The Development and Validation of Psychological Measures of Self-injurious Behaviors (PM-SIB) for Filipino Young Adults: Test Conceptualization and Item Analysis

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Abstract: Young adults encounter several challenges in life, and cope through positive or negative means. Some individuals commit suicide because of lost hope, and some commit self-injury without suicidal intent. Using a scale validation method, this study proposes an assessment entitled "Psychological Measures of Self-Injurious Behaviors (PM-SIB), for the presence of self-injurious behaviors without suicidal intent, since there are still no available local instruments that can identify the presence and reasons for this kind of behaviors among-Filipino youths. This study is anchored on the Cognitive Motivational Relational Theory of Emotions (CMRT), the Four Function Model of Non-Suicidal Self-Injury, and through thorough review of studies and literatures on self-injurious behaviors without suicidal intent. The insights of students and mental health professionals contributed to the development of the instrument. The findings of the study yielded two indicators such as cognitive and affective of the PM-SIB. These were content validated by various experts in the field of psychology and psychiatry. Then, item analysis was done after it was pilot tested to 76 students.

INTRODUCTION

It is often a common place for people to associate self-injurious behavior with suicide. This assumption is starting to be contradicted by several research which emerged in recent years as researchers found out that not all persons who self-injure have an ultimate desire to end their own lives. This was noted by Swannel's study (2014) which saw that 5.5% and 13.4% of young adults exhibit the same behavior (Swannell et al., 2014 by Fox et. al., 2018). It is becoming more apparent that self-injurious behavior, which was previously limited to patients in the clinical population, is increasingly being noted among those in the general communities, with research pointing to such behavior as that being mostly exhibited by adolescents and young adults (Klonsky & Muehlenkamp, 2007).

The objective of this study is to evaluate specific and vulnerable section of the society including the various causes behind their self-injurious intent. In this way, necessary interventions may be pursued, and other foreseeable harm might be prevented. This study also aims to further contribute to the existing research on self-harm in communities as it appears that self-injurious individuals often do not seek professional clinical help concerning their conditions (Segal et al., 2016).

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The prevalence of self-injury or non-suicidal self-injurious behavior (NSSI) among the youth can be said to have undergone a very limited empirical study in the local setting. This is a glaring concern, as recent statistics indicated that the occurrence of non-suicidal self-injury (NSSI) in both the youth and young adults remain high and posed an increasing concern for the clinical and non-clinical field. The study of Kerr, et al. (2010) made a similar observation, and found out that the likelihood of self-injury is greater among college students in contrast to that of the general population, having recorded a 17 to 35 % rate chance to commit such conduct (Kerr, Muehlenkamp, & Turner, 2010).

This objective of this research may also serves as an avenue for subsequent researchers in the field to further explore the reasons behind the youth's propensity to commit self-harm. Given the rapid changes brought about by information technology, this study may also be beneficial to the Filipino youths of present times who bear their own individual burdens in coping up with our fast-paced society.

There is still no locally made test that measures self-harm or non-suicidal self-injury among Filipino youths and adults. Thus, this test will enable prospective users (especially in school settings) to identify students/youth at risk of self-injurious behaviors or NSSI. By unearthing the very reasons why, they engage in such behaviors, educators and mental health practitioners can better understand them and create a way of helping them.

Based on the several studies, literature reads, surveys conducted among students who self-injure without suicidal intent, and interviews from mental health professionals who deals with clients with such behaviors, the researcher grouped several causes and reasons into two indicators such as cognitive and affective.

Anchored on then "Cognitive Motivational Relational Theory of Emotion" by Lazarus and Folkman (Ntoumanis, 2009), and the "Four Function Model of Non-Suicidal Self Injury" by Nock and Prinstein (2005), it is significant to note that both cognitive and affective indicators are interrelated when a student attempts to self-injure without suicidal intentions. Developing the instrument could bridge the gap between the very limited literature in the local setting and the western concept of NSSI.

