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Being Socially Isolated is a Matter of Subjectivity: the Mediator of Life Meaning and Moderator of Religiosity

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Abstract

Albeit accumulated research supporting the deleterious effects of being socially isolated on emotional and behavioral consequences, paucity of effort has been made to investigate impacts of different forms of social isolation on such outcomes. Furthermore, no study has attempted to look into the mediating effect of life meaning and moderating effect of religiosity on the above relationships. The present study verified the positive effects of both perceived social isolation and subjective loneliness on emotional distress and hostility, in which subjective loneliness was a function of perceived social isolation and significantly mediated by one's meaningful existence. More complicated, religiosity showed a moderating role in the relationship between perceived social isolation and subjective loneliness through its promoting effect on meaning in life. Implications of these findings were emphasized in discussion, plus directions for future research also addressed.

Keywords: perceived social isolation; subjective loneliness; meaning in life; religiosity; emotional distress; hostility.

Introduction

Social life and functioning are formed within a framework of interpersonal relationships, in which we strive for inclusion and belongingness and endeavor to avoid exclusion and rejection. The creation and maintenance of positive cohesive relationships can be duly characteristic as the primary motivations for human

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beings (Cacioppo et al., 2006; Williams, 1997). This pervasive drive has been described as the need to belong and accept (Baumeister & Leary, 1995). The desire for acceptance and the formation of stable, lasting connections with the social world is a fundamental need of every human being (Leary, Tambor, Terdal, & Downs, 1995), and failing to fulfill it can lead to negative emotional and behavioral consequences, such as heightened feelings of being abandoned (Leary et al., 1998), anxiety and depressive symptoms (Cattan et al., 2006; Johnson & Mullins, 1989), low self-esteem (Leary, Tambor, Terdal, & Downs, 1995) and meaninglessness (Sommer, Williams, Ciarocco, & Baumeister, 2001), lost self-control (Twenge, Baumeister, Tice, & Stucke, 2001), as well as hostile and aggressive acts (Leary et al., 2003; Twenge, Baumeister, Tice, & Stucke, 2001).

Albeit research findings commonly supported the devastating results of social exclusion and rejection, or sometimes being called ostracism, and these terms have been used inter-changeable, they are in fact distinguishable from each other in nicety. Social exclusion is just a purely behavioral descriptor that does not necessarily involve relational evaluation and, thus, may or may not constitute rejection (Leary, 2001; Twenge, et al., 2003). Social rejection is the broadest term to describe people who perceive their relational evaluation is substandard to their desired one. The occurrence of being rejected would accompany with either prior belonging or nonbelonging, and may be or may not come up with either positive or negative evaluations by the rejected individual; however, being rejected may generally do with a sense of negative judgments (MacDonald & Leary, 2005; Maner et al., 2007).

Going further, ostracism could be counted as particular type of social rejection, in which one party may deliberately alienate away from the rejected party. As such ostracism is defined as any acts of ignoring and excluding of an individual or groups (Williams, 2002), which is consonant with all rejections it involves low relational valuation connoting behaviors that extremely ignore and avoid the rejected individual (Williams & Zadro, 2001). Therefore, ostracism is a type of rejection; however not all episodes of rejection constitute ostracism (Leary, 2001, 2005). In this study, social isolation would be adopted in purpose of using a more broadly inclusive term to signify a negative state of being socially estranged and alienated from interpersonal relations and social connections, which is in alignment with the aforementioned controversial terms of social exclusion, rejection and ostracism, and is more easily to identify its negative sense in a state of being socially alienated and estranged colloquially.

Varieties of Social Isolations

No matter how the terms we use to identify an individual who are being socially estranged and alienated, all forms of social isolations are detrimental to human positive development and growth if it triggers the crux of one's relational evaluation (Leary, 2005; Maner et al., 2007). Relational evaluation is the extent to which a person anticipates his or her relationship with another one or group of persons as important and valuable (Leary, 2001). People clearly value their relationships with others to varying degrees. In fact, some social relations and connections are particularly valuable and important compared to others that may be conceived as moderately important or even sometimes as of no worth (Williams, 1997). In this sense, only those social estrangement or rejections that strike the high relational evaluation of a person may be powerfully enough to bring about negative consequences (DeWall et al., 2009; Leary et al, 1995).

