause of human development, usually used by anthropologists and sociologists to signify a group of people propelling themselves or by an external factor towards a pursued development (Huang & Zhang, 2008)

Indigenization allows an institution to have a constructive look at a group of people in terms of their socioeconomic and sociopolitical existence (Hill et al., 2010). Cultural indigenization is an important aspect of mental health practice within various cultural contexts. It helps further human development across cultures without threat of adulteration from external cultural influences (Yip, 2006). Indigenous understanding is deemed important in furthering this study. In the ascent of indigenization, depression has been a common problem among indigenous people in the Philippines. This is a valid reason to indigenize the psychology-cum-clinical approach towards helping such people (Church & Katigbak, 2002). In this paper, the aforementioned relevance informs the groundwork to help clinicians provide an appropriate mental health care program for indigenous peoples. From the perspective of cultural psychiatry, culture influences the sources, symptoms, and idioms of distress (Kirmayer, 2001). These indicate that the cultural background of indigenous peoples plays a significant role in the formation of depression.

The significance of this paper lies in its attempt to provide an extensive review of the role of culture and cultural context per se in propelling an academic discussion pertaining to issues of depression among ethnic minorities, and elucidate new perspectives on how the ethnic minorities understand, express, and experience depression in the context of their culture. In

order to maintain a mentally healthy indigenous population, it is necessary to understand how ethnic and cultural differences affect the way indigenous people present their complaints of depressive symptoms. The analysis indicates that depression is both a subjective and a socially constructed experience. The powerful construction of depression as a clinical problem located in the individual may legitimize problematic experiences; however, this is insufficient to explain subjective experiences of depression, which are better understood in terms of the construction of subjectivity through social interaction.

Phenomena related to mental health issues can be explored by phenomenological methods to help mental health practitioners in describing and clarifying a phenomenon important to practice, education and research (Spenziale & Carperter, 2007). The reason for doing phenomenological research is to describe the meaning of the phenomena under study. It uses the combination of words, language, and concept to produce evidence (Husserl, 2001). Phenomenology is a vital field of inquiry that enables translation of psychological disciplines. Phenomenological inquiry enables translation of human experience into words and allows mental health practitioners to describe and explore phenomena significant to discipline (Arrigo & Cody, 2004). This approach aims for a better understanding of the nature or meaning of everyday experiences (Munhall, 2012). The research has implications for more helpful professional and personal approaches in understanding the experience of depression among certain ethnic and cultural groups. In addition, this study aims to render a practical cultural understanding of how the factors are connected with one another, how they perpetuate depression, and identify the possible ways to mitigate them.

Research Methods

Research Design

A qualitative research design was chosen as an appropriate method in exploring the nature of particular social experiences, and the complexity of human experiences that lie in the reality that people can and do hold. The aim of qualitative research is to describe and clarify experience as it is lived and constituted in awareness (Polkinghorne, 1995). It explores in detail how participants make sense of their social world, and the meanings that particular experiences and events hold for them (Smith & Osborn, 2008).

In this paper, the phenomenon being studied is the cultural meaning of depression through the lens of the lived experiences of indigenous peoples. Husserl (1970 as cited in Wojnar & Swanson, 2007) defined phenomenology as the “science of the essence of consciousness focused on defining the concept of intentionality and the meaning of lived experiences from the first point of view” (p. 173), whose basic purpose is to reduce one’s lived experiences into a description of the universal essence (Creswell et al., 2007).

The researchers used interpretive phenomenological approach to explore the indigenization of depression. The researchers attended to aspects of indigenous peoples’ cultural behaviors – what people do in their cultural world, what people know and how they describe their world. This was done by gathering occult information and perceptions through interviews, storytelling and participant observation, with prime importance given to participants’ perspectives (Finlay, 2009).

Subjects and Study Site

The study took place in Fort Magsaysay in the Province of Nueva Ecija and Aurora Province in the Philippines. It is virtually a resettlement area inhabited by people affected by various

situations from different regions and provinces brought about by natural disasters and man-made circumstances, extreme poverty and due to their nomadic tendencies and adventurous cultural norms. Among them are Igorots composed of Ibalois, Kiangans, Kankanaeys, Bago and Aplaí tribes who migrated to Sierra Madre as self-propelled settlers in the early 1950s, due to peace and order problems when the Chico Dam was being constructed. When Mt. Pinatubo erupted in 1991, the Aetas, along with other lowlanders from the Province of Zambales, Pampanga and Tarlac, also migrated to Palayan City within the Fort Magsaysay military reserve. Both the Cordillerans and Mt. Pinatubo victims now occupy the barangays of Dona Josefa and Langka, which are also inhabited by the native Dumagats, who have nomadic tendencies and roam around the mountain ranges of Sierra Madre within the Province of Nueva Ecija.

Specifically, this study is focused on two settlement barangays in Palayan City. First is Barangay Langka, formerly known as Kabalugaan and the village of the Dumagats, now the settlement of various ethnic groups from Cordillera, namely the Igorots and other tribes of Kankanaeys, Ibalois and Bagos. The second settlement is Dona Josefa (formerly Catmon), which became the settlement village of the Aetas, or *Kulots*, as they prefer to be called. In addition, the study looks at the Dumagats who chose to move to Dingalan and Umiray, Aurora Province, and Gabaldon, Nueva Ecija.

Selection of the Study and Sampling Design

The researchers used purposeful criterion sampling (Kleinman, 2004) to select participants who were most qualified for the inclusion criteria. To cogenerate understanding of the phenomena being studied, three tribal groups were chosen to represent the Northern Tribe of the Philippines. These were Igorots, Aetas, and Dumagats. The participants' breadth and depth of experience assisted in qualitatively describing and understanding the phenomena of lived experiences in the indigenization of depression. A total of 15 participants were included in the study. The low number is because qualitative methodology values the understanding of complex human issues rather than generalizability of results (Marshall & Rossman, 1999). The study included individuals who covered the spectrum of perspectives in relation to the phenomena that the study is exploring. Fifteen elderly individuals were purposively chosen in this study according to the following inclusion criteria: (a) were 60 years old and above; (b) were respected people in their community and regarded as having a good knowledge of their culture; and (c) were the source of wisdom and provider of advice.

Data Measure

In the initial data gathering, the participants were asked to complete an information sheet. This provides the basic demographic profile, such as name, age, and their profile characteristics as members of indigenous peoples' tribe, as well as their cultural background of the participants as showed in table 1.

Participants code	Age	Civil status	Present address	Place of origin	Ethnic group	Local language/dialect
Bulaklak	70	Widowed	Dona Josefa, Sitio Bacao, Fort Magsaysay, Nueva Ecija	Angeles, Pampanga	Aeta	Mag-antsi
Diwata	80	Widowed	Dona Josefa, Sitio Bacao, Fort Magsaysay, Nueva Ecija	Angeles, Pampanga	Aeta	Mag-antsi

Makisig	76	Married	Dona Josefa, Sitio Bacao, Fort Magsaysay, Nueva Ecija	Porac, Pampanga	Aeta	Mag-antsi
Malakas	75	Married	Dona Josefa, Sitio Bacao, Fort Magsaysay, Nueva Ecija	Porac, Pampanga	Aeta	Mag-antsi
Luntian	61	Married	Umiray, Aurora Province	Gabaldon, Nueva Ecija	Dumagat (tagabulos-baybayin)	Bulos
Anahaw	65	Widowed	Matawe, Aurora province	Umiray, Aurora province	Dumagat (tagabulosbaya bayi)	Bulos
Halimuyak	64	Married	Matawe, Aurora Province	Gabaldon, Nueva Ecija	Dumagat (tagabulos-baybayin)	Bulos
Kulasisi	67	Widowed	Matawe, Aurora Province	Gabaldon, Nueva Ecija	Dumagat (tagabulos-baybayin)	Bulos
Sibat	65	Widowed	Matawe, Aurora Province	Gabaldon, Nueva Ecija	Dumagat (tagabulos-baybayin)	Bulos
Kulapo	70	Widowed	Dupinga, Gabaldon, Nueva Ecija	Gabaldon, Nueva Ecija	Dumagat (idimala)	Kabuluwen
Mulawin	69	Married	Dupinga, Gabaldon, Nueva Ecija	Gabaldon, Nueva Ecija	Dumagat (idimala)	Kabuluwen
Adarna	64	Married	Barangay Langka, Fort Magsaysay, Nueva Ecija	Ilocos and Montain province	Igorot (bago)	Ilokano and Bago
Amihan	66	Married	Barangay Langka, Fort Magsaysay, Nueva Ecija	Montain province	Igorot (kankanaey)	Kankanaey
Sibat	60	Married	Barangay Langka, Fort Magsaysay, Nueva Ecija	Ifugao	Igorot (kiangan)	Kankanaey
Bagwis	71	Married	Palayan City, Nueva ecija	Benguet	Igorot (ibaloi)	Ibaloi
Bato	60	Married	Barangay Langka, Fort Magsaysay	Benguet	Igorot (kankanaey)	Kankanaey

Table 1: Profile of participants.

The depressive experiences were examined by open-ended and in-depth interviews. The aide memoir serves as a broad guide to topic on issues that might be concealed in the interview notes to jog the memory, rather than a list of questions (Kale, 1996). It gives insights into meanings of depressions, and the role of the cultural context, shared meanings, norms, values, and beliefs in predicting risks of depressive symptoms among the participants. Interview guide questions included the participant's cultural meaning of depression and how culture influences the impression, expression, and understanding of depression; other significant experiences were noted and documented. The interview guide helped the researchers assess cultural factors influencing participants' perspectives of their symptoms and treatment options. It included questions about participants' cultural background. Pilot testing of the interview questionnaires were purposively intended to prevent confusion or truncated responses from the participants. The questionnaires were piloted with several members that fitted the pilot testing. (Morrow et al., 2005).

The third part used the story telling format that enables subjects to describe the “story” of their lived experiences. In telling the story, each participant takes the researcher on a journey, and the researcher is likened to a companion on that journey. In this sense, research participants are dialogic partners or co-researchers in the study (Kelly & Howie, 2007). It is how indigenous peoples experience depression based on their notion of such which is reposed to their language and cultural knowledge. This format provided the opportunity for participants to define the meaning of depression in the context of their culture.

Data Gathering Procedure

Before interviewing participants, the researchers first presented them with an informed consent form for their approval to participate in the study. The form was signed by them to confirm their willingness to be one of the participants, and they were assured that all data and information gathered would be kept confidential and not used for any purpose other than the study conducted by the researchers. For the qualitative methods, focus group discussions, in-depth interviews and storytelling were employed in order to gain a richer and more complete description on how depressive symptomatology was conceptualized and expressed from the emic viewpoint, by looking at individuals’ experiences and understandings of depression.

The researchers employed Filipino indigenous research methods such as *panunuluyan*, *pakikipag-kwentuhan* and *patanong-tanong*. *Panunuluyan* was used in developing the aide memoir to observe and establish understanding about their culture. *Patanong-tanong* was used to ask random questions to the participants, when the researchers felt the need to explore further the rationale of doing certain things, such as their living conditions, their everyday life experiences. Lastly, *pakikipag-kwentuhan* was done during spare time in the form of activities, especially during the weekend. This method allowed the researchers to gain access to the communication that people use in their day-to-day interactions when talking about issues related to health and illness; and it allowed culturally sensitive interpretation of data (Ekblad & Baarnhielm, 2002; Greenhalgh, 2001).

The setting for qualitative research is the field. The field is the place where individuals of interest live, where they experience life (Spenziale & Carpenter, 2007). The inquiry was conducted in their homes, as preferred by all study participants. A series of in-depth interviews were used to gather data and as source of information. For each participant, the maximum interview time granted was two sessions, each lasting 30 minutes. The researcher visited the community thrice a week for three months. The first interview was more about establishing rapport, knowing their worldview, and general exploration of the aide memoir. The second interview functioned as a more specific interview of their experiences based on the guide questions. The third interviewed focused on their everyday experiences. The aide memoir was validated by four professionals aligned with the field of psychology, two of whom were internal and two external. It was then subjected to Filipino translation.

In the focus group discussions, there were three different categories of individuals who were tribal leaders or chieftain, traditional healers, and indigenous peoples’ teacher; all of them were regarded as opinion leaders in the community. Focus group discussions were conducted at the Bulwagan ng katutubo sa Pilipinas in Sitio Bacao, Palayan City, Nueva Ecija. The groups were supervised by the researchers who also acted as facilitators. The participants were instructed not to use their real names to keep their responses anonymous, and for confidentiality purposes.

The researchers informed the participants about the use of a voice recorder to record the interview and took notes during the interview while assuring them of confidentiality of the

interviews. To keep the emic side of the language, terminologies of the cited local language in the conversations were interpreted and checked carefully to determine if they were still in line with the original meaning of the data. After the focus group discussions, story-telling and in-depth interviews were done, and the recorded data was transcribed. Upon the confirmation of the participants, the researchers conducted interviews based on the validated aide memoir.

Mode of Analysis

Story-telling was transcribed verbatim for purposes of text analysis and data validation. Text was read and re-read to highlight significant statements and expressions that described the subjects' lived experiences. A story is composed of a beginning, middle, and end, which all require the data to be arranged chronologically (Polkinghorne, 1995; Kelly & Howie, 2007). The in-depth interview utilizing the aide memoir was transcribed verbatim using the Interpretative Phenomenological Analysis (IPA) as guiding analysis (Smith & Osborn, 2008).

First step (*multiple reading and making notes*). The transcript was read a number of times, the left-hand margin being used to annotate interesting or significant statements. It is important in the first stage of the analysis to read and reread the transcript closely in order to become as familiar as possible with the account. Each reading and listening to the recording may provide some new insights. This is close to being a free textual analysis at this stage, the researcher can make notes about his or her observations and reflection about the interview experience or any other thoughts and comments of potential significance. They may focus on content (what is actually being discussed), language use (features such as metaphors, symbols, repetitions, and pauses), context, and initial interpretative comments. Some comments associated with personal reflexivity may also be generated (e.g. how personal characteristics of the interviewer, such as gender, age, social status, affect the rapport with the participant). It is useful to highlight distinctive phrases and emotional responses. There are no rules about what is commented upon, and there is no requirement, for example, to divide the text into meaning units and assign a comment for each unit. The extract which follows shows this first stage of analysis for a small section of the interview. At this stage, the entire transcript is treated as data, and no attempt is made to omit or select particular passages for special attention. At the same time, there is no requirement for every turn to generate themes. The number of emerging themes reflects the richness of the particular passage.

Second step (*transforming notes into emergent themes*). This step involves looking for connections between emerging themes, grouping them together according to conceptual similarities, and providing each cluster with a descriptive label. In practice, it means compiling themes for the whole transcript before looking for connections and clusters. Some of the themes may be dropped at this stage if they do not fit well with the emerging structure or because they have a weak evidential base. Some of the themes will cluster together, and some may emerge as superordinate concepts. As the clustering of themes emerges, it is checked in the transcript to make sure the connections work for the primary source material – the actual words of the participant. This form of analysis is iterative and involves a close interaction between reader and text. A final list may comprise of numerous superordinate themes and subthemes. They encapsulate each of the important issues in the analysis of data.

Third step (*clustering and represent themes*). This step produces a table of themes, ordered coherently. Thus, the above process will have identified some clusters of themes which capture most strongly the respondent's concerns on this particular topic. The clusters are themselves given a name and represent the superordinate themes. The table lists the themes which go with each superordinate theme, and an identifier is added to each instance to aid the organization of

the analysis and facilitate finding the original source subsequently. The identifier indicates where in the transcript instances of each theme can be found by giving key words from the particular extract plus the page number of the transcript. During this process, certain themes may be dropped: those which neither fit well in the emerging structure nor are very rich in evidence within the transcript.

Fourth step (*superordinate theme is constructed*). Once each transcript has been analysed by the interpretative process, a final table of superordinate themes is constructed. Deciding which themes to focus upon requires the analyst to prioritize the data and begin to reduce them, which is challenging. The themes are not selected purely on the basis of their prevalence within the data. Other factors, including the richness of the particular passages that highlight the themes and how the theme helps illuminate other aspects of the account, are also taken into account.

Fifth step (*translating the themes into a narrative account*). This section is concerned with moving from the final themes to a write-up and final statement outlining the meanings inherent in the participants' experience. The division between analysis and writing up is, to a certain extent, a false one, in that the analysis will be expanded during the writing phase. This stage is concerned with translating the themes into a narrative account. Here the analysis becomes expansive again, as the themes are explained, illustrated and nuanced. The table of themes is the basis for the account of the participants' responses, which takes the form of the narrative argument interspersed with verbatim extracts from the transcripts to support the case

Sixth step. After following the five steps enumerated above, the researchers of this study presented to the peer review process, called "member checking", to ensure validity and trustworthiness of the data. This means the encoded interview and the narrative of their experiences are returned to the co-researchers for validation. Data was coded into themes to uncover the central meaning of the phenomenon. The entire process was based on transcribed field text sorting, categorization (cool analysis) (Cote et al., 1993) and thematization (warm analysis). The cool and warm analysis was facilitated by a repertory grid that was used to eidetically reveal the central meaning of the experience. Emergent themes were labeled as truthfully and as accurately as possible. Correspondence technique, member checking procedure and critical friend technique were used in order to guarantee the truthfulness and the trustworthiness of the data (Lincoln & Guba, 1985). The researchers also used bracketing to identify and limit their bias about the study. Bracketing is a method that sets aside one's assumptions or expectations about the phenomena (Wojnar & Swanson, 2007).

Establishing Trustworthiness of Data

Qualitative research is subjective and private, and the qualitative researcher, in Stake's (1994) terms, "promotes subjective research paradigm, and that to make qualitative research more acceptable to social sciences, some methodologists have created for qualitative inquiry that are loosely paralleled to those of qualitative research" (Auerbach & Silverstein, 2003).

In order to develop trustworthiness of data, Yeh and Inman (2007) cited three methods. These methods are prolonged engagements, peer debriefing, and collaboration and member checking. Prolonged engagement refers to the need for sufficient time and interaction between the researchers and respondents to build rapport, trust and purpose (Guba, 1981). The researchers interacted extensively to observe the community of the three ethnic tribes.

Peer-debriefing involves checking and interrogating the researchers' coding and dimensionalizing, so that these remain close to the content of the data. Peer-debriefing was

done to further explore and develop the investigators' ideas, test theory, and promote clear thinking. The adviser of this study was the peer facilitator.

Collaboration and member checking is completed after data analysis. The final version of the themes and descriptions was reviewed by one member of each ethnic group. Then, the researchers and peer debriefer met to discuss all the themes and related quotes to come up with the final version. In addition, the researchers presented initial findings to most of the participants for discussion and feedback. This process served to ensure the integrity and veracity of the result from using a qualitative method that were applied as instruments through which data collection and analysis was conducted.

Ethical Consideration

There are a number of ethical issues that need to be attended prior to and concurrent with the research being conducted. Denscombe (2005) posits that "social research must be ethical". In fact, ethics in research has become an important issue especially these days. Due to this growing importance, no effort was spared in the conduct of this study. All relevant issues were sufficiently addressed. These include: (1) Respecting the rights and dignity of participants; (2) Avoiding any harm to participants; and (3) Operating with honesty and integrity.

In qualitative research study, ethical concerns arise in the recruitment of research participants, informed consent, confidentiality, protection from harm, and deception. It must safeguard participants' rights, interests, and sensitivities. Research objectives must be communicated clearly prior to the start of the research and continue throughout engagement with the community. The issue of confidentiality and privacy must be respected. It is the researcher's responsibility to provide a beneficial return.

The participants were given an informed consent form that was validated by experts to notify them about their participation in the study. A validated informed consent includes the capacity, disclosure, understanding, voluntariness and permission regarding the research that will be conducted (Jaffee et al., 2002). Ethical issues including confidentiality of the interviewee's identity were clearly explained before the interviews.

To ensure that the participants would not be harmed during the implementation of this research and due to the sensitive issues that may surface during interview sessions, the researchers underwent intensive training to conduct stress debriefing regarding the guidelines on how to conduct crisis intervention procedures, and how to manage the participants' anxiety during interviews. The latter were also informed of the immediate availability of a professional debriefer, if needed, should they become distraught while recalling distressful conflict experiences.

Findings

The list of local idioms of distress drawn from their indigenous lexicons (see Table 2) showed a variety of metaphorical representations of how depressive episodes were manifest based on their cultural context of illness. The findings indicate that the manifestation of illness and distress vary across culture, especially among the indigenous peoples, the meaning they impart and their way of making sense of their subjective experience of illness and distress. Although there was considerable degree of similarity in the imagery used by participants among the three ethnic groups and in the tendency to somatise feelings, there were some images, analogies, metaphors and descriptive language that characterize both emotional and bodily pains. The

meaning attached to the distress by the three ethnic groups draws a culturally unique expression of depressive symptoms.