METHODOLOGY

Participants

Due to the sensitivity of the variable (self-injurious behavior) under study, only a limited number of participants agreed to be part of the study. There were 20 purposively selected students who self-injure without suicidal intent and 20 mental health professionals (Psychiatrist-7, Nurses-8, Nursing Attendants-2, Psychologists-3) who participated in the survey. There were five experts who evaluated the initial form of the PM-SIB, three practicing clinical psychologists who have encountered different kinds of clients including students who self-injure without suicidal intent, and two psychiatrists who specialized in the treatment of various cases of clients/patients with behavioral problems and mental illness. On the other hand, there were 76 students who were selected as samples that participated in the pilot testing of PM-SIB. Thru purposive sampling, these participants came from different colleges and universities whose year level varied from first to fourth year. There were 14 male and 61 female whose ages ranged from 18 to 20 years old.

Materials

To ensure that all the respondents' essential demographic details were collected, this study designed a unique "Personal Data Sheet" (PDS) to gather the name, age, gender, and their admission that these participants had engaged in self-injurious behavior that was not considered suicidal in intention. Informed consent forms are filled out by the participants to secure permissions from them as their data will be used by the research.

The Self-Injurious Behavior (SIB) is a researcher-made preliminary survey given to students who self-injure without suicidal intent and the mental health professionals who have seen these kind of special population, asking the manner, causes and reasons for this kind of behavior.

From the results of the SIB, the Psychological Measures–Self-Injurious Behavior (PM-SIB) was developed. The PM-SIB contains the various motivations or reasons for the self-injurious behaviors without suicidal intent among adolescents and young adults. The response categories, and its corresponding numerical values in ascending order include the following never characteristic of me (1), rarely characteristic of me (2), sometimes characteristic of me (3), often characteristic of me (4), and always characteristic of me (5). Items were classified into cognitive and affective indicators of self-injurious behavior without suicidal intent. Cognitive Indicators cover people who deal with life's difficulties consciously by thinking, believing, perceiving, or ruminating with self-injurious behaviors. They are frustrated, worried, stressed, thus, they believed they failed their own and others' expectations. Affective Indicators refer to people who self-injure because they are experiencing different kinds of intense negative emotions such as depression, regret and anxiety.

Procedure

Several steps were undertaken in the development of the PM-SIB. In item generation, a review of scientific studies and existing literatures on self-injurious behaviors without suicidal intent was comprehensively done. This served as a compact appraisal of how self-injury without suicidal intent differs and relates to suicide to include the different circumstances which leads both the adolescents and young adults to commit it. Students who engaged in self-injury without suicidal intent and the different mental health professionals were likewise requested to respond to the SIB. The objective was to gain further understanding regarding the types of self-injurious behaviors done and their motives/reasons for doing so among Filipino adolescents and young adults.

With the literature reviewed and the surveys done, the researcher came up with the 293 items of PM-SIB with two indicators: cognitive and affective. Content validation of the initial form of the PM-SIB was necessary (Cohen, et.al. 2013). Five experts in the field of psychiatry and psychology were consulted and requested to evaluate the items. Inter-rater's agreement and remarks of the experts were reviewed and taken into consideration which brought down the number of items from 293 to 277.

Pilot testing is essential to item analysis in order to determine which items to retain/reject to improve the psychometric properties of the test. The 277-item preliminary form of the PM-SIB was pilot tested to college and university psychology students. Participants who exhibited self-injurious behavior and those who committed the same coupled with suicidal intention were eliminated providing the researcher with a preliminary sample of 76 students who admitted engaging in self-injury without suicidal intent. The statistical computation for this study were processed using the Predictive Analytics Software (PASW) Version 18. Results of the computation guided the development of the PM-SIB final form.

Results and Discussion

This section follows the step-by-step procedure done prior to coming up with the PM-SIB final form. Table 1 portrays the significant responses of purposively identifying 20 students who admitted to self-injure without suicidal intent.