Research on social exclusion and ostracism cumulated in the past couples of decades has mainly emphasized on three approaches. One of these prominent approaches is to employ "objective" count of social exclusion factors happened in real world and see their impacts on human functioning and outcomes (Backman & Nilsson, 2011). Social indicators that have been used to measure the "objective" extent of social exclusion may include such as receipt of social assistance, family poverty, single-parenthood, as well as minority ethnic status. Although this approach can generate a tangible social isolation index, it precludes the experiences of the direct perception from the "undergoers" who are undergoing the status of being socially isolated (DiTommaso et al., 2003). This thesis tallies with the information-mismatching theory, in which available factual information and outsider's observations may not fully and adequately represent the direct perceptions and experiences of the undergoers (Mascaro & Rosen, 2006).

Another study approach is to tap on participants' perceived levels of social exclusion, in which many relevant social exclusion research studies with experimental- administrated design to find out the effects of social rejection on human outcomes have employed this strategy (Hess & Pickett, 2010; Twenge et al., 2003). In practices, participants were maneuvered to believe that they had been rejected or would have been rejected (Buss, 1990; DeWall, Twenge, Gitter, & Baumeister, 2009; Maner et al., 2007; Williams, 2002). Although this approach presses close to one's perception of being socially isolated that would be useful to tap on one's relational evaluation, this experimental- administrated condition may augment the spuriousness of the results and put questionable external validity in 'real world' situations.

The final approach that has been popularly adopted is to measure subjective feelings of loneliness in life experiences from community samples. Obviously, most of these research studies took feelings of loneliness as an outcome variable

and explored relevant correlates of its etiology (Schnittker, 2007). For example, a recent typical study by Dykstra and his colleagues (2005) showed that widowhood, network size, functional capacity, as well as getting older were the pronounced antecedents to result in loneliness among a national representative sample of older people. Literature today has identified a set of precursors that may cause feelings of subjective loneliness. These include personality factors, socioeconomic status, race/ ethnicity, educational attainment, social relations, network size, occupational status, dispositional and cognitive characteristics (Cattan et al., 2005; DiTommaso et al., 2003; Johnson & Mullins, 1989; Schnittker, 2007).

Obviously limited research regarding subjective loneliness right up to now has investigated its adverse effects on human psychological and behavioral consequences, such as emotional distress and hostile behavior, that are the two commonly established negative outcomes in social exclusion research (Cacioppo et al., 2006; Leary, 2005; Twenge et al., 2001). This is because researchers usually treat feelings of loneliness as a consequence from social disadvantages, and less likely to see it as a function of other forms of social isolation, e.g. perceived social isolation, as well as extend its possible detrimental effect on human health outcomes, such as emotional distress and hostility in this study. Nevertheless, available few research results showed that loneliness felt subjectively by the undergoer suffices to do with detrimental impacts on his or her health development. Knowledge accumulated from loneliness research tell us that feelings of loneliness may vitiate personal capacity of self-regulation, and occasion stress, sense of help-lessness and threat, depressive symptoms, as well all as thwarted response to positive affect (Cacioppo et al., 2006; Nolen-Hoeksema & Ahrens, 2002; Shaver & Brennan, 1991).

Going further, prior research has not put much emphasis regarding the nicety of the nature of these different forms of social isolation. It is thought that the threatening effects of perceived form of social isolation occurred in life may bring about more drastic effects on human functioning than those effects created from experimental conditions. In addition, perceived social isolation may yield a threatening cognition that could result in a menace in mentality (Leary, 2005), which in some cases is comparable to or even go beyond actual socially isolated experiences. For this Leary (2005) stated that

> *"whether people are ostracized or excluded in an objective, behavioral sense is not as important as whether they perceive that their relational value in another's eyes is lower than they desire. In many cases, people who are clearly valued and accepted may experience a sense of rejection because they perceive that others do not adequately value their relationship."*

However, extant research studies have rarely investigated how people's perceived social isolation influences their subjective feelings of loneliness, in which

both forms of isolations are considered sufficiently to have deleterious effects on human emotional distress and hostile behavior. This thesis is consonant to the belief-based theory (Maio et al., 2006) and social cognitive theory (Howard & Renfrow, 2006), with which psychological responses and behavioral choices are simply the consequences of what people believe and perceive they are to be. So as, in this study, it is anticipated that one's subjective feelings of loneliness would be a function of his or her perceived social isolation, which may both commonly contribute to negative human functioning, like heightened emotional distress and hostility.