LOCAL IDIOMS	LITERAL OR LOCAL MEANING	ASSOCIATED MEANING
Upay – Igorot (Aplai tribe)	Dismaya, nawalan ng ganang magtrabaho sanhi ng problema na dumarating	Disappointed, Lack of energy to work because of current problem in life
Mensasadut – Igorot (Kankanaey tribe)	Malungkot, nawalan ng gana sanhi ng mabigat na problema	Feeling sad due to a big problem encountered. Lack of energy
Nabannog – Igorot (Bago tribe)	Hirap sa buhay; hirap sa pagkain; hirap ang katawan; hirap sa paghanda sa pagtrabaho	Difficulty in life; Lack of food; Lack of energy; Fatigue and loss of initiative to work
Para kang hangin – Igorot (Kankanaey)	Mahina katawan para kang tinataboy ng hangin	Weak body that results to lack of energy
Nagmumukmuk – Igorot (Kankanaey)	Nauwi sa kawalang gana-Tahimik lang, ayaw makipag-usap pati pakikipagkapitbahay ayaw	Loss of interest to socialize – Quiet type only and I do not even talk with my neighbors
Amihain – Dumagat	Panahon walang makuhanan ng makakain, matinding kahirapan	Scarcity of food, and extreme poverty
Butang-butang – Dumagat Bulobyang-aw- Dumagat	Iba na ang sinasabi, di na tama ang ginagawa Sinira ang kaisipan	Speaks and acts differently, Crazy
Inaalislis – Dumagat	Mainit ang pakiramdam, palaging nagbabaliktaad ka sa kama	Feeling restless when I sleep
Nabubuwal Na – Dumagat	Mamatay na kesa maranasan matinding kahirapan	Suicidal tendency rather than to suffer real hardships in life
Napondo ang isip, naalisan ng Isip – Dumagat	Nawala sa tamang kaisipan	Crazy
Mahirap kalooban, mahina katawan – Dumagat	Nanghihina ang isip at katawan	Low mood/lack of energy
Nalalanta na parang dahon – Dumagat	Nanlulumo sa sobrang gutom	Feeling weak because of too much hunger
Naghihimutok ang kalooban – Dumagat	Matinding sakit ng kalooban dahil sa kahirapan	Frustration due to loss of options and resources
Puso ay gumaganoon – Dumagat	Sumisikip ang puso	Rapid heart rate/shortness of breath
Kakawitang palakol – Dumagat	Mamatay ng mulat sanhi ng matinding kagutuman at walang pagkukuhanan ng kabuhasan	Instant death due to severe hunger and lack of resources
Sumasakit na kalooban – Dumagat	Masakit sa damdamin	Pain and suffering
Mahirap ang aking katawan – Dumagat	Sumasakit ang katawan	Body pain/fatigue
Naglalata na katawan – Dumagat	Mahina ang pakiramdam	Lack of energy
Dungos – Aeta	Humahapdi ang sikmura, hindi ka makakain, nahihilo	Stomach ache, loss of appetite and dizziness
Murit – Aeta	Kahirapan napunta sa ulo	Poverty led to being crazy
Napasma ang sikmura – Aeta	Masakit ang tiyan	Stomach ache
Panting-panting ang paningin – Aeta	Nahihilo ang mata/paningin	Dizziness

Table 2: Idiom of distress/indigenous lexicons as the expression of depressive symptoms.

Presentation of Indigenization of Depressive Experiences from the Lived Experiences of Indigenous Peoples

The findings of the study suggest substantial cultural differences in the expression of depression. It showed several fold of differences and similarities within the characteristics of depression. The descriptions of the participants' reports revealed three remarkable "themes" that were grouped into 19 sub-categories. These are (a) **sakit** ("pain") or poverty of the body that pertains to somatic domain and has nine sub-categories, such as disturbance of sleep, appetite loss, stomach ache, vomiting, dizziness and sweating, heaviness of the body, falling or crumbling of the heart and feeling hot; (b) **hirap** ("suffering") or poverty of the heart that pertains to affective domain and has six sub-categories such as feeling down and weak or lack of energy and low mood that resulted to pain and suffering, boredom, irritation and frequent crying, anger and irritation, feeling sad and worry, and feeling sad and sorrow; (c) **tiis** ("to endure") or poverty of the mind that pertains to cognitive domain and has five sub-categories such as feeling hopelessness and helplessness, excessive worry due to loss of options/frustration, excessive worry due to lack of resources/frustration, suicidal ideation and craziness. The findings support the view that culture influences the expression of indigenous peoples' depressive phenomenology which has some common roots with Western clinical pictures of the disorder.

Theme 1: Sakit (Pain)/Poverty of the Body

Poverty of the mind is a state of deprivation that is manifested in their experiences of pain and illness. In trying to give a grounded and realistic description of their experiences, participants used symbols which explained both the type of feeling and its impact upon them. Thus, there was a process of translation between essentially psychic events and functional or physical consequences as they proceeded with their explanations. These changes in bodily experience were widely associated with depressed states and featured in many lay accounts of depressive symptoms. The participants used metaphors and other descriptive language characterized by both emotional and bodily pains. Also, some somatic complaints may all be expressions of fatigue in which bodily organs are perceived as unable to contain the distress, such as disturbance of sleep, appetite loss, stomach ache, vomiting, dizziness and sweating, heaviness of the body, falling or crumbling of the heart and feeling hot – all unexplained aches and pains. These were categorized in the somatic domain, as stated in their statements, such as:

Disturbance of sleep

Dumagat 1: Talang di ka nga makatulog, maiisip mo bakit nangyari sayo un, bakit nangyari sayo un pero dumarating na mawawalan ka ng makain.

I really couldn't sleep wondering why it happened to me; it comes to a point that I don't have anything to eat.

Aeta: Gabi- gabi..Oo, kung nag-isip ako ng kabuhayan namin at kakainin.

Every night, yes, I think about our livelihood and what to eat.

Igorot: Halos di ka makatulog, kakaisip, halos wala ka ng pag-asang makaahon sa hirap, halos dalawang buwan umabot.

I could not even sleep properly, thinking as if it was hopeless to get out of poverty; it took me two months...

Appetite loss

Dumagat lalake: mahirap lunukin ung pagkain sa lalamunan, parang wala ka gana kakaisip san uli kukuha ng makakain.

It is difficult to swallow the food as I lose my appetite thinking about where to get again the food for the next day.

Aeta babae 2: malungkot lang talaga..Hindi ka makakain..hindi ka maka ano makakilos..halimbawa may gusto kang puntahan hindi mo mapuntahan gutom kana..mahihilo lang mata mo..hindi mo alam kung saan kana pupunta mahihilo kana.

It is really painful. I could not eat...I could not even move...for example, I wanted to go somewhere but I could not go because of hunger...my eyes were painful...I did not know where to go because I felt dizzy.

Igorot babae: di ka rin makakain.

I could not eat.

Stomach ache

Aeta babae: dungos-humahapdi ang sikmura, sumasakit na talaga. Nag-susuka na.

My stomach feels inflamed; it's really painful. I vomit.

Dumagat lalake: syempre gutom na yung ano mo. Mahapdi na ang tiyan mo ang salitang mahapdi ang tiyan wala pa akong makain yun salitang tagalog ba..laging ganoon kami.

Of course, I feel hungry..My tummy is painful because of lack of food to eat. Most of the time, we are like this.

Dizziness and sweating

Aeta babae 2: panting-panting ang paningin/nahihilo na mata mo para kang pagpapawisan.

My vision gets blurred and I sweat a lot.

Aeta babae 1: gutom ka na..mahihilo lang mata mo..hindi mo alam kung saan ka na pupunta mahihilo ka na

You are hungry..your eyes are dizzy..you do not know where to go because of dizziness

Heaviness of the body

Aeta babae 1: di makatayo o makalakad at hindi mo na naman mabuhat ang katawan mo.

I couldn't stand or walk and I couldn't get out of bed.

Rapid heart rate/shortness of breath

Dumagat 2: gumaganoon ang puso.

My heart beats rapidly.

Feeling hot

Dumagat 3: Inaalilis ay kainit pakiramdam mo sa likod, yung bay pagod na pagod lahat sayo.

Your back feels hot and all your limbs feel so tired.

Dumagat 2: Biling talikud ka sa higaan, parang mainit ang iyong katawan, di ka makatulog.

I get restless and my body feels hot that I couldn't sleep.

For indigenous peoples, the most common word and the most prevalent complaint of depression was distress of body pain, pertaining to the daily occurrences of things, unfavorable living conditions and physical illness.

Theme 2: Hirap (Suffering)/Poverty of the Heart

Poverty of the heart is a state that people find themselves when they lack the ability to deal with specific circumstances, or life in general, without a total meltdown. It pertains to deep-seated emotion as a state of sadness and pain.

Distress of the body was usually described as a condition of irritability, weakness and tiredness. Also, there were notable words and phrases that manifest depressive symptoms among the participants in order to express their feelings of depression in the context of indigenous cultural knowledge; they usually used compound words, typically “feel weak in the body”. The everyday language illustrated above was a prominent feature across the accounts that portray the manifestations of somatic illness as one of the nature of depression. It may be due to the inability to do anything to change an undesirable situation. Another common idiom of distress used in the expression of feelings and emotion was a state of helplessness that leads to suffering, such as feeling down and weak, lack of energy, tiredness and numbness. These pertain to affective domain as articulated in their statements below:

Feeling down and weak (lack of energy and low mood)

Dumagat lalake 1: parang walang buhay katulad sa kagubatan wala ng makuha..pag ganoon mabigat na ang aming damdamin.

It's lifeless similar to the forest that you cannot get anything; when it happens, we feel sad.

Dumagat lalake 2: naghihina ako, nanlalambot basta ganoon na lang ang buhay. Yung parang dahon na patay.

I feel weak thinking that life is like that; the feeling is heavy and the body is weak. Like a dead leaf.

Aeta babae 1: nangagalambot kana, mahina, matamlay, walang gana.

I feel weak and look pale; we lose our appetite.

Igorot babae 1: para kang hangin, tinataboy ng hangin na para kang matutumba.

I am like wind, blown by the wind for me to fall.

Dumagat lalake 2: Mahina kalooban at mahina katawan.

Weak in spirit and weak in body.

Aeta babae 1: Mabigat na mabigat ang pakiramdam.

The feeling is indeed heavy.

Aeta 3: Pag gutom na ah naglalanta na po ang katawan..oo parang hindi mo na mabuhay ang katawan mo..oo hindi kana makatayo o ano, maka-upo kana lang..hindi na makatrabaho talaga..oh syempre wala ng laman yung tiyan e..oo haha..ah hindi ko maibigkas pa yun naglulumooo..ahh basta.

If I am hungry, my body is weak..yes, as if I could not carry my body anymore..yes, I could not even stand, I just only seat..I could not even work of course. Because there is no food for the stomach..yes..ah I could not verbalize my downhearted feeling..

Some of the expressions often used to express pain and suffering about lack of resources and loss of options were *hirap kami* (“we are poor people”) and *mahirap ang buhay* (“life is difficult”) ... *kami ay laging gutom* (“we are always hungry”). These are considered natural and transient reactions to external stressors. They used familiar terms to make their experiences seem ordinary and normal part of their lives, as stated in the following.

Pain and suffering

Dumagat 2: Kamiy ay mga gutom. Minsan lang kami kumain. Mahirap na talaga, minsan natitiis naming isang beses lng kami kumakain. Talagang ala, ala aabutin ka ng gutom, naiiyak, mahirap na mahirap, malungkot na malungkot.

We are hungry. Once in a while that we eat. It is really difficult; sometimes, we endure eating once in a day only. It is real that there is no food at all, when we feel hungry, we cry, it is very difficult, it is very sad.

Dumagat 3: kalooban naghihimutok, himutok na damdamin, ung sakit ng kalooban di makatulog bakit ganito nangyari, bakit yung iba meron, ako wala, baka pinabayaan na kami ng panginoon, di mo mararamdaman pumapatak na luha mo.

The feeling is so painful, so painful that I could not sleep. Why did this happen? Why do others have lots of things? In my case, I do not have anything, why did God forsake us? You could not even feel that your eyes are shedding tears.

Dumagat 4: Mahirap na talaga, minsan natitiis naming isang beses lng kami kumakain. Humihina na nga rin ang katawan. Tiis lang kasi wala ka magawa.

It is really difficult, sometimes; we endure eating once in a day. Our bodies feel weak. we endure because we could not do anything at all.

Aeta 1: Naghihirap kami sa pamumuhay. Di na kami kumain. Mghihina katawan nagiintay ng darating.

Our life is so difficult. We are not eating anymore. Our bodies feel weak and we wait what will happen to us.

Aeta 3: Minsan wala na kami maramdaman na sakit kasi sanay na yata sa hirap at sanay na kumakalam lagi sikmura. Wala ka magawa kundi magtiis kelan uli malalagyan ang tiyan.

Sometimes, we do not feel the pain anymore maybe because we are used to diffulties and we are used to being hungry. We could not do anything but to endure until such time that there will be food to eat.

Anger appears to be the emotion that surfaces and is manifest as aggressive behavior that lead to frustration. The respondents verbalized that their life circumstances often lead to feelings of frustration, boredom, irritation, anger and frequent crying, as evidenced below.

Boredom and irritation

Dumagat 4: Nakakainip na kalagayan, naiinis ka kasi di ka nila kasama maglakad.

I get bored and restless; I feel irritated because I couldn't go with them.

Anger and frequent crying

Dumagat 5: Yan sinasabi niya palagi, humihyaw. Iyak ng iyak, galit na galit. Ayaw niya ng pinupuntahan, Tapos galit siya.

That's what he always says; shouting, crying endlessly, really mad. He doesn't like being approached, and then he gets mad.

Anger and irritation

Dumagat 2: mainit ang ulo/nayayamot.kalooban. naghihimutok, himutok na damdamin. *I become hot-headed/irritated. I complains. I become frustrated. I get disoriented, a little mad... always irritable.*

Dumagat 5: saka pag ganun, di na maganda na pagiisip, medyo galit na Masungit na parati, marami na iniisip, lungkot at galit ang nasa isip at awa sa pamilya. *If that happens, one's mind is upset, sometimes, angry; most of the time very angry, lots of things are being thought of, sadness and anger surface and pity for one's family.*

Feeling sad and worry

Aeta 1: malungkot ang ano paghanap kung papaano ka maka hanap buhay o ano wala na lakay ko. Masakit din anak pag naisipan mong wala kanang katuwang ng kaagapay ng hanap buhay..masakit masakit, pag naisip mo yang lakay kung minsan naiisipan ko kung minsan hm wag na para naman akong kung iisipan ko naman kako para na akong baliw haha daig mo pa ang isang baliw. *I feel sad because of the lack of job or I do not have my husband anymore. My child is also sick and I do not have my husband who can help me with my pains... it is really painful. Sometimes, I do not think a lot because I may end up as insane, more than the feelings of an insane person.*

Aeta 2: pag malungkot po mahirap, oo mahirap para kang naalisan ng isip kung papaano ka makakita ng konting biyaya, konting pagkaen...oo nawawalan ng isip para kang tulala..pag-ka nakakita ng konti masaya na ng konting biyaya konting pagkaen..babalik na naman iisipin mo nanaman kung papaano kang giginhawa ng konti. *If I am sad, it is difficult. Yes, it is difficult to think of the food that I have to eat. However, if there is little food then I feel happy. Later, I feel sad and think on how I can have a better life.*

Aeta 3: wala kang gana kung ano ang dapat mong gawin sa bahay.Pag ikaw lang magisa hmm ay para kang nalulungkot pag hindi mo sila kasabay kumaen.Parang mawawalan ka ng pag-asa ng sana mag ipon-ipon kame katulad niyan makapag-luto ka ng kung ano ano masaya ka ng kumakaen at kung minsan...malungkot nanaman haha....syempre iniisip mo ng papano po pagkuha ng pagkaen mo kung hindi ka magtitinda..kung hindi ka maghahanap buhay..wala kanang pambili..saan ka kukuha na naman ng makakaen...kung gutom kana malungkot kana.. *I feel weak in terms of the household chores. If I am alone, I am sad if the other family members could not join me in eating. We are hopeless because we do not have savings for some foods to be eaten. I feel sad because I have to think on how we can survive, work and eat, where we can get money to buy food for us... if we are hungry then we become sad again.*

Igorot babae: malungkot pag may problem.... *I am very sad if I have a problem...*

Igorot babae 2: Marami ng beses, oo marami ng beses na akoy nalungkot..Oo nung namatay na yung anak naming pati na yung kabuhayan namin. Kung kailan kami makapagtatrabaho, kung wala kaming pagkain na mahahanapan mag-asawa. Oo iniisip ko na nga lang yung buhay naming.

Many times, yes, many times, I am sad.. Yes, when my son died including our source of living. When will we have work and when will we eat if ever we have jobs to do. Yes, I only think on how we will survive.

Feeling sad and sorrow

Dumagat 1: kung balik tanaw mo, malungkot na malungkot ang pakiramdam mo ayaw ko na minsan.

If I have my flashback of my life, I feel very sad because I feel that I do not want to see it this way.

Dumagat 2: marami na iniisip, lunkot at galit ang nasa isip at awa sa pamilya.

Stressed out, sad and there's anger and pity for the family.

Theme 3: Tiis (To Endure)/Poverty of the Mind

The experience of depression as distress was a reaction to lack of resources and loss of options. However, it was articulated by the participants in distinctive ethnic idioms and interpreted as suffering. They also included ruminations or excessive worry about various problems of living, poverty and anxiety. There were also some distinctive elements to the way in which they described physical and mental pressure – pressure in the head as excessive worry, helplessness, and hopelessness. Cognitive domain may also be present with symptoms of excessive worry.

Feeling hopelessness and helplessness

Dumagat lalake 3: Pag naratay na kami mag-asawa sa banig, talagang kahirap, maiiyak ka na lang kasi wala naman tutulong.

It is really difficult when my wife and I get sick; we couldn't do anything but cry because no one will help us.

Dumagat lalake 1: Pag naisip mo talaga, masiraan ka ng loob, ako'y naiyak, pg problema koy matindi, kahit ganu katibay ang loob ko, pg naibulalas muna nawawala na. Masakit na talaga loob mo, baka masabi mo pinabayaan ka ni lord.

Sometimes I couldn't think of a way or any solution to the problems. My inner self is sulking. I am in pain that I find it hard to sleep. Why is this happening? Why do other people have this while I have none; I couldn't help but think that perhaps God has abandoned us; then without me knowing, tears start falling?

Dumagat lalake 2: gabi-gabi iniisip, pag-iisip masiraan ka minsan ng loob, naiiyak ka na lng, maiiyak ka kakakisip.

Every night, I am always restless and my mind wanders. There is nothing else in my mind except my problems. Yes, nothing that I become famished; I cry; it is really difficult and lonesome.

Aeta babae 2: oo malungkot ang ano paghanap kung papaano ka maka hanap buhay o ano wala na lakay ko...pag malungkot po mahirap. Malungkot lang talaga. Hindi ka makakain..hindi ka maka ano makakilos..Malungkot din wala Na pambili Ng pagkain, isipin Na namn san kukuha ng makakain.

Yes, it is sad to look for a job or your husband is not around anymore... if I am sad, it is difficult. I am very sad and I could not eat. I could not even move. It is difficult if I do not have money to buy food and I have to think where can I find food to eat.

Aeta lalake 3: Naiisip nila, walang tumutulong, tssssk,naisip nila hay haay walang tumutulong dito, magutom ka ,isang beses lang kakain.wala na suporta,wala na bigay. Isipan nila andoon na sa Pampanga.

They think that there are no people who would like to help; you are hungry because you eat only once. No support, no assistance. They think that there are foods in Pampanga.

Excessive worry due to loss of options/ Frustration

Aeta 1: pagod na pagod na kami sa kahirapan, sakit na sa ulo kakaisip, kalabaw na trabaho ng trabaho. Mamurit ka kakakisip san hihingi tulong kasi yung para sa kulot, napunta sa unat. Para kaming niluluto sa sarili naming mantika. Sobrang problema sa buhay namin na mahirap talaga.

We are already tired of hardships in life; it is painful to think about this situation, we are like carabaos working so hard. The assistance that should be given to people who have curly hairs was given to the people who have non-curly hairs. Too much problems in life is very difficult.

Aeta 2: Minsan, wala ka na maramdaman manhid na sana na Sa kahirapan at gutom.

Sometimes, we couldn't feel any pain at all because we are used to deprivation and starvation.

Dumagat lalake 1: isip ng isip paano na ang buhay. Hirap buhay walang magawa kundi magtiis, maiiyak ka kakaisip.

I think hard about life. Life is so difficult but I have to endure and it leads to tears while thinking about life.

Dumagat lalake 2: gabi-gabi iniisip, pag-iisip masiraan ka minsan ng loob, naiiyak ka na lng, pati magsaing di namalayan di mo nagawa, pag-iisip sobra.

Every night, I think a lot. Too much thinking could lead to frustration, I cry and even cooking could not be done because of too much thinking.

Dumagat lalake 3: minsan isipin mo gusto mo na sumuko, pero paano nga e ganito lng naman kaming katutubo. Kaisipan ko pag may suliranin ako e parang amihain lakas ng hangin, ihip ng ihip na ayaw na matigil sa kakaisip.

Sometimes, I would like to give up but we, as indigeneous peoples lead a life like this. If I have a problem, it is like the wind that blows like my mind that does not stop thinking at all.

Other than the aforementioned, the respondents further elaborated in their verbalizations the pain and suffering they experienced as a result of lack of options and resources, such as excessive worry, as shown in their statements.

Excessive worry due to lack of resources/Frustration

Dumagat 2: isip ka ng isip sa gabi ano pwede pangkabuhayan kung walang wala na.

I keep on thinking every night about what could be our means of living if we are already left with nothing.

Dumagat 3: mabigat na ulo ko tapos paggising sasabihin mo saan na naman kukuha makakain.

My head feels heavy and whenever I wake up, I start thinking again where I would get food for the day.