Table 1

Survey Results for the Reasons/Causes of Self-Confessed Self-Injurious Behaviors (SIB) of Students without suicidal intent (N-20)

SIB Indicators	Rank	f	%	Responses
Personal Beliefs/ disruptive thoughts		5		think of him/herself as useless, worthless, loss of self-confidence, too much negative thoughts

(Cognitive)		3		severe frustration, failure, stress
		2		mind is full of worries
		2		nobody understands him/her, elicit pity and care from others
		2		hurting words receive from parents
		2		unfulfilled expectations of self/or parents
		2		Just want to do it, no reason at all
		2		Bullying
Emotional turmoil		7		to release pain/tension, physical pain is preferred rather than emotional pain (displace/suppress emotions/calmness)
		7		depression, sadness
		6		anger, keep him/herself from hitting others
		2		regret, guilt
		1		anxiety
		1		too much happiness

From the responses shown in **Table 1**, the reasons/causes given by students who self-injure without suicidal intent were categorized into two: personal beliefs and emotional turmoil. Personal beliefs (Cognitive) talk about how the participants see/think of themselves, or their mental picture of who they are. Individuals who self-injure can create maladaptive thoughts that are so overwhelming that in order to relieve themselves, they need to physically injure themselves. This allows them to shift their negative cognitive thoughts to physical relief as they see their skin cut and blood is rushing out. Even though a part of them knows what they are doing is wrong, it is the only effective way to address their inner pain. Personal beliefs consist of negative thoughts such asself-worthlessness/uselessness, frustration/failure/stress, worries, lack of understanding from others/bullying, and doing it for no reason. On the other hand, emotional turmoil (Affective) consists of heightened emotions felt when performing the act of self-injury such as sadness or depression, anger, regret, guilt, anxiety, and too much happiness which is the opposite. Clinical professionals who have dealt with students who exhibited self-injurious behavior with no suicidal intent, noted that the manner of self-injury varies such as wrist/legs cutting/slashing, hair pulling, head banging, cigarette burn on the skin, punching one's self, pinching/slapping one's self, pricking on skin lesions, intentional dropping of one's body on the cemented floor and nail biting. The frequency may be once, recurrent or if there is an occurrence of a stressful situation and abandonment by loved ones. Most often, clients who self-injure experience some sort of "crisis". They need a "quick fix" from that negative situation. They are left by themselves to address their current crisis by hurting themselves.

As seen in **Table 2**, a wide array of reasons/causes were obtained from the mental health professionals. The reasons given were again categorized by the researcher into two: cognitive and affective indicators. Cognitive indicators given were negative thoughts, self-punishment, boredom, way to manipulate others, act of rebellion/ or individualization, wish to live, remembrance and no reason at all. Affective indicators given were depression, a way to cope with painful feelings, followed by attention-getting and feeling hopeless, next is being impulsive or to feel control, fear of abandonment, guilt, addictive, satisfaction and enjoyment.

SIB Indicators	Rank	f	%	Responses
Personal Beliefs	1	2	10%	express negative thoughts they cannot articulate
(Cognitive)	1	2	10%	self-punishment, self-blame
	1	2	10%	Boredom
	2	1	5%	manipulate others to make them care/ or guilty
	2	1	5%	acts of rebellion/rejection of filial values to determine oneself
	2	1	5%	manipulate others to make them care for him or her, or, to make them feel guilty
	2	1	5%	want it, no reason at all
	2	1	5%	wish to live
	2	1	5%	Remembrance
Emotional	1	5	25 %	cope with painful or hard to express feelings, cope with anxiety and tension
Turmoil (Affective)	1	5	25%	Depression
	2	4	20%	attention-getting
	2	4	20%	Hopeless
	3	2	10%	inability to express anger
	3	2	10%	impulsive or feel control
	3	2	10%	fear of abandonment or abandoned by loved ones
	3	2	10%	Guilt
	3	2	10%	to feel
	4	1	5%	Addictive
	4	1	5%	satisfaction/enjoyment

Analyzing the results in Table I and Table 2, both survey results point to the predominance of emotional indicators in committing SIB, such as when used as a means to cope or release their emotions (7 in students and 25% with mental health professionals), deal with depression or sadness (7 in students and 25% with mental health professionals), and that of anxiety or hopeless among the youth (1 in students and 20% with mental health professionals), the personal thought process or the beliefs of the respondents (cognitive indicators) to include their engaging in SIB as a way to punish themselves as a result of negative thoughts remains to be a significant influence in the determination of causes of self-injury without suicidal intent among adolescents, having garnered a response of 5 from students and 10% from mental health professionals. Utilizing these results and the literature reviews, the researcher developed the preliminary form of the Psychological Measures–Self-Injurious Behavior (PM-SIB) with two indicators: Cognitive (personal beliefs/disruptive thoughts) and Affective Indicators (suppressed intense emotions) with 144 and 149 items respectively.