Mediator of Meaning in Life and Moderator of Religiosity

Recent literature and research findings reported that people are not passive recipients of the adverse consequences of being socially isolated, they may be more proactive while the extent of being socially estranged and isolated attains the threshold threatening their perceived relational evaluation in a positive way (Baumeister, 2005; Maner et al., 2007). In fact, meaning in life is a paramount element to maintain positive human functioning and growth. In this study, meaning in life refers to feelings regarding self-perceived significance and worth of one's life (Morgan, & Fastides, 2009; Thege et al., 2009). In reality, social relations and connections are the main base for people to find out their life meaning. Unlike most other animals, the meaning of human acts and behaviors are imbedded in a web of interpersonal systems and networks (Morgan & Fastides, 2009). As a result, the human capacity for sociality and for participation in culture may be overarchingly related to their meaningful existence (Baumeister, 2005). For this, being socially isolated could vitiate people's sense of meaningful existence (Williams, 2002), which may in turn result in deleterious behavioral and emotional consequences.

The thesis regarding harm on meaning in life tallies with what Twenge et al. (2003) proposed a retreat from meaningful thought acting as a function of the negative effect of social isolation. As such, one's level of perceived social isolation may have direct adverse impact on his or her meaningful existence. Relevant research work suggested that being socially isolated may have adverse effects on meaning in life, in which a recent study by Zadro, Boland, & Richardson (2006), who assessed whether social exclusion might negatively influence meaning in life through assessing the effects of both immediately following social exclusion and again after a delay, found that there was a reduction in a composite measure of well-being that consists of a meaning dimension. Another study by Twenge et al. (2003) pointed out that people in a socially excluded status would seek refuge in a state of cognitive deconstruction, characterized by decreased meaningful thought, decreased self-awareness, as well as lethargy. As such, it is anticipated that

the detrimental function of perceived social isolation in subjective loneliness is through its ravaging effect on meaning in life, denoting that one's meaningful existence would mediate the relation between perceived social isolation and subjective loneliness.

Furthermore, there are cumulated empirical findings supported the beneficial effects of meaning in life on an array of psychological and behavioral outcomes. They include positive affect (King, Hicks, Krull, & Del Gaiso, 2006), enjoyment of work (Bonebright, Clay, & Ankenmann, 2000), hope (Mascaro & Rosen, 2006), general well-being (Ryff & Singer, 1998; Wong & Fry, 1998; Zika & Chamberlain, 1992), and satisfaction with life (Chamberlain & Zika, 1988) in the positive side. In addition, meaningful existence has been found to be related to lower levels of substance misuse (Thege et al., 2009), suicidal thought (Harlow, Newcomb, & Bentler, 1986), psychopathology (Crumbaugh & Maholick, 1964), sense of stress (Mascaro & Rosen, 2006), and depressive symptoms (Mascaro & Rosen, 2005), as well as subjective feelings of loneliness (Debats, Drost, & Hansen, 1995) in the negative side. From the perspective of belief-based theory, an individual's belief in and perception of something as part of reality may have profound impacts on his/ her behavioral and psychological outcomes ((Maio et al., 2006). Therefore, in addition to its mediating role between perceived social isolation and subjective loneliness, meaning in life would have direct beneficial effects on abating the negative outcomes, such as emotional distress and hostile behavior, occasioned by perceived social isolation and subjective loneliness.

On the other hand, turning to religion and faith could be a doorway for those who are seemingly lost in the secular relational system. Maner and his colleagues (2007) supported the interpersonal reconnection hypothesis, in which if the basic need for social acceptance is threatened, people may seek out opportunities for socially reconnecting with others. Accordingly, religion would be an approachable way to function as a source of compensation and attachment in order to satisfy the hamstrung desire for belongingness (Chen & Koenig, 2006; McIntosh et al., 1993). As such, it is thought one's religiosity may act as moderator to offset negative effects of being socially isolated.