Igorot 1: isip ka matindi, ano paraan saan trabaho uli, saan kukuha pangkabuhayan, trabaho lang ng trabaho walang tigil, kasi pag tumigil e wala na malalaman ang sikmura. *I think hard about what to do, where I could get food; I have to keep on working because if I stop, I will have nothing to eat.*

Lack of resources and financial hardship were often referred to as *kakawitang palakol/mamatay ng mulat* (“lack of resources/scarcity of food”) for the Dumagats and *dungos* for the Aetas, meaning *sakit na nararamdaman kung wala ka makain or kagutuman* (“scarcity of food”).

Dumagat 2: Kaming katutubo, nakadepende buhay naming sa panahon. Misan pag panahon ng amihain may sinasabi kami na panahon ng **kakawitang palakol** o sabi nilay mamatay ng mulat. Ibig sabihin mamatay ng dilat ang mata sa gutom. Marami nagkakasakit sa panahon na iyon, marami nagugutom. Matagal yoon na pagtitiis. Kasi wala kami makain noon kundi kung ano anon a lang na meron sa paligid.

We, as indigenous people, depend our life in terms of dry or wet seasons. Sometimes, if the season is favorable then there is no worry. However, if the season is unfavorable, then people die of hunger. There are lots of people who get sick and many of them die of hunger. The suffering lasts for days. We did not have food before and whatever is seen in the environment then we have to be satisfied.

Aeta 3: Sa amin tawag doon ay **dungos**, humahapdi and sikmura, young mag-ano hindi ka makakain. Syempre wala ng laman, kundi ka kumakain, sumasakit na talaga. Humahapdi ang sikmuta dala ng matinding kagutuman, nahihilo na mata at di kana makatayo.

In our place, we call it as “dungos”, the stomach is hungry, you can not eat anything. Since there is no food available because of scarcity of food, the hunger is terrible, the eyes are dizzy and you could not stand anymore.

A person who is severely troubled was labeled as having *murit* for the Aetas, and *butang-butang* and *bulobyang-aw* for the Dumagats. These were commonly used in daily language when someone behaved in a strange, abnormal or unexpected way, but not as necessarily having a mental disorder.

Dumagat 2: butang-butang, di niya inaakala ginagawa niya, parang nababaliw. *He doesn't know what he's doing, as if going crazy.*

Dumagat 1: bulobyang-aw tawag sa amin, hindi na normal dahil sa problemang matindi. Nalulungkot, nagsasalita mag-isa, gagala siya hanap ng makakain. Parang nababang-aw, lakad ng lakad at nghahanap kung saan may makain, nagtatawa mag-isa, pero pagkatapos naman noon normal na ulit. Parang kimbaga pinaparaos lang niya yung nararamdaman niya niya na problema na hindi niya nakayanan.

We call it “bulobyang-aw”, he's not normal anymore because of his big problems; sad; he speaks to himself, he'll go out and wander just to find food.

Aeta 3: Kahirapan, napunta sa ulo mo yung **murit, loka loka**. Nasira na kaisipan, namurit na. Pag isip isip sa problema, dadlain na un sa utak niya kaya ginanon na niya isisp niya kasi di na niya nakayanan problema. Minoret na niya kaya sya ay nagsasalita ng di nniya alam pero puro naman hinahakit sinasabi niya at problema sa asawa niya.

Poverty; it goes to your head; crazy, you lose your mind.

However, within the Dumagats' context of ending pain or suffering, they expressed the wish for God to take their lives, as a way to convey that they are in suffering. Hopelessness leads to suicidal thinking and attempt due to inability to cope with the adversity of life's circumstances.

Aeta 1: Ano po ang naging sanhi ng anu, may sakit dahil yung mata niya namuti, nag katarata po muna. Ngayon pumunta na sa kuwan niya. Sa utak niya. lagi pong sumasakit ang ulo niya. Sa...Katarata. Pinatignin po, at magagamot po sana, yun nga lang ayaw niya. Anu po. Ayaw na po niya, Dahil Iba na yung nararamdaman..Kaya yun po...Hindi naman po labis na ... siguro mga isang taon lang. Wag ka nang maggamot sa akin, di niya sasabihin ano sakit niya magsisinungaling sya, sinakal na niya sarili ay...

Uh, the reason actually is... he's sick, because he had white stuff in his eyes, symptom of cataract. Then, it went up to his brain; his head always aches. It started there, the cataract. He had it checked and it could have been cured but he didn't want it. He didn't want it because he feels something else. Because he got sick first, then he couldn't support his child anymore. So there... it wasn't really that long... about a year, I think.

Dumagat 2: nabubuwal na, maigi na po mamatay kesa maranasan matinding kahirapan. *He falls so often; it's probably better to die than to experience more suffering.*

Dumagat 5: Pili lang ang kinakausap niya. Ay para po bang talagang siguro yung parang nalulungkot. Yung buhok po niya eh di niya masuklay parati nakapuyod lang po yung buhok niya (I: ahhhh) talagang parang yung parang yung batang hindi nililinis ganun ang itsura niya. Yung damit niya marumi na, maputi na maitim na po. Doon sa loob po na yun nakasara yung pinto yung dalawang pinto at saka mga bintana nakasara. Ayaw niya ng pinupuntahan. Tapos galit siya. May araw at gabi ay nakahiga siya. Nakahiga lang po siya. Mag-nganga. Mag- nganga tayo sasabihin ko. Hindi po ang sagot niya sakin, ay gaganon lang po siya. Di yun sasagot, sasabihin ko ay may kumpleto nganga ko. Ayaw po niya. Eh di hindi na nga siya nagsasalita. Inaano na nalang niya yung ulo niya. Hiyaw, araw-gabi. (kadi-Dino Kadi) asawa ko asan kana? Yan sinasabi niya pag humihiyaw. Iyak ng iyak, galit na galit. Yoon po nagbinti napo siya.

He only talks to very few people. It's like, maybe, he's really sad. He can't even comb his hair; it's always tied up, really, he's like a kid that doesn't get cleaned up, and he looks like that. His clothes are dirty, what used to be white is now black with dirt. He closes both his doors and windows. He doesn't like being visited. He's always mad. There are days and nights he'd just lay in bed, just lying there. Let's chew betel nut, I'd tell him. He'd say no. He won't answer. I'd tell him I have betel nut. He doesn't like it. He won't even talk. He'll just shake his head. He always shouts, day and night, screaming "My spouse, where are you?" That's what he shouts out, he always cries, really mad. Then, he hanged himself.

Discussion

The most affected indigenous peoples in this study, facing deprivation and hunger, were the Aetas and the Dumagats who live along the mountain ranges of Sierra Madre. The devastating experiences of Aetas in 1991 with the eruption of Mt. Pinatubo and the long period of Lahar flows led them to be deprived of their ancestral lands, virtually losing their meager resources, relatives and being dependent on government and civic rations and assistance for a long time. Cases of malnutrition, hunger and deprivation were noted. Also, various illnesses were observed because of their poor health conditions. Some of them even started roaming around, reaching even the metro city of Manila to beg for help to augment their limited rations. Others

tried to earn their living by making bows and arrows, native novelties and growing vegetables and root crops, securing wild birds and flowers that they collected in the mountains of Central Luzon and Sierra Madre. Often, they eat just one meal a day, or sometimes rely on what herbs and root crops they collect while roaming around the forest areas. With such cultural practices and because of their experiences as Mt. Pinatubo victims, the Aetas live a hand-to-mouth existence and do not think about their future much. That is also why most of them even deny themselves schooling, particularly the elders who never went to school – so most of them cannot read or write. However, the young generations are fortunate enough to be awarded some scholarships by the government and other civic groups and churches that assist with their schooling.

Since most of them lost everything after the Mt. Pinatubo eruption, they experienced feelings of being helpless. Some turned mendicants and simply waited for some civic-spirited people to visit them and give relief goods and other assistance. Their minds were not focus on savings but only to sustain and meet their daily needs. Their hopelessness is now centered on their anxiety of where to go if they are again transferred outside the military reservation. Sadness and pain among the Aetas are common because their primary concerns and anxieties are related to their insecurities regarding their homes. These are quite temporary and they have no security of stay and tenure in their communities. Some of them are within the military reservation, forest protected areas, and restricted mining arenas. Their claim for ancestral domain have not yet been awarded to them.

While most Mt. Pinatubo Aeta victims have already returned to Pampanga, Tarlac, and Zambales, there are still about 50 families who chose to stay within the military reservation. Military exercises, firing and bomb explosions around their area are common occurrences, and brings fear and anxieties to them. Their means of socialization are quite limited to drinking sprees and small time gambling just to relax and enjoy life. They also experience insults, denials and frustrations in their love life because of their small build, curly hair or *kulot* and dark skin. The Aetas also cited that they were victims of unfair treatment and bullying.

On the other hand, the Dumagats have a nomadic tendency, and move from one place to another collecting forest products for foods and meager income. They also chose to stay near the Pacific Ocean within the Province of Aurora for fishing and diving for *banagan* or lobsters and other seashells that make novelty items for sale. They do suffer deprivation and malnutrition, particularly the senior citizens and children, who just rely on the able family heads and sons to search the mountain ranges for wild animals such as deer, monkeys, wild pigs and other foodstuff. Hopelessness occurs every time a calamity such as a typhoon occurs because their upland crops are affected. They are also victims of hopelessness because their former habitats are already occupied by other people, and they can no longer harvest their own planted coconut trees in those areas.

Also, the Dumagats confided that they seldom mingle with other people and chose to settle away from other dwellers in the community because they suffer insulting situations because of their physical attributes, as well as for hobbies such as chewing bitter nuts or *nganga*. They suffer loneliness because of lack of recreational facilities and amenities in the mountains and forest areas. During times of problems, some of them are consoled by their elders and tribal leaders, while some Christian missionaries also visit their houses for Bible studies and spiritual fellowship.

The Igorots too have their own share of helplessness because there are also cases of fraud by other parties where recruiters for overseas work turned out to be illegal, they were cheated by buyers who shortchanged them while buying their gold, or failed to comply with their business arrangements. Some Igorot members encountered great losses in their crops from upland because of landslides, erosion and even forest fires.

The Igorots have different tribal groups such as the Kankanaey, Ibaloi, Kiangnan, Aplai and Bago who were forced to migrate along the Sierra Madre because of peace and order problems. Their interests lie in gold panning, small-scale mining and root crops cultivation. Most of them are able-bodied and hardworking, hence hunger is not common to them. They are also accustomed to upland farming and share their harvest with those tribe members who are too old to do hard labor. However, they too suffer from poverty, particularly the older generations. The different tribal groups of Igorots have experiences of being lonely when their loved ones and family members pass away. They have some cultural practice of not joining any social activities and some of them even practice burying their loved ones near their houses and own backyards. While most of them are not sociable, they choose to be physically fit through sports and other wholesome recreations. Drinking spree is also common to them as they claim that it is a way of forgetting their problems, to warm up their bodies after hard work, and to counter the cold temperature in the evenings.

In exploring the expression of depressive symptoms among indigenous peoples, it was found that language issues, cultural beliefs and practices influenced the experience of depression. Intrinsically, the indigenous understanding of depression is metaphorical in orientation. They use symbols or somatic metaphor to explain depressive symptoms. For the Dumagats, the indigenous concept of depression is related to *kakawitang palakol/mamatay na mulat* (lack of resources and loss of options), while for the Aetas, they experience *dungos* or *pasma sa tiyan dahil sa gutom* (“stomach ache, dizziness and loss of appetite”), while the Igorots describe the symptoms as *upay* or *walang gana mag trabaho* (“lack of energy to work”), *mensasadut* or *malungkot o nawalan ng gana sanhi ng mabigat na problem* (“feeling sad due to problem encountered and lack of energy”), *nabannog* or *hirap sa buhay*; *hirap sa pagkain*; *hirap ang katawan*; *hirap sa paghanda sa pagtrabaho* (“difficulty in life; lack of food; lack of energy; fatigue and loss of initiative to work”).

Indigenous peoples attributed depression to pain (*sakit*), suffering (*hirap*) and endurance (*tiis*). A common experience among indigenous people is extreme poverty that may cause starvation and deprivation of basic needs. Hunger is natural and part of normal life situation for indigenous people. In view of these predicaments, the depressive symptoms might be viewed as a normal emotional reaction. However, the causal role of stressful life events associated with poverty appears to play a much more central role in triggering depressive symptoms. Depression creates a mindset of scarcity among the participants. It shows a significant association between poverty and depression among older women concurring with previous studies that have found that lack of economic resources and financial difficulties are risk factors for depression in late life. Those deficits associated with poverty, lack of financial resources and lack of adequate health care, have a social drift effect and significantly affect mental health. Substantial evidence links poverty to depression in late life (Dunlop et al., 2003). Research indicates that families living in urban poverty encounter multifaceted risks associated with the hardship of depleted resources, burdens of high stress and incivilities, and exposure to multiple traumas (Phillips et al., 2015). Because ethnic groups are overrepresented, there can be additional suffering secondary to racist attitudes and negative social perceptions of people living in poverty.

The expressions of symptoms among the three ethnic groups varied based on their distinct cultural knowledge. For indigenous peoples, the most similar word and most prevalent complaints of depressive symptoms were suffering (*matinding hirap*, *mahirap na mahirap*) and pain (*hirap*). In order to express the feeling of depression in the context of their cultural knowledge, they usually used compound words, typically *mahina katawan*, *mahina isip* or “feeling weak in the body”. Unexplained aches and pains often accompany depression, and individuals may also experience loss of energy, and fatigue or lethargy (World Health Organization, 2008). Depression is an experience related to distress, which may be in reaction to loss, enduring pain, and bereavement. However, it was articulated by the participants in distinctive ethnic idioms and interpreted by sufferers. For the Aetas, the person who is severely troubled was labeled as having *murit* or mental illness and for the Dumagats as *bulubyang-aw*. They also included rumination or excessive worry of thinking (*hirap buhay walang magawa kundi magtiis*) associated with various problems of living, poverty and anxiety. Distress of the body usually described a condition of irritability, weakness and tiredness. Unexplained aches and pains often accompany depression, and individuals may also experience a loss of energy, fatigue or lethargy (World Health Organization, 2010).

Life events and experiences of indigenous peoples seem particularly difficult, threatening, distressing, and unmanageable. Stressful life experiences of the indigenous peoples heighten emotional distresses, causing to experience depressive symptoms. The experience of depression pertained to the daily occurrences of things, unfavorable living conditions and physical illness, and were therefore considered as natural occurrences. Among most of the study participants, depressive symptoms were perceived as a transient reaction to external stressors. The findings revealed that the description of depression varied in this population, and that depression affected all dimensions of the participants’ physical, psychological, and cognitive aspects. In line with prior research, the present study suggests that negative life events and experiences are significantly associated with depressive symptoms (Fitzpatrick et al., 2005; Shapero et al., 2014). Other studies indicate that external stressors constitute risk factors that interact with personal predispositions (primarily psychological stressors, environmental stressors, or a combination of these two) to produce psychological distress (Grant et. al. 2004; Fitzpatrick & Montgomery, 2004) which is the case for the participants in this study. Somatization, which is accepted as a conflicting factor in diagnosing of depression, is closely related to how someone interprets somatic sensations and attributes what causes these (Duman et al., 2004). Somatic symptoms which might be considered as an expression of psychological distress can lead to unnecessary medical evaluation or malpractice. They describe how negative life events directly affect their cognition and lead to changes in their self-perceived competences (Kirmayer, 2001).

Conclusion

In the indigenization of depression, the impact of culture on the experience and presentation of depressive symptoms has been attributed to cultural differences in the conceptualization of depression. The illness representation is not only part of the culture in terms of shaping experience, but also mirrors and reflects cultural realities.

The present study revealed varying depressive symptom profiles among the three ethnic groups: the Dumagats were more likely to emphasize affective and cognitive symptoms (e.g. *mahirap kalooban*, *mahina katawan* (“weak-spirited” and “the body is weak”), *nag-alala saan kukuha ng makakain sa araw na iyon dahil wala na mukuha sa kalikasan* (“worried where to get food for that day because nature has nothing left”), the Aetas experienced somatic

complaints (e.g. *sakit tiyan/napasma* (“stomach ache” and “pains”), *di makatulog* (“could not sleep”), *sakit ulo sanhi ng gutom* (“headache due to hunger”), and the Igorots reported more affected and cognitive problems (e.g. *walang gana magtrabaho* (“lack of motivation to work”), *di nakikihalubilo sa mga pagtitipon* (“does not participate in gatherings”) and *mensasadut* or *malungkot o nawalan ng gana sanhi ng mabigat na problem* (“feeling sad due to problem encountered and lack of energy”).

To contextualize their narratives, their experiences about moods and feelings were connected to physical pain. It pertains to mental health problems, but for them it denoted social and moral problems, because the daily challenges in meeting basic needs were repeated as key sources of stress among them. The manifestation and characteristics of mild depression compared to the narrative experiences of indigenous peoples are mostly similar. The experience of depression pertained to the daily occurrences of things, unfavorable living conditions, physical illness, and therefore was considered as a natural occurrence. Among most of the study participants, depressive symptoms were perceived as a transient reaction to external stressors.

For indigenous peoples, concepts such as depression and mental illness are not commonly understood but the syndrome is thought to be synonymous with other more accepted terms. There is no universal conceptualization of depressive disorders; the experience, meaning, expression of depressive symptoms varies as a function of the cultural context in which it occurs. Their description of the symptoms of depression depends on the cultural lens they are being looked through. Their cultural knowledge influences the source of distress, the form of illness experience, symptomatology, the interpretation of symptoms, modes of coping with distress, help-seeking and the social response to distress and disability. Therefore, it is difficult to have a universal concept of depressive disorders because cultural variations greatly influence the meaning and expression of indigenous concept of depression.

Findings support the view that cultural forces influence the expression of indigenous depressive phenomenology, which nevertheless has some common roots with western clinical pictures of the disorder. The premise is that depression and depressive symptoms are a universal experience bound to common biological features, but the local idioms of distress, expressions and modes of communication, could be culturally specific. Depression is often recognized and, as a consequence, left untreated, especially among indigenous peoples.

Recommendations

The usual contention about depression is the context of how it is actually situated, based on universal diagnostic criteria which are applied without cultural bias. In order to deliver care that is culturally valid, clinicians need a method that systematically allows taking culture into account when conducting any clinical assessment. This study recommends an audible call for a culturally sensitive guided intervention with this special population to ensure a holistic approach. It can contribute to rethinking mental health services and health promotion for indigenous populations and communities.

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Superordinate Identity in Zainichi Koreans (Koreans Living in Japan)

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Abstract

In this study, we elucidated the mechanism leading to “freedom”, which represents superordinate identity in *Zainichi* Koreans; that is, they are not constrained by a fixed ethnic or host identity. For instance, freedom was represented by labels such as “citizen of Earth” or “individual”, rather than predetermined group categories. During adolescence, many *Zainichi* Koreans experience an identity crisis, whereby they identify themselves as both Korean and Japanese, or neither Korean nor Japanese. These individuals develop an alternative identity involving freedom, which favors neither the ethnicity nor the host. We conducted a questionnaire survey involving 184 *Zainichi* Koreans. The results of the path and correlation analysis showed that younger age, greater conflict, and lower levels of discrimination were directly associated with freedom. Discrimination exerted a significant effect on conflict ($\beta = .31, p < .001$), and conflict significantly enhanced freedom ($\beta = .32, p < .001$). These findings indicate that respondents who reported greater perceived discrimination experienced more conflict and, therefore, greater freedom. Freedom was not correlated with positive or negative aspects of mental health, but conflict was correlated with depression. In addition, if this conflict continues, individuals could become prone to depression. These results suggest that as a superordinate identity, freedom maybe used as a strategy to overcome conflicts resulting from identity-related confusion between predetermined ethnic categories in immigrants living in a majority host society.

Keywords: conflict, discrimination, identity, immigrant, Japan, mental health, *Zainichi* Koreans

A new concept of freedom as a superordinate identity – such as those in which one is considered a human being or a citizen of earth, which involves an independent lifestyle distinct from those bound to a Korean or Japanese identity – has recently attracted the attention of *Zainichi* Koreans (Korean immigrants in Japan). However, the mechanisms underlying freedom and its relationship with mental health remain unclear.

Fukuoka (1993) reported that large numbers of people from the Korean Peninsula were conscripted into the Japanese army during the Japanese colonial period between 1910 and 1945, and approximately 2,300,000 Koreans lived in Japan at the end of World War II. In 1991, Japan granted legal status as *Tokubetsu Eijusha* (special permanent residents) to Korean and Taiwanese people (and their descendants), who had settled in Japan before the end of World War II and lost their Japanese nationality because of the San Francisco Peace Treaty (Kim & Yun, 2005). Of these individuals, 99 percent were from the Korean Peninsula (Ministry of Justice, 2010). *Tokubetsu Eijusha* differ from the general *Eijusha* (general permanent residents), and the residential status of *Tokubetsu Eijusha* in Japan represents a colony of immigrants. Although individuals who have residential status as *Tokubetsu Eijusha* of Koreans are called *Zainichi* South/North Koreans, this group is referred to as *Zainichi* Koreans (including both South and North Koreans) in the current study.

Perceived Discrimination, Conflict, and Freedom as an Alternative Identity in *Zainichi* Koreans

Fukuoka (1993) posited that many young *Zainichi* Koreans perceived discrimination or prejudice from Japanese people and experienced identity-related confusion (e.g. “I cannot decide whether I should live as a Korean or Japanese person”), and the distinct social category, *Zainichi* Korean, involved unavoidable inner conflict. Similarly, Mori (2002) found that *Zainichi* Koreans felt torn between the two national boundaries, as the Japanese society discriminated against the *Zainichi* Korean identity. *Zainichi* Koreans’ conflict between the two identities maybe considered to occur because the *Zainichi* Korean social category was created via discriminative attitudes in the host Japanese society, which formed the foundation of Hypothesis 1.