Table of Specifications is provided in **Table 3**.

Table 3

Item Distribution for the Composition of the First Draft of PM-SIB

INDICATORS	ITEM COMPOSITION
Cognitive	144
Affective	149
Total	293

Responses in the survey showed that majority of the students commit self-injury because they need an avenue for releasing their suppressed emotions (Affective); Ironically, it can be seen that a mental activity (Cognitive) comes into play. Hurting themselves help in venting out negative emotions; personal belief, and the way they think about hurting themselves when they feel bad helps maintain their psychological and moral sanity. With their distorted way of thinking on how their hurtful action is benefiting their own persona, it is no surprise that they still continue their maladaptive way of coping up with their personal problems. To determine whether the items correspond to the indicators they fall under based on the assessment of experts, inter-rater agreement was utilized. The initial form of the PM-SIB with 293 items was content validated by three Clinical Psychologists and two Psychiatrists. Results tabulated through an inter-rater agreement are presented in Table 4.

From a total of 293 items for the initial form, items were reduced to 277 for the preliminary form.

Table 4

Inter-Item Agreement Results of the Experts' Content Validation of the Initial Draft of the PM-SIB

Indicators	Total No. of Items	No. of Items Accepted	No. of Items Revised	No. of Items rejected	
Cognitive	144	79	60	5	139
Affective	149	85	53	11	138
	293				**277**

From the results of the inter-rater agreement in **Table 4**, the First Draft of PM-SIB which was constructed with 293 items, (144 items for Cognitive and 149 items for Affective indicators) was reduced to 277 items (139 items for Cognitive and 138 items for Affective).

This comprised the Preliminary Form of the PM-SIB that was pilot tested, which as Cohen, Swerdlik & Sturman (2013) stated is necessary to evaluate the psychometric properties of the test. Pilot testing of the PM-SIB Preliminary Form to a purposively selected sample of 76 college/university psychology students who self-injure without suicidal intent was done prior to item analysis. Item analysis is the technical nomenclature which illustrates the statistical procedure used to determine how particular items contrast with other items in the same peculiar test or in the perspective of that of the whole (Cohen, et al., 2013).

The items under the PM-SIB Preliminary Forms was statistically processed using the method of "item-total correlation". This statistical method pertains to the correlation between an item and the rest of the test. However, the said item itself is not considered as part of the whole test. As a form of analysis on the results of the item-total correlation test, items which recorded a result of low correlation signify a lack of relationship with the rest of that which the whole test is intending to measure. To obtain such a correlation, Pearson's R was also utilized to obtain the correlation of the results of the individual items and that of the total result. The correlation coefficient of 0.40 was the limit used by the test developer to categorize items worthy of retention to the whole and those that must be excluded. According to Magno & Quano, said R-value indicates a substantial relationship (2010).

Table 5 below presents the summary of worthy test items that were consequently retained and those low-test items that were excluded based on the results of the correlation coefficients. Illustrated in Table 4 are the 277 test items which were retained which is equivalent to 94% of the original 293 item-test of the PM-SIB Preliminary Form. Having correlation coefficients of .40 and above, the said 277 items were worthy of retention and were thus maintained. In contrast to this result, 16 items were excluded having recorded the correlation coefficients below 0.40.

Majority of the rejected items in the PM-SIB First Draft came from affective indicators (n=11) and cognitive indicators (n=5). The good items in the two cited indicators that were subsequently revised, and thereafter maintained in the test after the item analysis process conducted comprised the whole PM-SIB Preliminary Form. The said test will be subject to further "reliability" and "validity" processing in the following stages of improvement of the Psychological Measures of Self-Injurious Behaviors.