The moderating role of religiosity could be explicated by the attachment theory (DiTommaso et al., 2003), in which God or a higher power can be regarded as a real-world, substitute attachment figure, who both secures social relations and guards against being socially isolated (Kirkpatrick, 1998). In fact, both internal and external coping resources can be triggered by one's engaging in religious beliefs and faith, all of which may help fend off detriments from social isolation. Regarding triggering internal resources, religious people may simply have more or better cognitive and affective strategies to cope with adversities of social stressors, such as being socially isolated (Ai et al., 2005). On the other hand, newly generated social support and tangible help obtained from the religious community could lessen the negative impacts of social isolation happened in

secular relational systems (Haden, Scarpa, Jones, & Ollendick, 2007). A number of recent studies consistently supported the protective functioning of religiosity in guard against various personal, interpersonal, as well as collective stressors. These stressors include life crisis (Piko & Fitzpatrick; 2004; Yeung, Chan, & Lee, 2009), relationship loss (McIntosh, Silver, & Wortman, 1993), traumatic experiences (Chen & Koenig, 2006), societal violence and war (Ai et al., 2005). As such, it is supposed that albeit being socially isolated is demonstrated as an explicit social stressor, its adverse effects would be effectively buffered by turning to religion.

Relevant research studies recently proposed four intrinsic needs for meaningful existence in shaping human experiences, which have been interpreted as four criteria of a meaningful life (Wong & Fry, 1998; Mascaro & Rosen, 2006). They are life purpose, perception of self-efficacy, a sense of positive moral value relating to conformity to ideals and standards, as well as a sense of self-worth. It is thought that the foremost adverse impact of perceived social isolation is on the divestment of these needs (Debats et al., 1995; Leary, 2001). On the other hand, engagement in religion and keeping one's faith is an effective way to recompense the dispossession of these human needs for life meaning (Kirkpatrick, 1998). Hope generated from religious beliefs and the ways to attain this hope may give out purpose in life for its adherents. More than that religious teachings and principles can assure one's positive moral value, and regain of human values through religious beliefs and join in a faith community with a similar belief system may also enhance sense of self-efficacy and worth. For this, it is thought that one of the probable ways that religiosity buffers the adverse effect of perceived social isolation on subjective loneliness is by its beneficial effect on promoting meaning in life.

The Present Study

In the current study, one purpose is to look into the nuance of different forms of social isolation. As reviewed aforehand, it is thought that perceived social isolation would incur subjective feelings of loneliness, which may both contribute to negative emotional and behavioral outcomes, such as emotional distress and hostility (Catten et al., 2005; Leary et al., 2003; Twenge et al., 2001). In fact, this tallies with what belief-based theory (Maio et al., 2006) and social cognitive theory (Howard & Renfrow, 2006) commonly pose, as these perspectives consistently postulate that people's psychological responses and behavioral choices are simply the consequences of what they believe and perceive to be. For this we would like to have the following hypothesis:

H1: Subjective loneliness is a function of perceived social isolation, which may both commonly contribute to emotional distress and hostility.

As reviewed before, one of the negative effects of perceived social isolation on subjective feelings of loneliness is through its undermining effect on meaning in life (Baumeister, 2005; Twenge et al., 2003; Williams, 2002). Loss in meaningful existence people may feel lonely and aimless (Debats et al., 1995; King et al., 2006). For this, we would like to have the following hypothesis:

H2: Meaning in life may mediate the association between perceived social isolation and subjective loneliness.

Moreover, meaningful existence is an important precursor for psychological and behavioral health and decreased psychopathology (Bonebright, Clay, & Ankenmann, 2000; Mascaro & Rosen, 2006; Mascaro & Rosen, 2005). Relevant research studies reported that those who found their life more meaningful might have a better wide range of health consequences ((King, Hicks, Krull, & Del Gaiso, 2006), including lessened emotional distress (Mascaro & Rosen, 2005) and as aggressive behavior like hostility (Harlow, Newcomb, & Bentler, 1986; Thege et al., 2009). As such, a third hypothesis is made as follow:

H3: Meaning in life may not only show its mediating effect between perceived social isolation and subjective loneliness, it may also have direct protective effects on abating the maladjustments of emotional distress and hostile behavior.