In the current study, the term conflict was used to describe the feeling of identity-related confusion between two cultures or groups. *Zainichi* Koreans’ uncertain position, which occurred because they are of both Korean and Japanese or neither Korean nor Japanese ethnicity, could have created an alternative identity that extends their identities as Korean or Japanese individuals. For instance, *Zainichi* Koreans perceive themselves as individuals (Fukuoka, 1993) or “global citizens” (Fukuoka, 1993) rather than Korean or Japanese people. Tsujimoto et al. (1994) posited that Koreans of the second or later generations constituted a new species, and the Young People Association of Korean Residents in Japan (2012) reported that narratives of *Zainichi* Koreans included, we *Zainichi* Koreans are neither Korean nor Japanese, but rather, we have something above them. In addition, Harajiri (1989) found that rather than relinquishing their Korean nationality, *Zainichi* Koreans who acquired Japanese citizenship experienced doubt regarding who they were; accordingly, they began to use the terms “cosmopolitan” and “free person” in describing their identities. From this perspective, we may conclude that an alternative identity that is not constrained by fixed ethnic categories may emerge in *Zainichi* Koreans. However, the process underlying the alternative identity remains unclear.

Therefore, the current study sought to determine whether individuals who overcame conflicts between the two social groups ultimately obtained freedom in an alternative identity, which formed the foundation of Hypothesis 2. We labeled this phenomenon as freedom, which was defined as a superordinate identity that was not bound to a fixed ethnic or host identity, whereby individuals perceive themselves as individuals or residents of Earth, without national boundaries.

Goals and Hypotheses

The purpose of the study was to elucidate the mechanism underlying freedom as a superordinate identity in *Zainichi* Koreans, and examine its relationship with mental health. The study hypotheses were as follows:

- (H1) Discrimination will exert a positive effect on conflict.
- (H2) Conflict will exert a positive effect on freedom.
- (H3) Discrimination will exert a positive effect on freedom (the rationale for this hypothesis was that previous studies indicated that people with “individual orientation” seek freedom from discrimination in the host society and tend to migrate to other countries; Im, 2001).
- (H4) Young age will have a positive effect on freedom (the rationale for this was that the younger generation of *Zainichi* Koreans attaches a greater value to individuality relative to the older generation; Lee, 2011).
- (H5) Age will be positively associated with discrimination (based on a previous research; Fukuoka, 1993).
- (H6) Freedom will be positively related to mental health (as the concept of freedom implies liberation from predetermined ethnic categories).

Methods

Sample and Data Collection

Participants included 184 *Zainichi* Koreans (93 men and 91 women) aged between 20 and 83 ($M = 47.6$, $SD = 16.9$) years. Most participants (92.4 percent) were of second or later generations, and their ancestors had a voluntary or compulsory immigration history related to Japanese colonization of the Korean Peninsula.

It was very difficult to recruit *Zainichi* Koreans living in Japan for participation in the study. The reason for this difficulty could have been that *Zainichi* Koreans from the Korean Peninsula concealed their Korean ethnicity and used Japanese, rather than Korean, names to avoid discrimination in Japanese society (Song, 2001). Fortunately, recruitment of *Zainichi* Korean participants for the present study was possible with the help of a South Korea-oriented association known as *Mindan* in Japan, as the primary investigator taught the Korean language there and was familiar with the staff at the *Mindan* in Okayama, a western area of Japan.

We recruited our sample ($N = 184$) from two sources. Some participants were recruited with the assistance of the Okayama *Mindan*, which holds an event on August 15 each year to memorialize and celebrate Japan's release of the colonization of the Korean Peninsula (1910–1945). The principal investigator visited this event and distributed 200 questionnaires; of these, 107 (54 percent) were returned.

Data were collected with the assistance of the *Mindan* in Osaka, another western area of Japan, through a referral provided by the Okayama *Mindan* staff. Questionnaires and prepaid return

envelopes were distributed via mail. The Osaka region was selected in order to recruit approximately 200 participants at the Okayama event, as it is an occasion in which numerous Koreans gather at a single location, but only 107 surveys were returned. In addition, the Osaka region contains the highest number of *Zainichi* Koreans, relative to those in other areas, and as it is geographically close to Okayama, the two *Mindan* leaders were familiar with each other. Therefore, it was easy to obtain a referral from the Okayama community. Of the 200 questionnaires sent to the Osaka *Mindan*, 77 (39 percent) were returned. Participants were provided with a document that described the purpose of the study and assured of confidentiality of their personal information and responses. Written informed consent was obtained from all participants, and participation in the study was anonymous and voluntary. The questionnaire was administered in Japanese.

Measures

All of the items were measured using Likert-type scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The measurement tools are described below.

Freedom. Five items were used to measure freedom as a superordinate identity. The choice of items was based on the results of previous sociological studies (Fukuoka, 1993; Kim, 1999), and Lee and Tanaka's (2010) psychological study involving *Zainichi* Koreans. The items measured the extent to which respondents understood their self-concepts or values beyond fixed national and cultural boundaries (e.g. "I am no one but me. Nationality is of secondary importance").

Conflict. The extent to which the participants experienced identity-related confusion between the Korean and Japanese ethnicities was measured using five items. Three items were taken from a study conducted by Lee and Tanaka (2017), and two were created specifically for the study (e.g. "I do not feel that I can completely identify with either Korean or Japanese ethnicity").

Perceived Discrimination. Based on the results of Berry and Sabatier's (2010) study, we used two items to examine individual-level and group-level discrimination. These items measured the degree to which the participants perceived discrimination from the majority of people or wider society (i.e. "Japanese people discriminate against me because I am *Zainichi* Korean" was used to measure individual-level discrimination; and "Japanese society discriminates against the *Zainichi* Korean ethnic community" was used to measure group-level discrimination).

Mental health. Although many previous studies have focused on the negative factors and measured depression, loneliness, and mental disorder as the indicators of mental health, the current study measured both positive and negative aspects of mental health to examine it from a broader perspective.

Depression. Depression was measured using seven items from the Depressive Tendencies scale developed by Sam and Berry (1995). Cronbach's α for the scale was .90 in the current study.

Happiness. Happiness was measured using 12 items from the Subjective Well-Being Scale developed by Ito, Sagara, Ikeda, and Kawaura (2003). Cronbach's α for the scale was .85 in the current study.

Data Analysis

SPSS was used to perform descriptive analysis, exploratory factor analysis, and correlation analysis, to confirm the underlying assumptions for path analysis. Path analysis was then performed using AMOS to examine the relationships between the variables included in the proposed model and clarify the dynamic mechanisms underlying freedom.

Results

Sample Characteristics

Table 1 summarizes the demographic characteristics of the sample. The proportions of men (51 percent) and women (49 percent) were similar. Participants' ages ranged from 20 to 83 years, and their mean age was 47.6 years ($SD = 16.9$ years). The number of middle-aged people (aged 40–59 years) was higher relative to those of younger (aged 20–39 years) and elderly (aged 60–80 years) people. Most participants were of second or later generations (93 percent) and Korean nationality (93 percent). More than two-thirds of participants were married (64.7 percent), and approximately one-third (32.9 percent) had been educated to college level or higher.

Variable	Category	<i>n</i>	%
Sex	Male	93	50.5
	Female	91	49.5
Age (years)	20–29	39	21.2
	30–39	31	16.8
	40–49	23	12.5
	50–59	38	20.7
	60–69	35	19.0
	70–85	18	9.8
	Data missing	6	3.3
Generation	First	8	4.3
	Second	85	46.2
	Third	80	43.5
	Fourth	5	2.7
Marital status	Married	61	64.7
	Unmarried	119	33.2
	Data missing	4	2.2
Nationality	Korean	8	93.5
	Japanese	172	4.3
	Data missing	4	2.2
Education	High school level or lower	101	55.8
	Some college	76	30.7
	College level or higher	4	2.2
	Data missing	3	1.6

Table 1: Participants' demographic characteristics.

Factor Analysis Results

As freedom could be related to conflict in *Zainichi* Koreans, 10 items from the two subscales were entered into the exploratory factor analysis simultaneously. In the final factor analysis, nine of the 10 initial items were retained, and two factors were generated (Table 2). Five items

that were loaded onto Factor 1 reflected a sense of self that extended beyond Korea or Japan, providing a global sense of values. Therefore, we labeled this factor “freedom”, which was defined as a superordinate identity that was not constrained by predetermined ethnic categories (Korean or Japanese) and represented resistance to such categories, indicating a desire for alternatives. Cronbach’s α for the scale was .70, and the model explained 22.6 percent of the variance in freedom. Four items were loaded onto factor 2. We labeled this factor “conflict”, which was defined as the experience of feeling torn psychologically between two cultures or groups. Cronbach’s α for the scale was .64, and the model explained 33.7 percent of the variance in conflict. The coefficient of the interfactor correlation between freedom and conflict was .34.

No.	Item	Factor 1 ($\alpha = .70$)	Factor 2 ($\alpha = .64$)
1	I want to pursue a global sense of values that lies beyond Japan or Korea.	.64	-.12
2	I feel that I am a resident of the earth rather than a Japanese or Korean.	.63	.05
3	I am no one but me. Nationality is of secondary importance.	.61	.09
4	I want others to simply see me as an individual rather than as a <i>Zainichi</i> Korean.	.56	-.10
5	I have a faint awareness of being Korean, but it does not mean that I have a strong awareness of being Japanese.	.34	.17
6	I do not feel that I can completely identify with either Korean or Japanese ethnicity.	.04	.72
7	I hesitate to do things when the Japanese and Korean ways of doing them differ.	-.04	.63
8	I feel that I cannot settle down in Japan or Korea.	-.04	.53
9	I cannot decide whether to live a fully Japanese, Korean, or <i>Zainichi</i> Korean life.	.00	.40
Factor correlation F1			.34
F2			
Contribution rate (%)		22.6	33.7

Table 2: Results of the exploratory factor analysis of superordinate identity (following promax rotation).

Descriptive Statistics and Correlations Between Variables

Means, standard deviations, and correlations between the variables are shown in Table 3. Pearson’s correlation analysis showed that freedom was significantly correlated with being single, younger, experiencing greater conflict, and lower levels of perceived individual-level discrimination. Depression was moderately correlated with experiencing greater conflict, being single, and higher levels of perceived individual-level discrimination. In addition, only individual-level discrimination was related to freedom.

	Variable	<i>M</i>	<i>SD</i>	2	3	4	5	6	7	8	9	10
1	Sex			-.07	-.12	-.06	.10	.02	-.08	-.17*	.02	.01
2	Marital status			-	-.17*	.71**	-.23**	-.14	.01	.11	.19*	-.20**
3	Education				-	-.42**	.11	-.04	.07	-.11	.15	-.11
4	Age	47.6	16.9			-	-.27**	.03	.13	.21**	.02	-.02
5	Freedom	3.16	0.84				-	.25**	-.05	-.17*	.03	.06
6	Conflict	2.41	0.84					-	.15*	.32**	-.16*	.34**
7	Group discrimination	3.47	1.04						-	.25**	-.10	.09
8	Individual discrimination	1.87	0.92							-	-.17*	.20**
9	Happiness	3.63	0.61								-	-.58**
10	Depression	2.01	0.84									-

Table 3: Means, standard deviations, and correlation analysis results

Note: Sex coding: male = 1, female = 2; Marital status coding: single = 1, married = 2

* $p < .05$; ** $p < .01$

Path Analysis Results for Freedom

Figure 1 shows the hypothesized path model, in which individual-level discrimination (hereafter referred to as discrimination) was assumed to precede conflict and expected to be associated with freedom, based on the Hypotheses 1 and 2, and discrimination was expected to exert a direct positive effect on freedom, based on Hypothesis 3. Some demographic characteristics were considered in the model. In addition, age was expected to exert a direct negative effect on freedom, and age was expected to exert a positive effect on discrimination, based on Hypotheses 4 and 5. Based on the correlation results, we expected a negative association between sex and discrimination and a negative association between marriage and freedom. The marriage variable was inserted into the initial model and later removed due to its' non-significant effect on freedom.

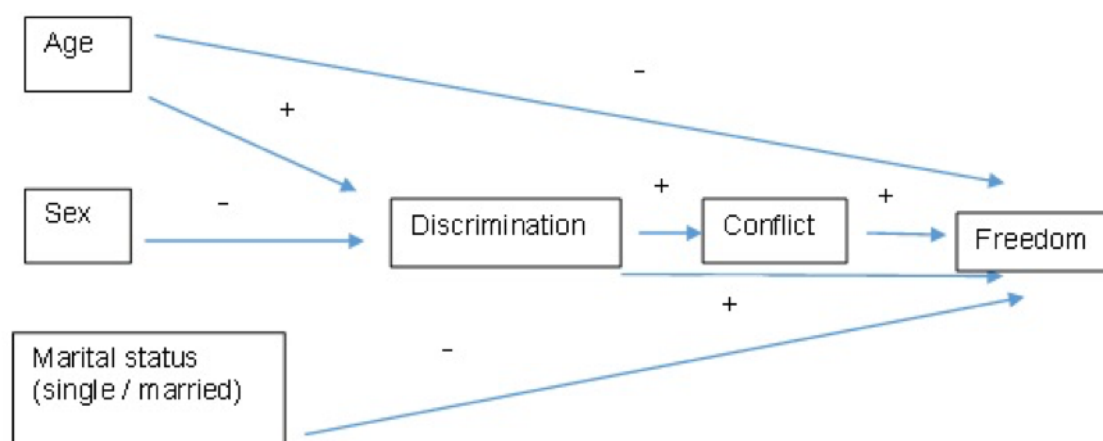


Figure 1: Hypothesized model of the process underlying freedom. Correlations between the background variables are not represented in the figure.

Figure 2 shows the final empirical model, which contained only significant paths and demonstrated a very good fit to the data. The chi-square test ($\chi^2 = 3.83$, $df = 4$, $p = .43$) and additional fit indices demonstrated that the model fit the data adequately (goodness of fit index = .99; adjusted goodness of fit index = .97; root mean error of approximation = .00). The model explained 7 percent, 10 percent, and 17 percent of the variance in discrimination, conflict, and freedom, respectively.

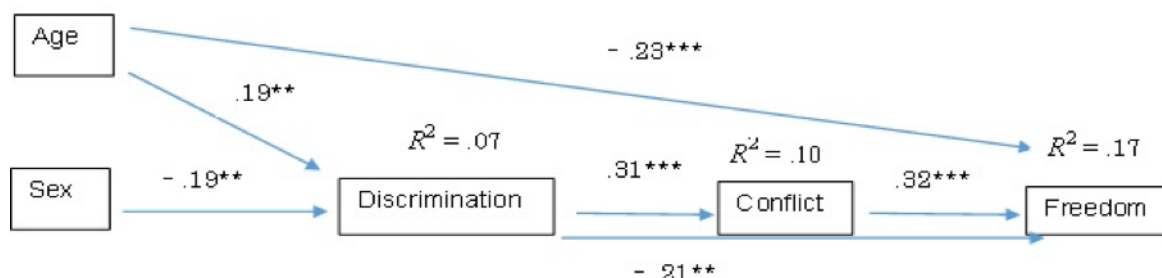


Figure 2: Empirical model of the process underlying freedom.
All paths are significant and standardized; ** $p < .01$, *** $p < .001$

In addition, younger age, greater conflict, and lower discrimination levels were directly associated with greater freedom. Discrimination had a significant effect on conflict ($\beta = .31$, $p < .001$), and conflict enhanced freedom significantly ($\beta = .32$, $p < .001$). These findings indicate that respondents who reported greater perceived discrimination experienced more conflict, and therefore, greater freedom. Of the participants' demographic characteristics, age exerted a significantly positive effect on discrimination ($\beta = .19$, $p < .01$), and male sex was associated with greater perceived discrimination ($\beta = -.19$, $p < .01$). Overall, conflict ($\beta = .32$, $p < .001$) and age ($\beta = -.23$, $p < .001$) were significant explanatory factors for freedom.

Discussion

The current study clarified the mechanisms underlying freedom as a superordinate identity (lifestyle) that was not constrained by traditional predetermined ethnic categories (Korean or

Japanese) and was represented by labels such as citizen of earth or individual. In addition, the definition of freedom in the study bore some resemblance to concepts in Western research. Wagner et al. (2010) suggested the concept of hybrid identity formation, in which different essences, blood, or genes are combined within a hybrid, which is left without an identity or belongingness, as the essences, blood, or genes are incompatible and therefore destroyed. Freedom in the present study is similar to this hybrid identity, in that they both involve the creation of a new alternative identity to replace the two identities that are very different in nature to allow their integration.

Relationships Between Discrimination, Conflict, and Freedom

The current study demonstrated that the conflict between the Korean and Japanese identities was an important explanatory factor for freedom. As conflict was positively correlated with depression, the conflict between the Korean and Japanese identities exerted a detrimental effect on mental health. However, the findings also provided a novel meaning for conflict. Based on the result demonstrating a positive path from conflict to freedom, the conflict could be deemed as a necessary gateway to freedom. Watzlawik's (2012) findings supported this view, as hybrid identity formation was suggested as a defense against conflict. Therefore, these findings indicate that identity-related conflict does not always have negative outcomes and can be part of the process of establishing a new identity.

Considering the speed of globalization, this type of conflict could increase, as individuals of dual or multiple cultures could possess multicultural identities (Choi, 2016). Bhatia (2001) posited that people with multicultural identities experienced both internal and external conflict between their different identities. Based on the present results, if individuals experience identity-related conflict between their original ethnicity and that of their host nation, freedom, as a superordinate identity, could provide a means to overcome this conflict. However, if the conflict continues, it could develop into depression, as the conflict was positively associated with depression ($r = .34, p < .01$).

The results indicated that discrimination exerted a significantly positive effect on conflict, and conflict exerted a positive effect on freedom, which supported the Hypotheses 1 and 2. They also elucidated the mechanisms underlying freedom, which highlighted conflict as the most important explanatory factor for freedom. However, it should be noted that conflict played a functional role as a necessary process leading to freedom, which was separate from the common negative definition of conflict.

Contrary to the expectations in Hypothesis 3, discrimination exerted a direct negative effect on freedom. Albarello and Rubini (2012) posited that human identity was the most effective strategy for defense against ignorant attitudes toward Black people. From this perspective, greater freedom, as a superordinate identity, was associated with lower levels of perceived discrimination in the current study.

Hypothesis 4, in which, younger age was expected to exert a positive effect on freedom, was supported. This result confirmed the findings of previous research showing a difference between the first generation of *Zainichi* Koreans, who value their ethnic originality, and later generations, who do not wish to adhere to the predetermined framework of ethnic Korean or Japanese culture, which is mentioned in much of the sociological literature (e.g. Harajiri, 1989).

Hypothesis 5, in which age was expected to be positively correlated with discrimination, was supported. This confirmed the findings of a number of previous sociological reviews (e.g.

Fukuoka, 1993).

Hypothesis 6, in which, freedom was expected to be positively correlated with mental health, was not supported. That is, even though people adopted freedom as an identity that was not constrained by traditional ethnic or host categories, their mental health did not necessarily improve.

A limitation of the current study is that although freedom was the principle factor measured in the study, the Cronbach's α for the scale was low. Therefore, the number of items included in the scale should be increased in future research, to improve its internal reliability. As a recommendation to develop the present study, the model should be used to examine underlying freedom in permanent residents in the general population, to verify the generalizability of the model.

Conclusion

Overall, the results of the study implied that freedom could be used as a strategy to overcome psychological distress resulting from an identity-related conflict between Korean and Japanese ethnicities at an individual level. The reason for this finding could be that freedom was defined as a superordinate identity that was not bound by predetermined ethnic categories. In extending these results to the intergroup relationships, we could infer that freedom, as a superordinate identity, could aid in the establishment of harmonious intergroup relationships between ethnic minority and host majority groups. Intergroup conflict tends to be caused by group-based inequality (Sugiura, Sakata, & Shimizu, 2014). If people develop a commonly shared awareness as members of the global human group, the intergroup hierarchy could weaken, which could increase the likelihood of harmonious intergroup relationships.

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Work-Family Conflict in Nursing: An Integrative Review of Its Antecedents and Outcomes

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Abstract

The aim of this paper is to provide an integrative review of the literature on work-family conflict (WFC) in nursing, assessing the antecedents and consequences of nurses' productivity, physical and psychological health, and well-being. We searched electronic databases, focusing on articles published in English and Italian during the period of 2005 to 2017. From the 1,180 studies found, we selected 28 papers for this integrative review. The findings, expressed as narrative synthesis, show that WFC is a stressor in nursing and most analyzed risk factors centered on the workplace. Some shortcomings of our review include methodological aspects and depth, although our synthesis of the 28 studies provides an evidence base for further insights into WFC in nursing.

Keywords: work-family conflict, nursing, risk and protective factors, job stress, job satisfaction

Nursing is a stressful job that can affect nurses' productivity, satisfaction levels, physical and mental health, and turnover intentions, as well as their patients' satisfaction (e.g. Khamisa, Peltzer, & Oldenburg, 2013). The effects of many different risks and protective factors (i.e. personal, relational, structural and organizational) on nurses' performance, personal health and well-being (Khamisa, Peltzer, & Oldenburg, 2013) and turnover (Heinen et al., 2013) have been analyzed by researchers. Conventional research on this topic has focused mainly on the workplace, observing various stressful tasks and characteristics of nursing that contribute to the quality of the work environment (Glazer & Gyurak, 2008).