Table 5

Item Analysis Results for the Preliminary Form of PM-SIB

Component	No. of Items	No. of items Rejected	No. of Items Retained.
Cognitive	139	29	110
Affective	138	33	105
	277	62	**215**

The item analysis conducted thru Pearson-r in Table 5 shows that there were a total of 277 items or 78% retained from the 293 items of the First Draft of the PM-SIB. From the 139 items in the Cognitive Indicators of the PM-SIB First Draft, 29 items were rejected resulting to 110 items retained. Then from the 138 items of the Affective Indicators, there were 33 items rejected that resulted to 105 items retained.

Various researches cited below support the components of both Cognitive and Affective indicators.

For **Cognitive Indicators**, several researches made on the functions of NSSI support the premise that NSSI affects cognitive thinking and affective qualities (Franklin, et al., 2010). Joiner also made a similar observation by noting that "opponent processes may contribute to the development of self-injurious behaviors" (Joiner, 2005).

Fox, et al. (2018) conducted a research on the frequency of NSSI as associated with self-criticism using 154 online participants with a history of recurrent NSSI. The study gathered data through the use of computer-generated indicators which includes "implicit and explicit self-criticism", and "aversion to NSSI and death". Thereafter, said participants were subsequently instructed to test certain indicators with the objective of testing the likelihood of NSSI. The study determined that a decreased aversion relative to NSSI stimuli and the indicator of self-criticism predicted significantly the occurrence of NSSI. Self-criticism, which falls under the cognitive domain, measured both directly and indirectly, to include an indirect measure of decreased aversion to NSSI, were each found to increase the likelihood of NSSI, thus, an important NSSI risk factor. Even within a small sample of the population engaging in recurrent NSSI, decreased aversion to NSSI were found to have significant forecasts on the frequency of committing NSSI. The results also showed that the different levels of NSSI aversion determine certain variations in NSSI frequency. Decreased aversion toward NSSI predicted NSSI frequency, despite controlling other factors.

A study by Nock, et al. (2017) showed that individuals with a lifetime history of NSSI and suicide attempts relate to the concept of self-harm more strongly than those with no such history. These results replicate prior studies which demonstrated similar group differences under NSSI (Nock & Banaji, 2007) and suicide attempt (Nock & Banaji, 2007b; Nock et al., 2010), further indicating the possibility of disseminating the self-harm IAT test across a widespread of scenario, the same being successfully self-administered and valid even for less controlled environments (e.g., online).

A study of 432 participants (Batey et al, 2010) of which 30% of the respondents have reported self-harm, reported high scores in the indicators of dissociation and childhood trauma, low scores in the indicators of self-worth and high scores in the indicator of negative thoughts. Depersonalization/dissociation is in itself a response to negative intrusive thoughts (unhappy memories, negative thoughts about self and harming one's self). The study further revealed that the frequency of negative thoughts may lead to greater emotional and behavioral reactions, thus, interventions and treatment should be tailored to successfully deal with such intrusive thoughts.

Fitzpatrick et al in their 2019 study of the relationship between self-injury and thoughts of self-injury (disaggregated between the causal indicators of the intensity of such thoughts and its duration) found that individuals with higher thought intensity were more likely to engage in acts of self-injury. Utilizing the method of Ecological Momentary Assessment or EMA among 47 adolescents and young adults who engaged in self-injurious behavior, the study further found that the intensity of self-injurious thoughts and its duration influenced both the frequency, manner, and mode of self-injurious activities such that a longer duration of self-injurious thoughts resulted in an increased likelihood for the respondents to harm themselves (Fitzpatrick et al, 2019).

For the **Affective indicators**, a study in Ireland (McMahon et al., 2013) investigated the relationship between the variables coping, mental health status, and self-harm among 3,684 Irish adolescents, the respondents consisting of 52% girls the majority of which (53.1%) were 16 years old students. They were classified into three subgroups of young people; (1) those reported no history of self-harm and thoughts on self-harm; (2) those who reported thoughts and inclinations of self-harm thoughts but attempted to such behavior on themselves; and (3) those students who reported having exhibited self-harm in at least one scenario. In the said study, the students who reported a history of self-harm were associated to have frequently utilized "Emotion-Oriented Coping" and less use of "Problem-Oriented Coping". "Emotion-Oriented Coping", which includes as some of its underlying indicators that of self-blame, anger, withdrawal, and use of alcohol, was shown to have been strongly associated with diminished mental health. In contrast, the use of "Problem-Oriented Coping", which includes as its indicators attempting to solve problems, seeking social support, and reflecting on previous experience was associated with better mental health.