Besides work-domain antecedents of nursing stress, burnout and satisfaction, researchers have begun to consider other domains, such as the work-family interface, which may generate factors that could overlap with strictly professional ones. Many scholars have analyzed work-family conflict (WFC), which is a dynamic area of research in work-family literature across various occupational sectors. However, this topic is relatively under-researched, with noteworthy gaps in the nursing literature. The present paper describes an integrative review of the recent literature on the role of WFC in nursing. Our objective is to obtain a clear understanding of the frequency, effects, and risk as well as protective factors of WFC in nursing. We chose the method of integrative review because it "allows for the inclusion of diverse methodologies (i.e. experimental and non-experimental research) and has the potential to play a greater role in evidence-based practice for nursing" (Whittemore & Knafl, 2005, p. 547). Understanding of the frequency of WFC and how nurses experience it may have conceptual and practical utility. It may help make nurses and managers more aware of its importance and of the need to invest energy and resources in promoting new organizational models, and developing personnel policies aimed at limiting or solving this problem.

Work-Family Conflict

Since work and family are the two major life domains of most people, a growing body of empirical research has analyzed the work-family interface in recent years. Some researchers have proposed that the flow of attitudes, emotions, and behaviors established in one domain may spill over into the other, as a linking mechanism between work and family (Edwards & Rothbard, 2000). The concept of spillover has been studied from the perspective of facilitation and enrichment of these two domains (work-family enrichment) and the point of view of the conflict, in this last case using the WFC construct. While the first angle has showed that multiple roles could have a positive effect on an individual's well-being and health, the WFC perspective maintained that engagement in one role is harmful to the other, leading to adverse outcomes for individuals, families, and organizations (Greenhaus & Beutell, 1985).

The concept of WFC has been widely studied in the work-family literature. It is considered a complex construct that involves different outcomes and antecedents and includes two possible directions. The argument regarding the WFC's two directions was first suggested by Greenhaus and Beutell (1985), and explicitly distinguished and analyzed by Frone, Russell, and Cooper (1992). These two directions are Work-to-Family Conflict (W-F-C), when difficulties at work affect functioning at home, and Family-to-Work Conflict (F-W-C) when problems at home affect functioning at work. In general, WFC can have various adverse effects on individuals' mental and physical health (Panatik, Badri, Rajab, Rahman, & Shah, 2011). In addition, it is argued that WFC can have multiple harmful effects on life satisfaction (e.g. Zhao, Qu, & Ghiselli, 2011) and job and family domains (e.g. Carroll, Hill, Yorgason, Larson, & Sandberg, 2013; Kalliath, Hughes, & Newcombe, 2012). However, most research has shown stronger

relationships to same-domain outcomes than to cross-domain effects (e.g. Amstad, Meier, Fasel, Elfering, & Semmer, 2011).

Regarding the antecedents of WFC, Greenhaus and Beutell (1985) proposed that time (time-based conflict), negative emotional states and fatigue (strain-based conflict) and required behaviors, expectations or rules (behavior-based conflict) experienced in one domain may influence functions, performance, satisfaction, expectations, and rules in the other. Later studies offered many different insights into the effects of work or family antecedents on the other life domain. The topic of time-based conflict has been studied more than other types; in these studies, scholars focused on working hours and their effect on worker well-being, health, jobs and life satisfaction (e.g. Wooden, Warren, & Drago, 2009). Regarding the topic of strain-based conflict, the impact of job-stress has been mainly studied, and findings show it has adverse effects on marital interactions and marital quality (e.g., Schulz, Cowan, Cowan, & Brennan, 2004). In the family domain, studies show that parenting stress has been associated with WFC (e.g. Vieira, Avila, & Matos, 2012). Regarding behavioral-based conflict, scholars have found that workers with high work-role expectations who considered work-roles as highly salient to their identity, experienced WFC (Fox, Fonseca, & Bao, 2011). Job-associated responsibility for others has also been found to be associated with WFC (Dierdorff & Ellington, 2008).

Scholars have also outlined the significant role of different protective and mediating factors in preventing or helping individuals cope effectively with WFC. Investigation of the protective factors has revealed that dispositional factors mainly seem to reduce the risk of WFC. These include self-efficacy, positive affect, internal locus of control, hope, optimism and resilience (Allen et al., 2012), as well as abilities such as selecting own life goals, optimizing goal-relevant means and looking for alternative compensatory means (Baltes & Heydens-Gahir, 2003). Other protective factors, such as social support from colleagues and supervisors, have been factored in studies on the work domain (Karatepe, 2010). In the family domain, some of the protective factors against WFC included emotional support from a partner (Selvarajan, Cloninger, & Singh, 2013) and marital satisfaction (Rogers & May, 2003). Moderating factors of WFC regarded socio-demographic characteristics, such as gender differences (Powell & Greenhaus, 2010) and particular job characteristics (Dierdorff & Ellington, 2008).

Method

Aim and Search Strategy

To obtain an overall picture of the WFC in nursing, our integrative review was conducted to detect the sensitivity of researchers and operators toward WFC as a risk factor for nurses' productivity, health, and well-being. To identify and assess relevant papers on WFC in nursing in the international literature, we designed a study protocol with the analysis of scientific material using inclusion/exclusion criteria. The findings were expressed as narrative syntheses in summary sheets. As a landmark, we used the extensive NEXT study by Simon, Kummerling, and Hasselhorn (2004) on nursing in several European countries that reported high levels of WFC in nurses in many countries. In our search, we considered peer-reviewed articles published in the last decade (2005–2017). The keywords used were: Work-family, outcomes, consequences, risk factors, protective factors and antecedents (used interchangeably), nursing stress, burnout, satisfaction, turnover. We first conducted an extensive search of the literature in the following databases: Medline, Embase, EBSCO, ScienceDirect, PubMed, Psychinfo, Google Scholar and Cochrane.

Screening Search Outcome and Quality Appraisal

Using the title and abstract to assess the relevance of a given research report for our review, we identified 1180 papers. In this first screening, we included editorials ($n = 40$) and brief reports ($n = 60$), useful for a full background of the review topic. After skimming the abstracts, 610 papers on the general topic (WFC, nursing stress, well-being, job satisfaction) and unique to WFC in nursing, were selected and retrieved in full-text. We added 60 other papers to this full-text sample, and two people made a selection by centrality to the review objectives and methodological quality. This approach narrowed down the sample to 215 articles, and information from analysis of these full-texts was entered in various sheets, and used as a basis for the review. Then we focused solely on WFC, and a sample of 28 papers was identified for analysis (Figure 1). In some cases, we excluded articles that analyzed WFC in health organizations without focusing on nurses or distinguishing nurses from other workers.

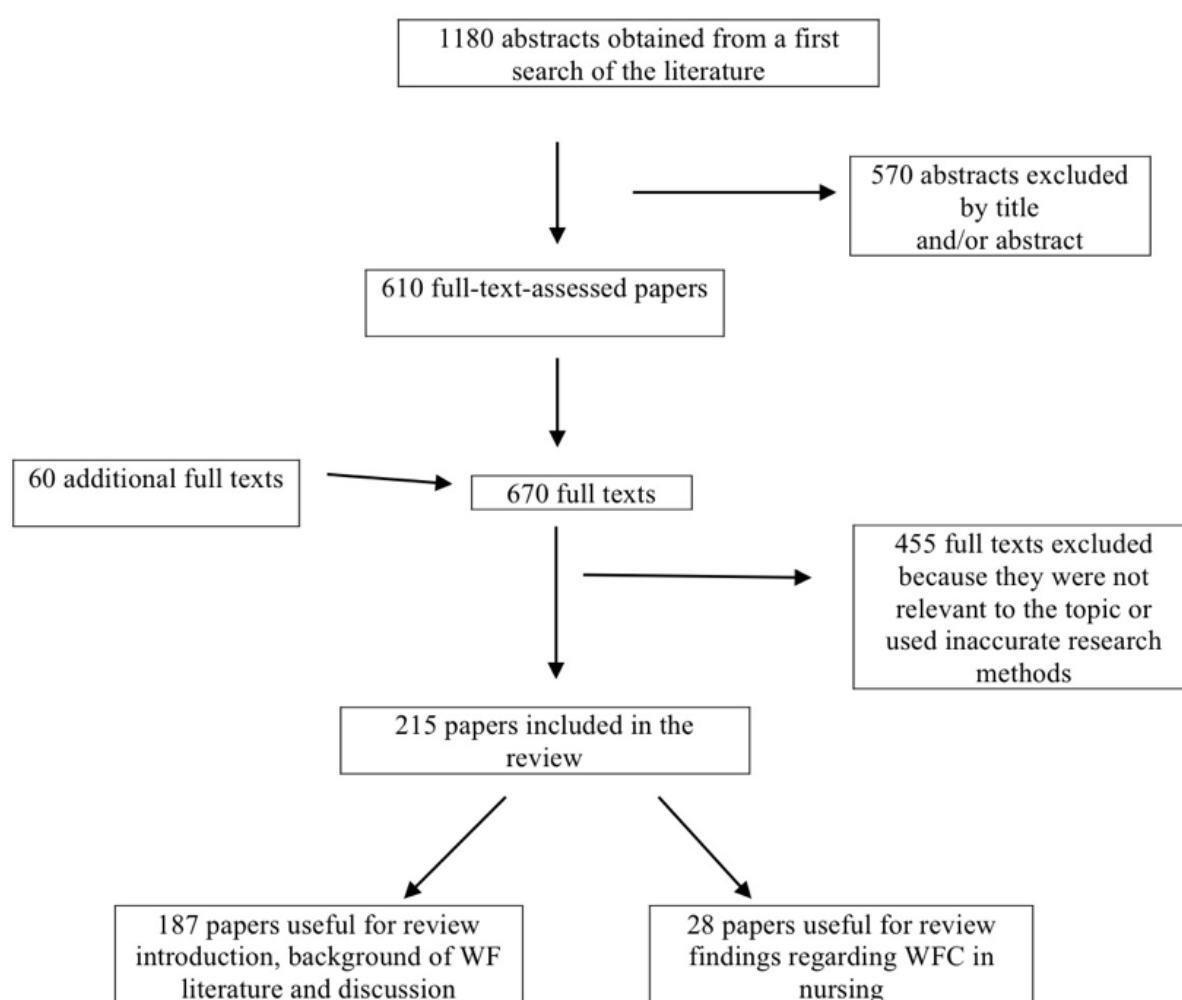


Figure 1: Search and screening papers for review.

To analyze the final sample of the 28 papers, we assessed the theoretical basis, as well as the editorial and scientific quality, of the study using a specially designed sheet. The various themes emerging from the sample provided a general understanding of state of the art about the review topic. During this phase of quality appraisal, any disagreement between the two researchers was resolved through discussion and occasionally by enlisting a third reviewer for

mediation. The data extracted from the 28 papers were the basis for the review and is summarized in the following discussion sections.

Results

In this section, we present certain methodological aspects and findings of the reviewed papers. Regarding the method used in the 28 articles, we considered the journal in which each article was published; the country, the type of paper, participants and sampling method, research design, the measures used and the type of data analysis. The findings of the research articles were distinguished according to five main topics: presence and frequency of WFC in nursing, negative and positive antecedents of WFC, WFC outcomes, mediator factors between WFC and its results and differential factors of WFC. This approach meant that reviewed papers could be cited more than once if they dealt with more than one of the five topics considered.

In general, most of the 28 papers remarked on the paucity of published nursing studies on WFC, and its antecedents and outcomes in their introductions. However, many recognized the importance of the topic, above all due to the increasing female workforce and the predominance of women in nursing. Table 1 summarizes the main research themes and the theoretical basis of each of the papers reviewed.

Authors Paper Title	Main Research Topic	Theoretical Background
1. Abrahamsen, Holte, & Laine. (2012)	<i>Level of WFI and its antecedents</i> The scholars analyzed the level of Work Family Interface (WFI) among part-time and full-time nurses working in Norway and Finland. Then they considered the role of work hours and work schedules in the association between part-time and WFI.	Relatively little is known about the day-to-day problems experienced by part-time workers. The literature showed contradictory findings about the effects of part-time and full-time work on WFI.
2. Barnett, Gareis, & Brennan. (2008)	<i>Antecedents of WFC and other variables</i> The aim of this research was the observation of iinteractional effects of the wife's shift schedule and number of hours on WFC, psychological distress, marital-role quality.	In WFC research, within-couple analysis is little used. Also, there are different and contradictory findings about the outcomes of day shifts work.
3. Battistelli, Portoghese, Galletta & Pohl. (2012)	<i>Outcomes of WFC and other variables</i> The scholars developed and tested a theoretical model of turnover intention that involved both WFC and community embeddedness.	Recently, new research directions have permit to identified WFC and job embeddedness (JE) in nursing turnover intention.
4. Camerino et al. (2010)	<i>Antecedents and consequences of WFC</i> In this research, the scholars observed both the role of shifwork and preventative measures at work in determining WFC and the effects of WFC on specific health and well-being indicators.	There is little research on the impact of work schedules and preventative measures at work on work-family conflict.
5. Cortese, Colombo & Ghislieri. (2010)	<i>Effects of WFC and other variables on job satisfaction</i> The scholars tested a model about the causal relationship between job and emotional charge, supportive management, supportive colleagues and WFC and job satisfaction.	In nursing literature, the findings are often limited and not accurate in detecting WFC.
6. Gandi, Beben & Gyarazama. (2011)	<i>Outcomes of WFC and other variables</i> The aim of this research was the assessment of the effects of work-home and homework interferences on job performance in male and female nurses in Nigeria.	In low income and developing countries, research on the effects of job characteristics and family responsibility on the nurses' performance working are few .
7. Ghislieri, Molino & Gatti. (2015)	<i>Outcomes of WF interface</i> The authors analyzed the association between WFI, in terms of conflict and enrichment, and turnover intentions (TI).	In nursing management literature, scholars have observed that WFC increased the probability of TI, while the WF enrichment was linked to lower levels of TI.
8. Ghislieri, Gatti, Molino & Cortese. (2017)	<i>Antecedents of WFC and WFE</i> The authors examined the associations among work relationships, job demands (e.g. workload, emotional dissonance), WFC and work-family enrichment (WFE).	In nursing, there are few studies on the positive side of the work-family interface, such as work-family backlash and organizational support.
9. Gipson-Jones. (2009)	<i>Outcomes of interaction between work, family and roles</i> The scholars observed both the interaction among African-American nurses' work, family and student roles, and their influence on nurses' psychological well-being and desire to stay in their profession.	Occupying multiple roles makes nurses susceptible to WFC. No studies have addressed WFC among minority nurses.

10. Grzywacz, Frone, Brewer & Kovner (2006)	<i>Prevalence and frequency of WFC</i> The scholars detected the prevalence and frequency of WFC in nursing.	The literature did not give satisfactory information about how frequently nurses experience WFC
11. Hanif & Raza Naqvi. (2014)	<i>Effects of WFC</i> The aim of this research was the assessment of effects of WFC on job satisfaction, job performance and psychological well-being in Pakistani nurses.	The study outlined the difficulty of work environment for nurses in developing countries.
12. Heponiemi, Kouvonen, Sinervo & Elovainio. (2010)	<i>Antecedents of WFC and other variables</i> The scholars evaluated the role of organizational justice and job control in work-family interference and sleeping problems.	The empirical literature showed mixed evidence of the effects of increased use of fixed-term employment contracts in Europe.
13. Keepnews, Brewer, Kovner & Shin. (2010)	<i>WFC and other variables as differential factors</i> The scholars identified and understood the generational differences among newly licensed registered nurses (NLRNs).	No research about generational differences among the NLRNs.
14. Kim et al. (2013)	<i>Effects of WFC</i> The aim of this research was the analysis of the association between WFC and musculoskeletal pain within a 3-months period among hospital patient-care workers.	Little is known about the effects of WFC on physical health among hospital patient care workers, and in particular in nurses.
15. Kunst et al. (2014)	<i>Antecedents of positive and negative WF spillover</i> The scholars examined the effects of shift work schedules on positive and negative WF spillover.	Shift work is very common in nursing, but few studies have investigated work-family spillover in this profession.
16. Lagerström, Josephson, Arsalani, & Fallahi-Khoshknab (2010)	<i>Experience of managing work and family roles</i> The scholars studied the effects of work-family issues in the everyday life of Iranian nurses.	The WFC is little known in developing countries such as Iran, where nurses face many difficulties at work (e.g. high workload, low salary).
17. Leineweber et al. (2014)	<i>Effects of WFC on burnout</i> The scholars analyzed the effects of WFC on burnout, in Swedish registered nurses (RNs). The work practice environment was measured at department level.	In nursing, few studies have examined the association between WFC and burnout at different organizational levels.
18. Lembrechts, Dekocker, Zanoni & Pulignano (2014)	<i>Antecedents of W-to-F conflict</i> The scholars examined the job sources of W-to-F conflict such as the role of work-family policy use, job dimensions and organizational support.	The relations among organizational support, job dimensions, work-family policy and W-to-F conflict have not been fully investigated.
19. Martini & Converso. (2012)	<i>Effects of WFC and other variables on burnout</i> The scholars analyzed some antecedents of burnout in nursing including WFC.	The literature outlined the specific nature of the job strain and burnout risk factors in various job contexts.
20. Moazami-Goodarzi., Rantanen, Nurmi & Mauno. (2015)	<i>The ways to manage WFC</i> The aim of this research was the identification of work-family boundary management profiles among university staff and nurses.	Boundary management styles are flexible and influenced by differences between individuals and the structure of their jobs.

21. Sharma, Dhar & Tyagi (2016)	<i>Effects of WFC</i> In this research, the scholars observed both WFC as cause of stress and its subsequent impact on nurses' psychological health. They regarded also the mediating role of emotional intelligence.	In India, the high women workforce in nursing is consistent with increased WFC. Also, WFC and lower emotional intelligence increase nurses' stress.
22. Takeuchi & Yamazaki (2010)	<i>Effects of WFC and other variables</i> In this research, the scholars considered both the influence of WFC and the sense di coherence (SOC) on mental and physical health of nurses.	Very few studies have investigated WFC among Japanese nurses and no study has considered the SOC, that helps nurses to cope with stress.
23. Van der Heijden, van Dam & Hasselhorn (2009)	<i>Effects of WF interference</i> The scholars identified the predictors of nurses' turnover intention (TI), including work-home interference. They also analyzed the influence of these predictors on job satisfaction.	Current knowledge of the predictors of nurses' turnover is still limited. Theory and research indicate that nurses' TI was affect by occupational commitment and job satisfaction.
24. Van Der Heijden, Demerouti & Bakker (2008)	<i>The mediator role of WH interference</i> The scholars viewed the mediating role of Work-Home interference between job demands (emotional, quantitative, physical) and nurses' health.	Many studies have assessed stressor–WH Interference-strain model. No longitudinal studies about the impact of WH Interference upon general health.
25. Wang, Chang, Fu & Wang. (2012)	<i>Effects and mediator role of WFC</i> The aim of this research was analysis of the relationship between work-family conflict and burnout; also, the scholars regarded the mediating role of psychological capital in this relationship.	Nurses are considered risk workers with high levels of burnout, often associated with WFC.
26. Ward- Griffin et al. (2015)	<i>Effects of WF spillover</i> The scholars examined both the health of nurses who provide care to older relatives, and their striving for balance between the job and familial care expectations.	Little is known about the health effects of double duty caregiving, or to the factors that shape this experience.
27. Yamaguchi, Inoue, Harada & Oike. (2016)	<i>Effects of WFC and other variables</i> With other variables (job control, family variables), the scholars analyzed both the effects of WFC on nurses' intention to leave their organization or profession, and their variations among caregiving settings.	Many researchers identified numerous factors affecting nurses' intention to leave work, but there are few studies on the different caregiving settings.
28. Yildirim & Yacan (2008)	<i>Effects of WFC and other variables</i> The aim of this research was the assessment of the role of social support, both as a moderator and a main effect in the relationship among work demands, work-to-family conflict, and life/ job satisfaction.	There is paucity of research about WFC in nursing. Most research has been conducted in Western industrialized societies. Social support has received wide interest in WF literature.

Table 1. The main research topics and the theoretical background of the reviewed papers.

Methodological Aspects of the Articles Reviewed

Table 2 summarizes particular methodological aspects of the 28 papers, most of which were published in international nursing and psychology journals.

All papers presented empirical research, and in some of them, the report was part of a wider study. For instance, in the study by Abrahamsen et al. (2012), the data were gathered as a part of the European Nurses Early Exit Study. Also, those in the study by Kim et al. (2013) were part of the “Be Well Work Well” study conducted by the Harvard School of Public Health, Center for Work, Health and Wellbeing. In addition, Leineweber et al. (2014) used data from the Swedish portion of RN4CAST, a European Project, focusing on nurses in surgical and medical inpatient care. Still, in the European context, the two papers by Van der Heijden et al. (2008; 2009) were part of “Nurses Early Exit (NEXT),” a research project financed by the European Commission, regarding the reasons, circumstances, and consequences of nurses’ intention to leave their profession.

The geographical research contexts of the reviewed papers involved both European and extra-European countries (US, Nigeria, Pakistan, Iran, India, and Japan). According to Hanif and Raza Naqvi (2014), interest in the analysis of nursing WFC in developing countries with traditional social roles suggests that “the impact of multiple roles at work and in a family may be bound to the culture in different countries” (p. 103).

In most of the studies, the participants were women and even when the sample comprised men, they were a minor percentage. Regarding methodology, we noted that scholars preferred cross-sectional design, self-report instruments, and quantitative data analysis, with a few exceptions. Indeed, three studies used focus groups and interviews (Gipson-Jones, 2009; Lagerström et al., 2010; Ward-Griffin et al., 2015). The latter two used grounded theory, analyzing the meaning and interaction processes surrounding phenomena from the participants’ perspective.

Regarding research design, in two similar studies, Van der Heijden et al. (2008; 2009) employed longitudinal design with a one-year interval between the two steps. While all 28 papers used individuals as the unit of analysis, Barnett et al. (2008) focused on couples as appropriate for the analysis of WFC, because this construct included family, a systemic context in which members are linked in relationships and what happens to one member can affect the others. Likewise, couple analysis enables assessment of within-couple crossover effects. Regarding the measures employed to assess the various variables treated in the studies, in a majority of cases the researchers sent or delivered the tools to a broad cross-section of nurses, but did not receive responses from all of them. Yildirim and Yacan (2008) suggested this may depend on the excessive workload and time constraints of clinical nurses. For the measure of WFC, the authors used the tool of Netemeyer et al. (1996), a validated short self-report that assesses the two directions of WFC (W-F-C and F-W-C). In some of the studies, WFC was one of various other variables measured by researchers.

<i>Authors, Year, Journal, Country</i>	<i>Paper Type</i>	<i>Participants and Sample Method</i>	<i>Research Design and Measures</i>	<i>Analysis Type</i>
1. Abrahamsen et al. (2012) <i>Professions & Professionalism</i> Norway, Finland	Empirical research as part of wider European Nurses Early Exit Study	1,315 female registered nurses for Norway and 1,240 FRNs for Finland. These samples were drawn from a large sample of all nurses employed in the target institutions	Cross-sectional design, using a questionnaire sent by post. WF interference was measured by scale of Netemeyer et al. (1996)	Quantitative data
2. Barnett et al. (2008) <i>Journal of Family Issues</i> . Boston	Empirical research focusing on the couple as the unit of analysis.	55 dual-earner families with children, in which the mother was a registered nurse. This sample was randomly drawn from the registry of the Board of Certification in Nursing.	Cross-sectional design, using face-to-face quantitative interviews, which were conducted at each family's home. WFC was assessed by a scale developed by MacDermid et al. (2000)	Quantitative data
3. Battistelli et al. (2012) <i>International Nursing Review</i> . Italy	Empirical research Ethical Committee approval	440 professional nurses working at one Italian public hospital. The sample was drawn from 695 nurses who received questionnaire.	Cross-sectional design using questionnaire that was delivered by nurse supervisors. WFC was measured by the scale of Netemeyer et al. (1996)	Quantitative data
4. Camerino et al. (2010) <i>Chronobiology International</i> . Italy	Empirical research institutions' approval	664 registered nurses, 98% female, randomly selected from all registered nurses working at six health care institutions	Cross-sectional design using survey, with Italian Nurses' Early Exit Study questionnaire (NEXT). WFC was measured using the scale of Netemeyer et al. (1996)	Quantitative data
5. Cortese, et al. (2010) <i>Journal of Nursing Management</i> Italy	Empirical Research Ethical Committee approval	299 professional selected from all nurses working at all medical departments of one hospital.	Cross-sectional design, using questionnaire that was delivered by nurse supervisors	Quantitative data
6. Gandi, et al. (2011) <i>Psychology</i> . Bauchi State, Nigeria	Empirical research The National Association of Nigeria Nurses & Midwives approval	373 male and female nurses, selected from 3698 ones by stratified random sampling	Cross-sectional design using a questionnaire that was administered by research field assistants. Two ad hoc scales were used for WHI.	Quantitative data

7. Ghislieri et al. (2015) <i>Medicina del Lavoro (Occupational Medicine)</i> Italy	Empirical research approved by hospital management	478 nurses, mainly women (84%), working at a northern Italy hospital	Cross-sectional design using survey. WFC was measured using the Netemeyer et al. (1996) scale.	Quantitative data
8. Ghislieri et al. (2017) <i>Journal of Nursing Management</i> Italy	Empirical research authorized by the hospital board of directors	500 nurses, mainly women (84%), working at a northern Italy hospital	Cross-sectional design using survey WFC was measured using the Netemeyer et al. (1996) scale.	Quantitative data
9. Gipson-Jones, (2009) <i>Journal of Transcultural Nursing</i> Southeastern Virginia and the District Columbia	Empirical research approved by the institutional boards	23 licensed practical women nurses, working at three schools of nursing, recruited over a 12-month period	Mixed-method design, using focus group and a semi-structured interview guide	Qualitative data . Content analysis
10. Grzywacz et al. (2006) <i>Research in Nursing & Health</i> Columbia, U.S.	Empirical research	1,213 women registered nurses, randomly selected from all nurses among 40 of the 51 metropolitan statistical areas (MSAs) in the U.S.	Cross-sectional design using mailed survey. WFC measured by three ad hoc items.	Quantitative data
11. Hanif & Raza Naqvi (2014) <i>International Journal of Gender and Women's Studies</i> Pakistan.	Empirical research	A convenience sample of 143 nurses, out of 366 distributed questionnaires, who worked at the public health sector of two cities in Pakistan, Islamabad and Rawalpindi.	Cross-sectional design, using a questionnaire administered through personal visits. WFC was measured by the Netemeyer et al. (1996) scale	Quantitative data
12. Heponiemi, et al. (2010) <i>International Journal of Nursing Studies</i> . Finland	Empirical research as a part of a Finnish study. Ethical committee approval	1,767 registered nurses (1,676 women) selected by random sample among 5,000 nurses from the Central Register of Health Care Professionals.	Cross-sectional design using a survey. Work interference with family measure was derived from the measure developed by Frone et al. (1992).	Quantitative data
13. Keepnews et al. (2010) <i>Nursing Outlook</i> Columbia	Empirical research, using data from an ongoing, longitudinal study and job choices.	2,364 members of the Baby Boomer and X and Y generations selected from a sample of 3,380 nurses	Cross-sectional study design, using a survey.	Quantitative data

14. Kim et al. (2013) <i>American Journal of Industrial Medicine.</i> Boston	Empirical research as part of the Be Well Work Well study. Institutional approval.	1,199 patient care workers randomly selected from 2000, working at 105 units (12 different types of units) of two large academic hospitals	Cross-sectional design, using a survey. WFC was measured by the Netemeyer et al. (1996) scale.	Quantitative data
15. Kunst et al. (2014) <i>International Journal of Occupational Safety and Ergonomics.</i> Norway	Empirical research as part of The survey of Sleep, Shift Work and Health (SUSSH)	2058 registered members, mainly women (91%), of the Norwegian Nurses Organization (NNO), random selected from 6000 members on the basis of the time elapsed since graduation	Cross-sectional design using a questionnaire, that was sent by post and online. The WF spillover was measured by using the Kinnunen et al. (2006) scale.	Quantitative data
16. Lagerström et al. (2010) <i>Nursing Science Quarterly.</i> Teheran (Iran)	Empirical research. Hospital administration approval	22 registered women nurses, full-time, living with their families and working at one of two teaching hospitals	Cross-sectional design, using both individual and focus group interviews, that took place during work hours.	Qualitative data. Grounded theory method
17. Leineweber et al. (2014) <i>PLoS One</i> Stockholm (Swedish)	Empirical research, as a part of RN4CAST, an European project. Ethics approved	8,620 registered nurses, from 369 departments of 53 hospitals, selected from the 33,083 members registered in the Swedish Association of Health Professionals	Cross-sectional design, using a survey. WFC assessed by one ad hoc item.	Quantitative data
18. Lembrechts et al. (2014) <i>Journal of Nursing Management.</i> Belgium	Empirical research in collaboration with the three largest Belgian trade unions.	A convenience sample of 83 nurses for the pilot testing study, and 384 nurses for the main research.	Cross-sectional study using online web. WFC measured by four ad hoc items of the European Social Survey.	Quantitative data
19. Martini & Converso (2012) <i>Italian Journal of Occupational Medicine and Ergonomics</i> Italy	Empirical research	307 participants, both nurses (61%) and support staff (39%), working at multi-specialty hospitals. The scholars did not explain how they selected their sample.	Cross-sectional study using questionnaire. WFC was measured by using the Netemeyer et al. (1996) scale	Quantitative data
20. Moazami-Goodarz et al. (2015) <i>International Journal of Business Administration.</i> Finland	Empirical research	271 nurses working at one health care district; 1,139 university employees working in two universities. They were part of a larger study on university employees	Cross-sectional study using online questionnaire. WFC was measured by Carlson, Kacmar, and Williams (2000) scale.	Quantitative data

21. Sharma et al. (2016) <i>Applied Nursing Research</i> . Uttarakhand, India	Empirical research with the agreement of 33 private nursing homes	693 female nurses out of 800 distributed questionnaires, working at 33 private nursing homes, gathered from a total of 40	Cross-sectional study using questionnaire that was delivered by hospital managers. WFC was measured by the Netemeyer et al. (1996) scale	Quantitative data
22. Takeuchi & Yamazaki (2010) <i>Japan Journal of Nursing Science</i> . Tokyo	Empirical research with ethics approval	138 female nurses out of 388 nurses working at three hospitals in the Tokyo metropolitan area	Cross-sectional study using questionnaire. The W-to-F conflict was measured by using the scale created by Kato and Yamazaki (2009).	Quantitative data
23. Van der Heijden et al. (2009) <i>Career Development International</i> . Netherlands	Empirical research as part of NEXT research with ethics approval	1,187 registered nurses, out of 9,200 questionnaire sent out during the first research step. Research participants worked at nine different general hospitals, nursing homes, home care institutions	A longitudinal research design with a one-year interval between the two steps. It used a questionnaire sent by mail. WFC measured by the Netemeyer et al. (1996) scale.	Quantitative data
24. Van der Heijden et al. (2008) <i>Journal of Advanced Nursing</i> . Netherlands	Empirical research as part of NEXT research with ethics approval	1,187 registered nurses, out of 9,200 questionnaire sent out during the first research step. Research participants worked at nine different general hospitals, nursing homes, home care institutions	A longitudinal research design with a one-year interval between the two steps. It used a questionnaire sent by mail. WFC measured by the Netemeyer et al. (1996) scale.	Quantitative data
25. Wang et al. (2012) <i>BMC Public Health</i> . Liaoning (China)	Empirical research with ethics approval	1,332 female nurses out of 1,700, working at six general hospitals, randomly selected	A cross-sectional study, using a questionnaire. WFC was measured by the Netemeyer et al. (1996) scale	Quantitative data
26. Ward- Griffin et al. (2015) <i>Journal of Family Nursing</i> . Ontario, Canada	Empirical research approved by the Ethics Review Board	32 male and female nurses in the second step of research randomly selected from 3,700 members of the Colleges of Nurses of British Columbia, Ontario and Nova Scotia.	Sequential, mixed-method study in two phases, focusing on the second step. Authors used two telephone interviews and focus group.	Qualitative data Grounded theory
27. Yamaguchi et al. (2016) <i>International Journal of Nursing Studies</i> . Kyushu (Japan)	Empirical research with written accord of organizations	1,461 nurses out of 2,177 delivered questionnaires, working at hospitals, home healthcare and nursing homes	A cross-sectional study using a questionnaire that was delivered by institution representatives. WFC was measured by the Carlson et al. (2000) scale.	Quantitative data

28. Yildirim & Yacan (2008) <i>International Journal of Nursing Studies</i> Istanbul	Empirical research approved by the Institutional Reviewed Board of the University.	243 females nurses, including academic nurses and clinical nurses, out of 874 delivered surveys, working at the departments of nursing in two large universities	A cross-sectional study using a questionnaire. WFC was measured by the Netemeyer et al. (1996) scale.	Quantitative data
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Table 2: Methodological aspects of papers surveyed.

How Common is WFC in Nursing?

The first topic of the reviewed papers looked at the presence and frequency of WFC in nursing. Since this extensive study by Simon et al. (2004) that reported high levels of WFC in nursing in several European countries, other scholars have described similar findings. Among the 28 articles, the results of a study by Hanif and Raza Naqvi (2014) showed that most nurses in Pakistan suffered WFC. On the other hand, Lagerström et al. (2010) focused on family roles and job perception, and their findings revealed that female nurses in Iran reported high pressure from family roles and perception of nursing as a tough job. Some researchers also found differences between the frequency of W-F-C and F-W-C. Grzywacz et al. (2006) offered an assessment of W-F-C and F-W-C and their chronic and episodic nature. They found a higher prevalence of work interference from family than vice versa, and that for many nurses both were episodic phenomena. Considering gender differences, Gandi et al. (2011) observed that neither work-home nor home-work interference was high among male or female nurses in Nigeria; although the former was higher and its frequency was occasionally high for both genders. They concluded that “the boundary from work to home duties is more permeable than the boundary from home to work” (pp. 328–329). By contrast, Leineweber et al. (2014) found that less than one-quarter of Swedish nurses experienced high levels of WFC; most of their sample population scored low to medium levels of WFC.

Antecedents or Predictors of WFC

Among the predictors of WFC, most articles that focused on job antecedents found that working conditions, and both quantitative as well as qualitative job demands, contributed to WFC among nurses (Cortese et al., 2010; Gandi et al., 2011; Lagerström et al., 2010; Lambrecht et al., 2014; Van der Heijden et al., 2008). Many studies focused on time-based WF interference. Long working hours, irregular work schedules and shift-work were considered major risk factors for WFC (Lagerström et al., 2010; Lambrecht et al., 2014; Takeuchi & Yamazaki, 2010). As well, Yildirim and Yacan (2008) observed that irregular work schedules and excessive workload, but not working hours or overtime, were associated with WFC. In another study by Kunst et al. (2014), it was revealed that among Japanese nurses, negative WF spillover differed across work schedules (rotating work shift, day only, evening only, night only or day and evening). In a sample of Italian nurses, Camerino et al. (2010) found that irregular day work and shiftwork with nights had the most adverse effects on WFC.

Other quantitative work demands, including emotional demands, received little attention, despite the fact that nursing is an emotional job with emotional charge. Cortese et al. (2010) observed that proper emotional charge was positively associated with Work-Family Conflict (WFC). Work relationships as risk factors for (WFC) have also received some attention in nursing. Ghislieri et al. (2017) found that supervisor backlash, but not coworker backlash, was positively associated with WFC. Also among Japanese nurses, Takeuchi and Yamazaki (2010) reported that WFC was correlated with low workplace support.

Regarding family variables, the authors considered households and family demands such as housework and child care. Assessing some households, Abrahamsen et al. (2012) noticed that living with children in the absence of a partner was a critical factor for WF interference. Takeuchi and Yamazaki (2010) found that Work-Family Conflict (WFC) increased if nurses did not receive assistance with housework on workdays and spent much time on housework and childcare. For Lagerström et al. (2010), inter-role problems were experienced mainly by nurses who had large families, young children, and family members with health problems. Focusing on double-duty caregiving involving elderly relatives, Ward-Griffin et al. (2015) found that caregivers lived a stressful life when care boundaries were blurred, and care expectations were exceedingly high.

While in the general Work-Family Conflict (WFC) literature many scholars identified individual characteristics as antecedents of WFC, we found few studies in the case of nursing. Using a person-oriented analysis, Moazami-Goodarz et al. (2015) observed that for nurses, WFC was associated with inflexibility, ability, and willingness at the work-family border (segments). Instead, as an individual antecedent of WFC, Van der Heijden et al. (2008) proposed nurses' general health, more often identified as a WFC outcome. They found that this variable had a negative impact on work-home interference over time and that good general health was associated with less work-home interference over time.

Among risk factors, some authors also considered protective factors as antecedents of Work-family Conflict (WFC), focusing mainly on work-related factors such as social support, regarded as a key protective factor against WFC and nursing stress. Overall, support from management and colleagues were considered. Lembrechts et al. (2014) found that physician and co-worker support significantly decreased WFC in nurses, whereas Cortese et al. (2010) found that only supportive management was correlated with WFC and not colleagues' support. Yildirim and Yacan (2008) observed that social support from supervisors was directly associated with lower WFC and higher job satisfaction, but not with life satisfaction. Gipson-Jones (2009) found that family support was important for work/family balance. Camerino et al. (2010) found that appropriate communication and active participation of workers in preventative measures decreased WFC directly, as well as indirectly via a reduction in quantitative demands at work. Takeuchi and Yamazaki (2010) observed that family-friendly organizational culture (FFOC) supported work-family balance and had a positive influence on the physical and mental health of nurses. They also identified a sense of coherence (SOC), a stress-coping ability implying a positive attitude that allows workers to live and accept stressors as opportunities for personal growth. Interestingly, Lembrechts et al. (2014) found that childcare assistance services involving daily childcare, childcare when children are ill and childcare during holidays was not a resource for coping efficiently with WFC.

Outcomes of WFC

Many of the reviewed articles focused on job outcomes of WFC, assessing variables such as occupational stress, burnout, job commitment, job satisfaction and nurse turnover intention. Among these variables, interest was directed mainly toward job satisfaction, a key factor of good motivation and commitment to work, often negatively associated with absenteeism and turnover (Ghislieri et al., 2015). In nursing, a negative association between WFC and job satisfaction has been sustained (Cortese et al., 2010; Hanif & Raza Naqvi, 2014; Yildirim & Yacan, 2008), and Battistelli et al. (2012) showed that this negative correlation could lead to nurse turnover decision. Van der Heijden et al. (2009) confirmed the relevance of work-to-home interference and absence of home-to-work interference with job satisfaction. Job performance (Hanif & Raza Naqvi, 2014) and professional efficacy (Wang et al., 2012) have

also been considered WFC outcomes. Specifically, Wang et al. (2012) observed an opposite effect of the two directions of WFC on professional efficacy. Indeed, while family to work interference had a detrimental effect, work to family interference had a positive impact on professional efficacy.

Martini and Converso (2012) identified WFC as a risk factor for burnout, due to both emotional exhaustion and depersonalization. On the other hand, Leineweber et al. (2014) found that WFC only increased the risk of emotional exhaustion, and not of depersonalization. Wang et al. (2012) observed that work to family interference was associated with emotional exhaustion, whereas family to work interference influenced the cynicism dimension of burnout.

Nurses' health and well-being were of particular interest among WFC outcomes. In the Pakistani nurse sample, Hanif and Raza Naqvi (2014) showed a direct effect of WFC on the psychological well-being of nurses. Camerino et al. (2010) found that WFC was associated with emotional exhaustion, sleep, and presentism, but not with disability or absenteeism. Takeuchi and Yamazaki (2010) reported an association between WFC, cumulative fatigue and depression. In Indian female nurses, Sharma et al. (2016) observed that WFC was associated negatively with psychological health and positively with stress. Likewise, Gipson-Jones (2009) sustained that work-family interference could cause feelings of stress, guilt, anxiety, and anger in African- American nurses, whereas Kim et al. (2013) noticed effects of WFC on physical health, especially musculoskeletal pain. Only one study focused on family outcomes. Lagerström et al. (2010) observed that Iranian nurses expressed family dissatisfaction when high work demands did not allow them to meet family and children's needs.

Mediating Factors Between WFC and Its Outcomes

Some of the reviewed studies focused on factors that mediated WFC outcomes and on the role of WFC as the mediating factor. Regarding the former, we observed that most studies concentrated on positive mediating factors concerning positive personal characteristics (such as seeking support, job satisfaction, and psychological capital) and positive job factors that can mitigate WFC outcomes. Regarding the first factor, the findings from the Van der Heijden et al. (2009) showed that job satisfaction mediated the relationship between nurse turnover intention and work-to-home interference, while Wang et al. (2012) observed the mediating role of psychological capital (PsyCap), composed of self-efficacy, hope, optimism, and resilience, between WFC and burnout. In examination of the role-positive job aspects, Leineweber et al. (2014) observed that at department level, good leadership and support for nurses reduced the effects of WFC on burnout, whereas Yildirim and Yacan (2008) found that social support from supervisors did not buffer the effects of work demands and WFC on job and life satisfaction. As well, Heponiemi et al. (2010) observed that nurses who had fixed-term contracts and high levels of organizational justice experienced less WF interference.

There were few studies about negative mediating factors. One study (Sharma et al., 2016) focused on stress level as a mediator between Work-family Conflict (WFC) and nurses' psychological health. Considering family composition and children's age, findings of a study by Abrahamsen et al. (2012) revealed that the level of interference between work and family was dependent on whether there were children.

Concerning the second area, Camerino et al. (2010) examined the mediator role of WFC. Their findings showed that WFC affected the relationship between burnout and job demands, whereas other authors only found work-to-family interference as a mediating factor. In other studies, WFC mediated the association between work characteristics and all three burnout

dimensions (e.g. Gandhi et al., 2011) and negative relationships between job and life satisfaction, and specific work variables according to Yildirim and Yacan (2008). In a study by Van der Heijden et al. (2008), it was revealed that work to family interference was “an explanatory mechanism” for the reciprocal relationship between emotional, quantitative and physical job demands, and nurses’ health.

Differential Aspects of WFC

In the reviewed papers, the differential aspects of WFC were concerned with cultural, job organization, gender and age variables. For cultural and social differences, Abrahamsen et al. (2012) found a slightly higher level of WF interference for hospital nurses in Finland than in Norway. The level of WF interference for Norwegian nurses increased with extended part-time work, and for nurses in Finland with long hours. The two countries showed different availabilities of part-time work and regular day work, which were higher in Norway than in Finland.