In a study conducted in 2016, 987 students aged 14-16 years completed surveys on different motives of self-harm at two time periods the test having been conducted 6 months apart. In his study, Rasmussen noted that the motive "to get relief from a terrible state of mind" was the most commonly reported reason for self-harm in both genders. The reason "to frighten someone" was least reported by the students. Thus, the study observed that students who reported their desire to be relieved from terrible states were more likely to commit self-harm at a later time than those with a different motive. With intrapersonal motives endorsed more frequently than that of interpersonal motives by the said adolescents, the complex nature of the act of committing self-harm will have widespread implications in the mental health education of students in schools and universities, to include the development of regulations concerning managing emotions and help-seeking behaviors (Rasmussen, et al., 2016).

A study of Chinese adolescents over a 6 year-6 wave longitudinal study in 2016 (Law & Shek) similarly showed that females coming from an economically disadvantaged sector of society are more likely to commit self-harm as a means of controlling their emotions.

Aldrich et. al. (2018)study found that sectors of the youth with the characteristics of "low physiological arousal" and "high impulsivity" are more likely to attempt to harm themselves over a six-month period. This is consistent with Raine's "sensation-seeking theory" (Raine, 2002), which argues that "chronic low arousal" is a form of an aversive physiological condition. Hence, over impulsive youth are found to be more likely turn to an instant method of regulating their emotions - such as self-injurious thoughts and behaviors - in order to alter their physiological experiences. This is comparatively similar to another study by Kleiman et al (2015) which classified NSSI participants as engaging in either "hitting" and "non-hitting". They concluded that aggression was a predictor for the "hitting" form of NSSI and emotion dysregulation does not differentiate between forms of NSSI but indicates severity of NSSI. Findings from the study of Saraff & Pepper (2014), also show that the different forms of intrapersonal functions of NSSI to include the regulation of one's mood, punishing oneself, to generate certain feelings are factors for the maintenance of NSSI rather than that of an interpersonal function. Both play a role however in the frequency of NSSI in one's lifetime.

An analog study of mood induction–boredom, sadness and neutral condition to a nonclinical sample of 69 undergraduate university students who engage in NSSI and those who do not by Nederkoorn, et. al. (2016) showed that students who felt bored and reported a history of NSSI self-administered electro cutaneous shocks to themselves to avoid monotony rather than to control their emotions.

According to Zielinskia, Hillb & Veilleu, the issue of diagnosis may arguably matter less than what the particularities of NSSI can provide a health specialist. Individuals who exhibit and commit NSSI may do so as a result of a multitude of reasons, which may in turn influence the manner, regularity, and even the probability of the said individual in committing further NSSI. As such, a thorough evaluation of the peculiarities of NSSI is highly imperative in clinical evaluation to further determine the components of this behavior, and what this suggests about the person's current mental health condition and likely course of action (Zielinskia, Hillb, Veilleu, 2018).

Feelings of alienation from parents resulting to decrease in emotion regulation increase the frequency of self-injury among young adults, rather than peer invalidating social environment (Adrian, et al., 2010). This is further supported by another study by Anestis et al. (2014), that out of 706 undergraduates wherein 46-78 % of emotion dysregulation components had a direct link to non-suicidal self-injury rather than suicide attempts.

A study to determine self-harm among 157 young psychology students showed that high scores on the Self Harm Injury Inventory was responded by the younger adults than those of the 124 community dwelling older adults (Segal et. Al 2016).

CONCLUSIONS

Embarking on the comprehensive and multi-dimensional concept of self-injury without suicidal intent of the Filipino youths through the method of scale validation, it has been found that the various reasons/causes for such behaviors falls into two indicators which are cognitive and affective. The results of the initial undertaking for item analysis of this scale which will be called PM-SIB will now be the basis for the succeeding steps in determining the psychometric properties of the preliminary and polished form of this scale. Therefore, self-injury without suicidal intent can be attributed to these two indicators that could uncover the possible presence as well as the reasons/causes that the youths engaged in.

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