Two papers focused on various job contexts, such as hospitals, home healthcare, nursing homes and health departments. Yamaguchi et al. (2016) observed that WF interference increased the intention to leave their jobs among hospital nurses, but not among home healthcare nurses. Leineweber et al. (2014) considered several hospital health departments, and found that the outcomes of WFC on burnout changed only marginally when adjusting for department level variables.

Gender differences were documented for some aspects of WFC. For instance, Gandhi et al. (2011) observed gender differences for social support, finding that its association with home-to-work interference was stronger among men than women. Further, considering the effects of work-to-home interference on burnout, these authors found that for men work-to-home mediated the association of work characteristics with emotional exhaustion, whereas for women it mediated the relationships between work characteristics, emotional exhaustion, and depersonalization. Using within-couple analysis and considering crossover effects from one partner to the other, Barnett et al. (2008) noticed that the wife’s work shift, wife’s working hours, and the interaction between them influenced wives’ – but not husbands’ – WFC perception. For husbands, there was a trend to perceive WFC when wives did evening shift work, and worked long hours.

Studying nurses’ generational differences, Keepnews et al. (2010) found higher levels of WFC (both W-F-C and F-W-C) among Generation X (nurses born between 1965 and 1979) than in other groups (Baby Boomers born between 1946 and 1964 and Generation Y, born in 1980 or after). Generation X seemed to have a harder time balancing work and family issues than older generations, as they appeared to seek a balance between work and family. Instead, Heponiemi et al. (2010) found that younger nurses experienced higher WFC than older nurses.

Discussion and Conclusion

The aim of this article was to review the current understanding of WFC in nursing. WFC is a construct widely analyzed in the WF literature, but somewhat neglected in nursing. Our review made quite clear that interest in this topic is growing among nursing scholars in various European and non-European countries, and that its importance is being recognized. However, we detected certain shortcomings in methodological aspects and depth, and were able to identify some challenges for future WFC research in the field of nursing.

First, almost all of the studies reviewed used cross-sectional design and measurement methods, which were for the most part based on instruments adapted or modified by researchers from general WF literature (Casper, Bordeaux, Eby, Lockwood, & Lambert, 2007). Future research should use a multidimensional design, incorporating different measures of the various antecedents identified in the literature to promote a more accurate and dynamic understanding of WFC, and to develop awareness of it among nurses. Knowledge of the meaning of WFC for nurses could be increased by qualitative methods, such as interviews and focus groups, seldom used in the WF literature (Casper et al., 2007). We also noted that the 28 papers ascribed little importance to the distinction between episodic and chronic modes of WFC.

Longitudinal data are needed to establish causality between WFC and the various antecedents and outcomes observed in the nursing literature. Only two studies by the same authors (Van der Heijden et al., 2008; 2009) used a longitudinal design. Another weak methodological point in nursing WFC research regards neglect of dyadic analysis. While the authors have typically taken individuals as the unit of analysis, future studies should include couples to provide a more holistic view of the antecedents and outcomes of WFC. Researchers should analyze WFC at the family and dyadic levels to gain insights into interactional influences among the different components involved. This topic is a growing research area in couple and family literature (Traa, De Vries, Bodenmann, & Den Ouden, 2015). Concerning research participants, the overwhelming percentage of women composing the samples may influence WFC data. This pattern exists because women are considered more sensitive than men to expectations arising from their family role (Alby, Fatigante, & Zucchermaglio, 2014), and tend to divide their time and energies between work and family activities differently than men (Dhanabhakya & Malarvizhi, 2014). Other potentially relevant participants' characteristics were also neglected in the papers selected. Examples include the number and age of nurses' children, both characteristics considered important in the WF literature (Darcy & McCarthy, 2007).

Regarding the findings of the reviewed papers, our analysis confirmed the important role of WFC in reducing job satisfaction and psychological well-being and in increasing burnout, as commonly reported in the WF literature (Panatik et al., 2011). However, we know little about its effects on the quality of marital and family relationships, and on partner satisfaction, again topics considered in the general WF literature (Carroll et al., 2013; Ford, Heinen, & Langkamer, 2007). Most reviewed papers also confirmed the important role of time-based conflict as a risk factor for WFC, and its negative interference with the time available for family and leisure, as reported in many papers concerning numerous European countries (Crompton & Lyonette, 2006). Regarding time-based conflict in general WFC literature, nursing research findings emphasize shift work and irregular work schedules to be among the essential characteristics of job demands in nursing and health-care generally (Barnes-Farrell et al., 2008). Two studies also observed that part-time employment is not a work-family strategy that reduces conflict between the two life domains (Abrahamsen et al., 2012; Lembrechts et al., 2014).

Nursing research did not give the two other antecedents identified by Greenhaus and Beutell (1985) – strain-based conflict and behavior-based conflict – the same attention as time-based conflict. Only a few of the authors outlined the critical role of emotional demands (Van der Heijden et al., 2008) and emotional dissonance (Ghislieri et al., 2017) in WFC. This relative lack of interest in such aspects concerning WFC is not in line with the widespread recognition that nursing is an emotionally demanding job (Hülshager & Schewe, 2011). Moreover, individual characteristics, widely considered in the WFC literature as antecedents of WFC, have rarely been assessed in nursing. We only found one study that examined boundary

management style, i.e. worker ability to manage boundaries between work and family domains, which captures the interest of WF interface scholars (Bulger, Matthews, & Hoffman, 2007; Kreiner, Hollensbe, & Sheep, 2009).

In conclusion, considering the reviewed papers and the gaps in current knowledge of WFC in nursing, there is a need to extend the research to other antecedents of WFC with the aid of multidimensional and integrated models. In one such study design, this would allow multiple variables to be treated as antecedents or consequences of WFC, producing a fuller description and understanding of WFC dynamics in the complex nursing environment. Our review also clearly shows that in-depth examination of WFC is essential for a clearer understanding and awareness of its importance for nurses. This type of research can be a useful start for the development of health organizational policies to prevent nursing WFC, as well as for planning aimed at improving the balance between the two life domains. In WF literature, some scholars have outlined the importance of work/family reconciliation policies. These policies should not only consider a reduction or change in work time, but also social policies such as participation of fathers in childcare for young children (Colombo & Ghislieri, 2014). Moreover, it is important to consider informal pro-conciliation solutions, including support from superiors and colleagues (Sharma et al., 2016), which have emerged as major protective factors against WFC and for stress reduction in nursing. In any case, as suggested by Riva (2016), it is critical to direct research towards identification and assessment of the efficacy of work-family interventions to reduce the risk of policy failure.

Despite the utility of our integrative review, there are some caveats. First is the selection of keywords and the fact that other studies published between 2005 and 2017 were not considered because we only selected peer-reviewed journals in Italian and English.

Second, our review did not use meta-analysis, which might have enabled a more accurate understanding of the topic, because we only included papers on WFC in nursing that broadly represented studies on the topic. This choice was based on the relatively poor state of knowledge of the argument and practical aims that these types of assessment can have. Another limitation of our study is that the narrative synthesis is an interpretation of the authors.

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The Structural Model in Parenting Style, Attachment Style, Self-regulation and Self-esteem for Smartphone Addiction

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Abstract

Excessive smartphone usage has become a highly controversial and substantial worldwide issue. This paper explores the complexities and challenges of smartphone addiction with a particular focus on parenting styles, attachment, and self-regulation. Convenience sampling was used to gather data from 211 university students in Hong Kong (138 females/74 males) through their responses to four questionnaires. One structural equation model was formed successfully which indicated that parenting style (authoritative or permissive) could be a reasonable predictor of attachment style (secure or dismissive) and self-regulation (impulse control or goal setting) for smartphone addictions (positive anticipation, withdrawal, cyberspace relationship or overuse). Parenting style was a positive correlate to predict attachment, while the attachment positive correlated to predict self-regulation. Self-regulation was a negative correlate to smartphone addiction. It was revealed that a positive parenting style and positive attachment style could form a significant model with self-regulation and smartphone addiction. Furthermore, secure attachment had higher mediation effect, while impulse control and goal setting behavior had a fair mediation power over influencing addiction tendency. This model helped explore the relationships between smartphone addiction and other constructs in educational psychology. Based on findings, educators can gain insights into how parenting and self-regulation can influence the tendency towards excessive smartphone usage. More educational programs which aim at promoting adequate parenting skills, motivating children through self-regulation and goal setting, is proposed through this study.

Keywords: smartphone addiction, parenting style, attachment style, self-regulation

The high penetration ability and accessibility of smartphones has garnered considerable attention in recent times; the smartphone revolution is changing our world more than ever before. Smartphone usage has already been subsumed into our daily routine, and the enormous influence of smartphones has already changed the manner of society function (Chóliz, 2012; Khang et al., 2011; Sánchez-Martínez & Otero, 2009). Two studies have examined the psychological role of the smartphone in self-identity, and pointed out that mobile phones have evolved into a way of reflecting self-identity, distinguishing themselves from others and enhancing autonomy (Kitamura et al., 2009; Sánchez-Martínez & Otero, 2009).

In developed countries, over 45 percent of the population use smartphones in their daily life (Bianchi & Phillips, 2005; Oulasvirta et al., 2012; Kitamura, 2009). According to the *South China Morning Post* (Kao, 2013), Hong Kong has the highest smartphone usage rate, with over 96 percent of its young generation using it intensively every day. Because of this high usage rate, addiction or dependence on smartphones is rapidly rising (Bhatia, 2008; Sánchez-Martínez & Otero, 2009). More and more research findings prove the smartphone is a cause of addiction, poor academic performance, less life satisfaction and social stress (Bian & Leung, 2015; Bolle et. al, 2015; Hawi & Samaha, 2016; Lee & Lee, 2016).

Although the existence of smartphone addiction is still under discussion, researchers have argued that smartphone addiction has close similarity to, and overlap features with, excessive gambling, drug abuse and other addictive behavioral disorders (Cho et al., 2013). A survey in Korea found that a greater percentage of people are addicted to smartphones than to the internet (Cho et al., 2013; National Information Society Agency, 2012). It is also believed that it contributes to an increasing number of cases of bullying or harassment, high level of social anxiety, low self-esteem and complicate symptoms in behavior problems among adolescents (Kitamura et al., 2009; Srivastava, 2005).

It appears that past studies have focused on the negative consequences of mobile phone use (e.g. harm of excessive texting or driving while using phones). However, there is no study that aims at discovering the cause of dependencies on communication devices, especially smartphones. Since self-regulation and self-esteem are important factors in young adults' and adolescents' development, this study investigated how parenting style, attachment style, individuals' self-regulation and self-esteem may interfere with the problematic tendency of smartphone usage among university students in Hong Kong. Also, it explored the possible relationship between parenting style and smartphone addiction, and awareness of the danger of excessive smartphone use.

Literature Review

Parenting Style and Attachment

Baumrind's theory of parenting style (1971) was adapted in this study to investigate the relationship between parenting and smartphone addiction. According to the level differences in parental demand and responsiveness, three parenting styles have been distinguished. These are authoritarian, authoritative and permissive (Asgari et al., 2011; Baumrind, 1971). In this research, parenting style is the primary predictor affecting people's attachment style, self-regulation, and self-esteem. Discussion of the literature follows.

Parenting style is closely linked to children's deviant behavior, addiction, and psychological problems. In the long history of studying parenting style, there are different theories, and researchers have suggested that to efficiently prevent children's delinquency is to have a good

parenting and parental monitor skills (Lee & Leung, 2012; Kerr & Stattin, 2000). Good and positive parenting is highly associated with the prevention of children's delinquency, psychological, behavior dysfunction and addiction (Al-Bahrani, 2011; Betts et al., 2013; Kehl et al., 2008). Restricted parenting has been shown to lead to a higher chance of smartphone addiction (Lee & Lee, 2016). Also, it affects the parental mediation behavior of children's media use (Hwang & Jeong, 2015).

Besides the effect on parenting, attachment also influences people's views of self and their social development. As attachment is highly associated with parenting style, these two important factors shape people's worldview, schema, and behavior outcome.

Bartholomew's attachment styles (Bartholomew & Horowitz, 1991) can be separated into secure, preoccupied, fearful and dismissive (Denollet et al., 2011; Huntsinger & Luecken, 2004). Different attachment styles lead to distinct views of the self and other; thereby developing varying levels of security. Attachment in early age has high impact on the development of one's adjustment levels, shapes the belief of responsiveness and trustworthiness of others; as well as a sense of security in a relationship (Asgari et al., 2011; Brumbaugh et al., 2011). People with positive attachment, like secure attachment, are more stable while facing separation anxiety and form closer emotional bonding. Also, they have less tendency of experiencing distress, less proclivity towards alcohol and drug addiction, more positive behavior outcome and have higher self-esteem. The positive attachment has already proved to inhibit the tendency of excessive smartphone phone usage; and insecure attachment can serve as a predictor of possible problematic smartphone use (Chan et al., 2015; Ko et al., 2011).

Self-regulation

Self-regulation is an essential mediator in goal achievement and emotional independence, which are mainly developed in adolescence. According to the first theory of self-regulation, "self-regulation is the ability to develop, implement and flexibility to maintain planned behavior to achieve one's goals" (Asgari et al., 2011). Some researchers claim social environment, parenting, and genetic factors as the effects of self-regulation. This research focuses on the area of impulse control (allows delayed gratification in the short term) and goal setting behavior (subsumes goal-direct behavior) (Carey et al., 2004).

Social environment, parenting, and genes can shape a person's self-regulation. Parenting theory states that positive parenting and warmth can promote positive self-regulation, while excessive parental control hinders development of proper self-regulation skills in children (Baumrind, 1991; Moilanen, 2007). Therefore, different parenting styles may contribute to the positive or negative development of self-regulation among children, adolescents and young adults. As well, good psychological and behavior control in caregivers also helps predict a university student's emotional regulation (Manzeske & Stright, 2009).

The level of self-regulation is significantly linked to people's ability to make proper judgment, resist immediate impulse, and pursue long-term goals (Ariely & Lowenstein, 2006; Baumeister et al., 2001). People with good self-regulation may experience better psychological health, interpersonal relationship, even higher income and academic achievement. There is a significant correlation between self-regulation and addiction among teenagers, as self-regulation is related to a person's decision making, emotions and impulse control. It is an essential reference for many psychological interventions and problematic behavior prevention (Mazzucchelli & Sanders, 2013; Moilanen, 2007). People with low self-regulation skills on

impulse control and goal setting behavior have a higher risk of problematic behavior and substance use (Carey et al., 2004).

Self-regulation is an important mechanism in many psychological interventions (Sanders & Mazzucchelli, 2013). According to Jessor and Jessor (1977), a high degree of self-regulation is a good prevention of deviant behavior. Also, a number of studies have established a significant correlation between self-regulation and addiction among teenagers. Since self-regulation is linked to a person's emotional and impulse control patterns, low self-regulation may contribute to problematic behavior or substance use in adolescents (Moilanen, 2007).

Self-esteem

Previous studies have supported a possible relationship between parenting style and self-esteem, especially in young adults (e.g., Cardinali & D'Allura, 2001; Lee & Leung, 2012). These prove that people raised under an authoritative parenting style – with supportive, warm and responsive parents – will have higher self-esteem, more independent behavior patterns and be socially adjusted. The reason is that parents with a greater sense of control and caring behavior, such as the one prevalent in the authoritative parenting style, will develop better parent-children interaction, thereby enhancing children's self-esteem (Karimpour & Zakeri, 2011; Garcia & Martinez, 2008). Therefore, in this study, parenting style may be linked to self-esteem, as various variables constrain self-esteem. However, the result of parental authority, control and self-esteem are inconsistent (Karimpour & Zakeri, 2011).

Self-esteem is a good indicator of people's adjustment skills and relationship satisfaction levels; individuals with a poor view of self may commit more deviant behavior. Studies point out that self-esteem is negatively related to Internet addiction and other addiction-like symptoms (Khang et al., 2011; Kim & Yea, 2003). Also, regarding interpersonal interactions, it appears that people with low self-esteem prefer indirect communication rather than face-to-face interaction, compared to those with high self-esteem (Kim & Yea, 2003). Studies have reported high correlations between self-esteem, problematic mobile phone use, and other addictive behavior (e.g., Chiu, 2014; Kitamura et al., 2009). Besides, people with low self-esteem prefer indirect communication (e.g., text messages or social media) to seek assurance. Therefore, they may have higher chances of depending on a smartphone to interact with others, and consequently develop an uncontrollable tendency for usage of the phone (Billieux, 2012; Joinson, 2004; Kitamura et al., 2009).

Effect of Attachment on Self-regulation and Self-esteem

According to Schore and Schore (2008), the caregiver-infant relationship might contribute to the development of a child's self-regulation. In Shaver's model of self-regulation and attachment (Asgari et al., 2011; Mikulincer & Shaver, 2010), attachment did influence people's achievements. Shaver's model stated that secure attachment could lead to people becoming more calm and confident in dealing with difficulties, and even having a more efficient plan ready to deal with problems. On the other hand, individuals who are insecure are more emotionally disturbed by threats and have a tendency to depend on others, hence lacking self-regulation skills. Also, as parenting and attachment are highly correlated, good parenting and attachment may be positively related to good self-regulation. Positive parenting and attachment would reduce the unfavorable outcome of overdependence on digital media use, because it helps develop a child's insights to recognize consequences afterward (Kalmus et al., 2013; Lee & Lee, 2016; Lee & Jeon, 2010).

Smartphone Addiction

Addiction defined as a “repetitive habitual pattern that increases risk of disease, personal and social problem; and experience the feeling of loose control” (Laitakari et al. 1998, p. 224). According to Billieux (2012), smartphone addiction is the loss of ability to properly regulate the use of smartphone to the point that it causes negative consequence in someone's daily life. Studies on smartphones suggest that its improper usage could lead to mental health symptoms and physical problems such as depression, preoccupation, and mood regulation under cyberspace activity (Widyanto, Griffiths & Brunson, 2011; Young, 1998; Eklöf et al., 2007; Hagberg et al., 2011). These symptoms are similar to symptoms of substance abuse and addiction, such as compulsive behavior, withdrawal, positive anticipation and tolerance (Chang et al., 2014; Cho et al., 2016; Kim et al., 2013).

Most researchers define smartphone addiction as a type of behavioral addiction, or name it cyber-addiction; the symptoms include an uncontrollable use of mobile phone and online activity, craving or distress while withdrawing, even damaging interpersonal relationships (Billieux, 2012). In recent years, questionnaires have been developed to help assess the tendency of compulsive smartphone use (Akpınar, et al., 2014; Chang, et al., 2014; Kim, et al., 2013). Within those evaluation tools, problematic smartphone usage comprises four main factors – tolerance, withdrawal, compulsive behaviors and functional impairment (Chang, et al., 2014).

With the ongoing controversy about the existence and seriousness of smartphone addiction, there is still no official definition or explanation of the cause and symptoms of excessive smartphone use. This is because it is hard to distinguish whether “non-chemical” and “human-machine interaction” can be defined as an addiction (Griffiths, 1996; Lee & Leung, 2012). Hence, the majority of past studies on smartphone addiction are based on the literature of internet addiction. More and more research points to the impact of excessive use of mobile phones, and compares this with substance abuse.

Despite the absence of any official diagnosis, a number of studies have already linked smartphone addiction, internet addiction and technological addiction with other problematic behavior and daily life dysfunctions. One such study (Chiu, 2014; Chiu et al., 2012) argued that females are more addicted to mobile phones because they use it as a method of maintaining close interpersonal relationships. Extroverted university students with higher levels of anxiety are more likely to be identified with phone addiction. Another study on the younger generation smartphone user showed people in this age category have 27–36 percent tolerance; 18 percent failed to reduce usages, and 10 percent faced functional impairment of close relationships (Huang et al., 2009).

In this research, we will primarily focus on evaluating the behavior of people with smartphone addiction based on a well-developed Korean scale (Cho et al., 2013). The five types of addiction symptoms are:

1. Daily life disturbance: Missing planned work, difficulty in concentrating on specific tasks or causing physical pain.
2. Positive anticipation: Feeling excited or stress relief with smartphone use and feeling empty without the smartphone.
3. Withdrawal: Intolerable without a smartphone, irritated when bothered.
4. Cyberspace-oriented relationship: Feeling more intimate with virtual friendship; indulging in constant phone-checking.

5. Overuse: Uncontrollable habit and urge to check and use the smartphone.

Research Hypotheses

According to the literature review, the hypotheses are as below:

- H1: Self-regulation (impulse control and goal-setting) is a significant predictor of smartphone addiction.
- H2: Self-esteem is a significant predictor of smartphone addiction.
- H3: Parenting style (authoritative, authoritarian and permissive style) is a significant predictor of attachment style (secure, preoccupied, fearful, dismissive).
- H4: Attachment style (secure, preoccupied, fearful and dismissing style) is a significant predictor of self-regulation (impulse control and goal-setting).
- H5: Attachment style (secure, preoccupied, fearful and dismissing style) is a significant predictor of self-esteem.

Due to the linkage between variables, a model was established. Figure 1 shows the framework of the relationships between the variables in the current study.

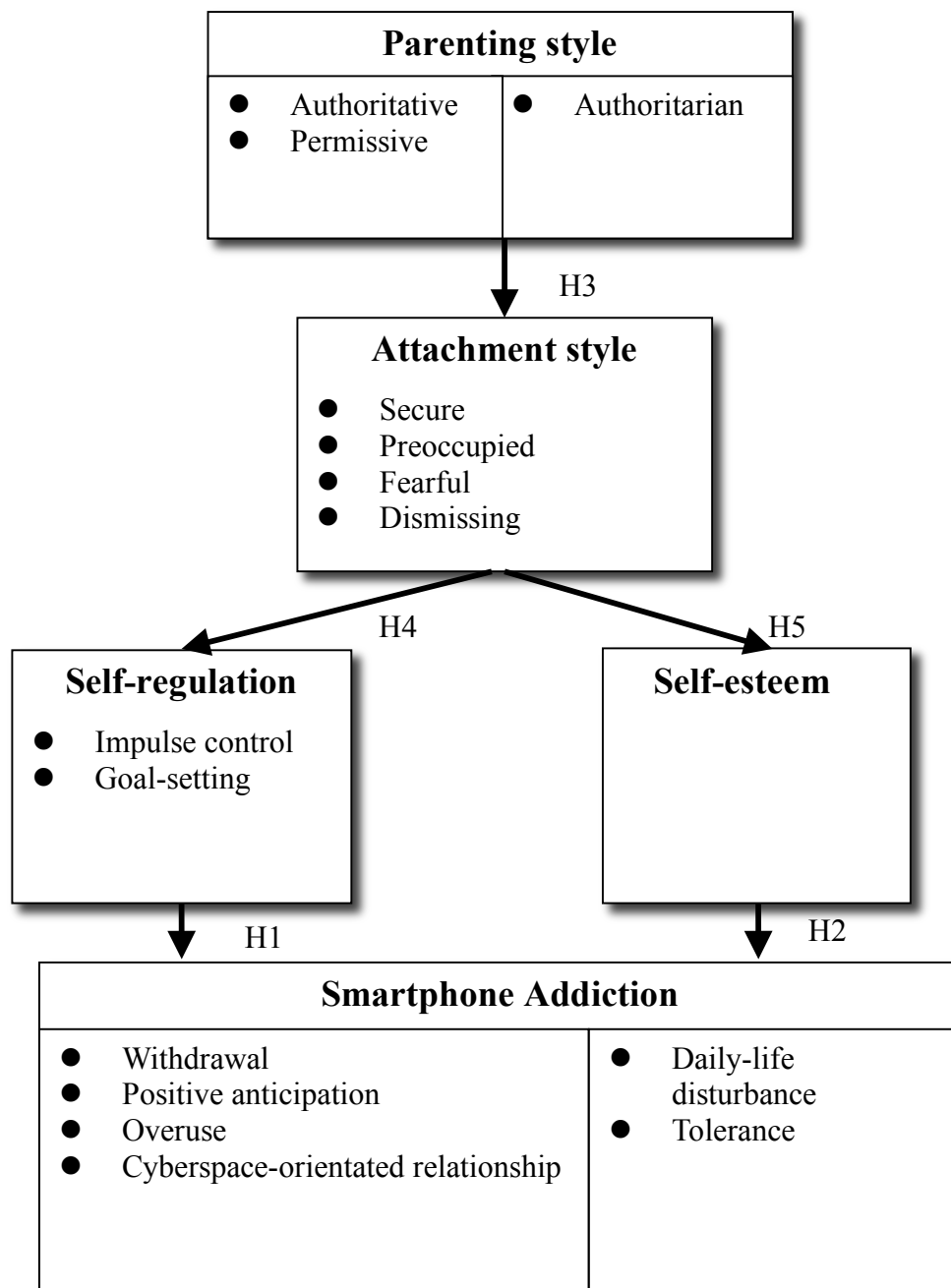


Figure 1: Research framework.

Specific Hypothesis

There are two possible pathways between parenting style and smartphone addiction.

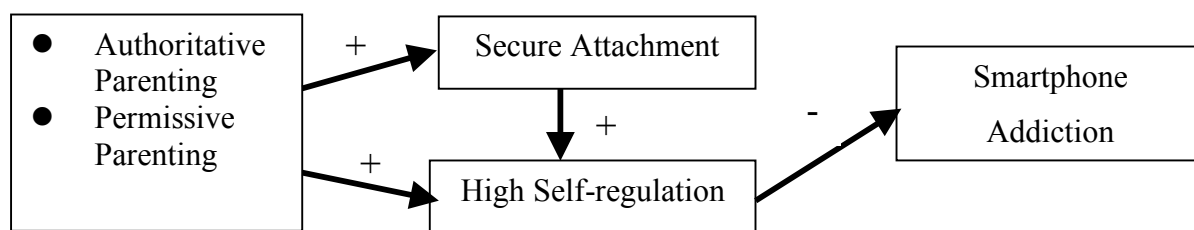


Figure 2: Model 1, Authoritative and permissive parenting style.

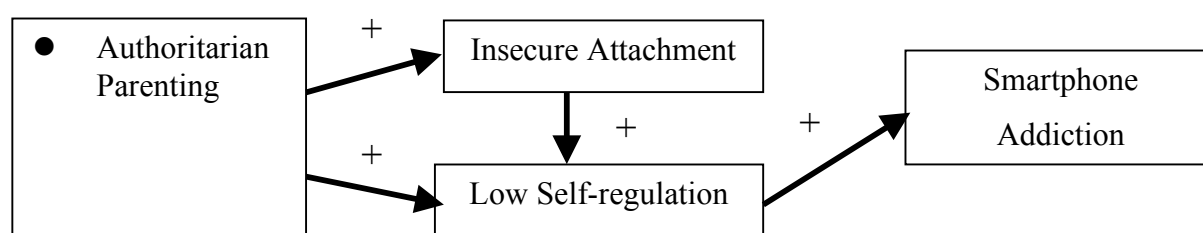


Figure 3: Model 2, Authoritarian parenting style.

Research Method

Using convenience sampling, a cross-sectional design was implemented, with 211 people participating in this study (Age: $M = 22.4$, $SD = .86$). All participants were required to have been using a smartphone daily for not less than one year. The research was conducted by a self-reported survey which included a questionnaire to help assess participant's parenting style, attachment style, self-regulation, self-esteem and degree of smartphone dependence. All questionnaires were in Likert scales, and had satisfactorily tested reliability and validity, and thus had a positive result, thereby supporting the research framework.

Five questionnaires were used in the survey, with a total of 188 questions. The measurement scales were:

1. Perceived parenting style: Chinese Parental Authority Questionnaire (CPAQ) (2002).
2. Attachment Style: Chinese Relationship Styles Questionnaire (CRSQ) (2003).
3. Self-regulation: Short self-regulation questionnaire (SSRQ) (Carey et al., 2004; Carey & Neal, 2005).
4. Self-esteem: Chinese version of Rosenberg self-esteem scale (CSS) (1965).
5. Smartphone addiction: Smartphone addiction scale (SAS) (2013).

Results

Descriptive Statistics and Correlational Analysis

In this research, 15 measured variables from five questionnaires were analyzed through means, standard deviations and correlation analyses. The results of statistically significant data are shown in Table 1.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Parenting Style															
1. Authoritative	--														
2. Authoritarian	-.250**	--													
3. Permissive	.471**	-.392**	--												
Attachment Style															
4. Secure	.336**	-.202**	.320**	--											
5. Anxious	-.187**	.269**	-.228**	-.389**	--										
6. Dismissive	.229**	-.122	.234**	.152*	-.112	--									
7. Fearful	-.044	.201**	-.047	-.450**	.391**	.207**	--								
Self-regulation															
8. IC	.090	-.087	.158*	.453**	-.350**	.092	-.326**	--							
9. GS	.162*	-.014	.222**	.492**	-.186**	.106	-.265**	.619**	--						
Self-esteem															
10. Self-esteem	.255*	-.226**	.308**	.641**	-.430**	.068	-.372**	.538**	.508**	--					
Smartphone Addiction															
11. DD	-.037	.014	.083	.107	-.200**	.073	-.259**	.376**	.221**	.163*	--				
12. PA	.126	.127	.088	-.002	.057	.066	.153*	-.342**	-.124	-.185**	-.433*	--			
13. Withdrawal	.078	.180**	-.013	-.075	.168*	-.103	.204**	-.321**	-.184**	-.221**	-.429**	.613**	--		
14. CR	.024	.258**	-.010	-.118	.129	-.061	.230**	-.332**	-.165*	-.227**	-.349**	.611**	.598**	--	
15. Overuse	.094	.117	.011	-.002	.184**	.018	.167*	-.146*	-.038	-.074	-.442**	.437**	.674**	.456**	--
<i>M</i>	3.22	3.03	3.00	3.85	4.13	3.90	3.30	3.24	3.49	2.74	3.63	3.34	3.32	3.03	3.78
<i>SD</i>	.57	.45	.53	.63	.79	.73	.74	.46	.49	.37	.86	.67	.89	.78	.90

Note: IC= Impulse-control, GS= Goal-setting, DD= Dailylife Disturbance, PA= Positive anticipation, CR= Cyberspace relationship, *p<.25 **p<.01 ***p<.001

Table 1: Zero order correlations, means, and standard deviation for study variables.

Reliability Analysis

Scale	α
Parenting Style	
1. Authoritative Style	.845
2. Authoritarian Style	.635
3. Permissive Style	.765
Attachment Style	
4. Secure	.722
5. Anxious	.806
6. Dismissive	.760
7. Fearful	.794
Self-regulation	
8. Impulse Control	.731
9. Goal-setting	.825
Self-esteem	
10. Self-esteem	.825
Smartphone addiction	
11. Daily life Disturbance	.774
12. Positive Anticipation	.823
13. Withdrawal	.850
14. Cyberspace Relationship	.831
15. Overuse	.729

Table 2: Coefficient alphas and items comprising the scale of five questionnaires.

Confirmatory Factor Analysis

A confirmatory factor analysis was conducted with significant findings on tools' correlations and Cronbach's alpha. All scales were parceled and deviant items were deleted to reach a best-fit model. After item parceling and deletion, the confirmatory factor analysis was performed as below.

Questionnaires	df	χ^2	χ^2/df	GFI	CFI	RMSEA
CPAQ	74	159.69	2.16	.90	.97	.079
CRSQ	164	473.06	2.88	.81	.87	.095
SSRQ	26	76.83	2.96	.92	.96	.097
SAS	179	421.04	2.35	.83	.96	.080

Note: χ^2 = Minimum Fit Function Chi-Square; RMSEA = Root Mean Square Error of Approximation; GFI - Goodness of Fit Index; CFI = Comparative Fit Index

Table 3: Goodness of fit indicator for CPAQ, RSQ, SSRQ, SAS.

Structural Equation Modeling (SEM) with Parenting Style, Attachment Style, Self-regulation and Smartphone Addiction

The relationship between the observed variables and the underlying latent variables in parenting style, attachment style, self-regulation, self-esteem and smartphone addiction is shown in the figure below. The hypothesized model was tested with maximum likelihood method, $X^2(32) = 80.59$, Goodness of Fit Index = .934, Comparative Fit Index = .926, Root Mean Square Error of Approximation = .087. Since CFI is higher than .9, a fit structural equation model was established.

Parenting style included two observed variables—authoritative and permissive style. Parenting style was ($p < .001$) significantly related with authoritative ($\beta = .40$) and permissive ($\beta = .35$). It shows that authoritative parenting style was the best predictor in this model.

Attachment style also included two observed variables—secure and dismissive style. Attachment style was ($p < .01$) significantly related with secure ($\beta = .59$) and dismissive ($\beta = .14$).

Self-regulation included two observed variables—impulse control and goal-setting. Self-regulation was ($p < .001$) significantly related with impulse control ($\beta = .37$) and goal-setting ($\beta = .35$).

Smartphone addiction included four observed variables—positive anticipation, withdrawal, cyberspace relationship and overuse. Smartphone addiction was ($p < .001$) significantly related with positive anticipation ($\beta = .47$), withdrawal ($\beta = .80$), cyberspace relationship ($\beta = .53$) and overuse ($\beta = .62$).

For the relationship between latent variables, parenting style was positively significantly ($p < .001$) related with attachment style ($\beta = .52$). On the other hand, attachment style was positively ($p < .001$) related with self-regulation ($\beta = .61$). Furthermore, self-regulation was negatively ($p < .001$) related with smartphone addiction ($\beta = -.31$).

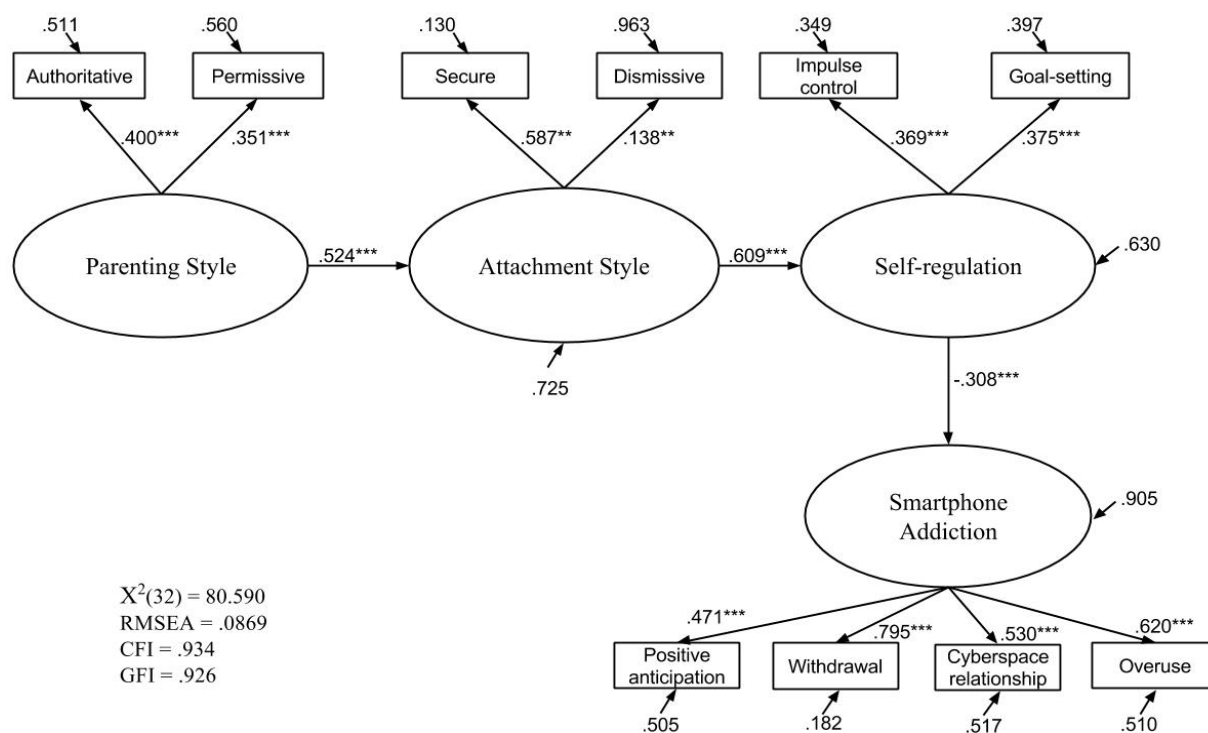


Figure 4: The structural model of the link between parenting style, attachment style, self-regulation and smartphone addiction. Note: RMSEA = Root Mean Square Error of Approximation; GFI = Goodness of Fit Index; CFI = Comparative Fit index

** $p < 0.01$ *** $p < 0.00$

Discussion

One SEM model with self-regulation was established with good fit. The linkages between positive parenting style, positive attachment style, and self-regulation to smartphone addiction were found. This model is consistent with the hypotheses, as positive parenting style might predict higher self-regulation and consequently the risk of smartphone addiction. In line with past studies, parenting style was positively related to self-regulation (Baumrind, 1991; Moilanen, 2007), whereas low self-regulation was negatively related to problematic behavior (Moilanen, 2007). Negative parenting style might not be a good predictor in this research, as self-esteem, negative parenting style, and negative attachment style cannot successfully form any SEM model to predict smartphone addiction.

In this model, authoritative and permissive parenting style have similar mediation power. This indicates that people who receive authoritative and permissive style parenting would generate positive attachment style, hence this would contribute to the development of a person's self-regulation. Moreover, impulse control and goal-setting also have fair power on predicting smartphone addiction.

The result strongly points out that sufficient parent-child interaction and relationship has a positive effect on the prevention of compulsive smartphone use. Individuals who receive or perceive themselves in positive parenting would develop higher trust, sense of control in relationship with others, and less urge to feel being connected to others. Furthermore, secure attachment has higher predictive power on self-regulation than dismissive attachment. Secure

attachment promotes greater internal locus of control compared to dismissive parenting, which may lead individuals to be more active and responsive in their life. Also, they are emotionally stable and have effective coping strategies in dealing with difficulties and distress by adopting useful plans (Conklin & Padykula, 2001; Schore, 2003). In this research, positive parenting is the essential criteria for addiction prevention, as it strongly contributes to a person's degree of self-regulation.

In most cases, self-regulation fails to occur when certain activities hold immediate pleasure or different regulatory goals are in conflict (Baumeister et al., 2001). Furthermore, studies indicate that most people often chose immediate rewards over a greater delayed reward (Green and Myerson, 2004; Rachlin, 2009). Smartphone use is a pleasure pathway response, inducing quick and persistent activity with reward-based behaviors; it yields immediate gratification and a diminished sense of volitional control (Hagberg, Thomée & Härenstam, 2011). People with a high sense of self-control would be more aware of the reason and aim of their particular behaviors, and have comparably more desirable goals. This makes them less likely to use smartphones compulsively. Also, impulsive use occurs when a person chooses small and quicker rewards over a larger reward after delays. Internal force is mostly needed for self-control in selecting the more significant delayed reward, and giving up the small but immediate reward (Cho et al., 2016; De Wit et al., 2006). This is because stopping usage of the phone is against the natural mechanism of the pleasure pathway. Also, when the positive immediate reward outweighs the power of already established goals, less self-regulation ability occurs. When individuals are addicted, they may establish an automatic habit of phone usage; hence they experience higher impulsivity and fail to control themselves. The inner conflict to stop using the smartphone creates conflict and distress, which weakens their ability to self-regulate and favors the selection of immediate rewards (Baumeister et al., 2001).

People with higher self-regulation tendency may have better self-discipline, long-range focus of distant goals, greater capacity to delay gratification, and less tendency to strike for external—rather than immediate—satisfaction which smartphones can provide. Another explanation is that individuals with proper regulation use smartphones for informational purposes. For users with higher motivation for achieving instrumental goals, the smartphone could be perceived as a tool to reach such goals. They thus show better inhibitory control while using the device, and fewer tendencies towards impulsively aggressive behavior. Further, because of their high goal-oriented tendencies and self-reflective character, people with high self-regulation are aware of most of the motives and triggers that cause them to behave in particular ways. As a result, this may increase the likelihood of delays of impulsive gratification and consequently decrease the tendency to use smartphones compulsively.

The finding also shows that impulse control and goal setting have the potential power to be a negative mediator in smartphone addiction. It appears that adequate inhibitory control could lead to less impulsive aggressive behaviour, and consequently less chance of dependency on smartphones. The level of self-regulation may represent people's capacity to delay gratifications. Also, greater strength to react to stimulus, and less deviant or unplanned behavior might occur. For these reasons, self-regulation may play a substantial role in smartphone addiction, as the dependence on smartphone is the result of uncontrolled and uncontrollable behavior.

However, it is important to note that smartphone addiction not only affects the user's mind and body, but also influences the interaction mechanism and relationship between parents and their children. The co-use of a smartphone between a parent and child might intermediate each other

on the tendency of developing smartphone addiction. Hence, the changes in communication with technology and usage of smartphone suggests that the traditional theory of parenting style may not be successfully adapted to current times. As noted earlier, some previous studies have pointed out that the pattern of parental smartphone usage also affects teenagers' phone addiction tendency.

Research Implications

Regarding self-regulation, the present research points out that goal-setting and impulse control have similar predictive power, but contradict the relationship with smartphone addiction. Therefore, effective educational programs for cultivating students' self-regulation skills could be launched. Especially, a program on teaching better impulse control skills and healthy goal setting habits can be effective. Learning to have good impulse control skills and setting relatively achievable goals in these programs, could contribute to less tendency to smartphone addiction or other forms of harmful dependencies. For clinical use, the findings might also help provide insights on developing useful intervention tools for addiction rehabilitation programs.

Conclusion

There is limited research focused on exploring the causes and effects of smartphone addiction. Also, previous studies have failed to provide a comprehensive framework on addiction to technological devices; hence, the findings from this study can enhance awareness and raise interest for further exploration of this topic.

The results of this study highlight the relationships between parenting style, attachment style, self-regulation and smartphone addiction. Also, the findings show that authoritative and permissive parenting styles generate positive attachment styles, which leads to higher impulse control and goal setting skills; consequently, this influences the tendency of smartphone dependence. From a theoretical perspective, this paper provides a new vision for future research. As well, this study examined concepts such as parenting style and attachment style, and explored new tools to measure the risk of smartphone addiction.

Furthermore, there are no conceptual definitions or explanations on whether smartphone or other technological dependencies can be considered as addictions or disorders. The researchers hope this study may offer evidence of the possibility of phone addiction and stimulate further research activities investigating the effects of this new type of non-substance dependence/addiction. Also, the findings may promote greater insight among parents and mental health professionals about the importance of healthy family communication, and the value of positive parenting style for achieving healthy developmental outcomes among children.

It is important to note that these findings cannot determine the direction of correlation among these variables; therefore, parenting style may influence the addiction probability, or vice versa. Also, the long-term usage of smartphones may also change the dynamics of interpersonal interactions, especially in parent-child relationships. Therefore, it would be interesting to examine the possible impact of smartphone usage on the parent-child relationship, as well as the interrelated influence between parenting and smartphone addiction.

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