More than that, perception of the extent of one's social connections or isolation is not the only etiology of his or her meaningful existence, recent research reported that religiosity may confer preliminary elements to promote meaning in life (Maner et al., 2007), in which according to the compensation thesis (Chen & Koenig, 2006) and attachment theory (DiTommaso et al., 2003; Kirkpatrick, 1998), one can regain his or her life purpose, self-efficacy, sense of positive moral value, and self-worth by keeping faith in religious beliefs. Therefore, we would like to have the fourth hypothesis:

H4: Religiosity may have a moderating effect on abating impacts of perceived social isolation on subjective loneliness through its promoting effect on meaning in life.

More than that, those fundamental socio-demographic variables, such as gender, age, and SES, were incorporated in the analyses throughout the study. Research to date does not have a concrete conclusion on whether different forms of social isolation are a function of gender effect (Baumeister & Leary, 1995; Twenge et al., 2001), but compared to males, females would have higher levels of meaning in life and emotional distress (Bonebright et al., 2000), as well as lower hostility (Cacioppo & Hawkley, 2005; Cattan et al., 2005; Twenge, 2001). For age, being older ages would be related to higher life meaning (Debats et al., 1995; King et

al., 2006), less hostile tendency (Dykstra et al., 2005). However, paradoxically older people would feel more lonely (Schnittker, 2007), although this relation was not confirmed in some literature (Cattan et al., 2005).

Moreover, research right up to now has not figured up the effects of SES on life meaning (Mascaro & Rosen, 2005), subjective loneliness (Mascaro & Rosen, 2006), emotional distress (King et al., 2006; Twenge et al., 2003), and hostile behavior (Leary et al., 2003; Twenge et al., 2001), albeit SES implies more resources and alternatives, which would be considered to have something to do with the above-mentioned outcomes. For people with higher SES would lead a more enjoyable life that confers them more room to explore life meaning, and these people may feel less lonely as they have more extensive social network, which both may be influential of the outcomes of emotional distress and hostility. *Figure 1* depicts the relationships between hypotheses to capture the theoretical framework of the study.

Figure 1: Theoretical Framework for the Hypotheses Constructed for the Study
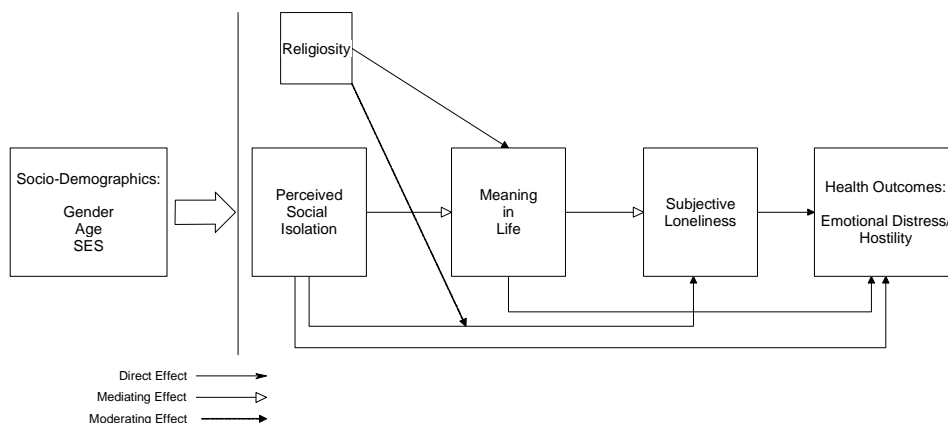
Methods

Participants and procedures

A convenience sampling approach was adopted in this study, in which graduate students in a large psychology lecture of the City University of Hong Kong were requested to take part in the study, and they were addressed about the purpose and content of the study before filling the questionnaires. In addition, those graduate students who gave consent to partake in the study were further requested to invite their family and friends outside the lecture to participate in the study. Data

collection period was conducted during February to March 2012, and all participants who have filled the questionnaire must have been aged 18 or above at the time of taking part in the study. Aged 18 years old is a legal age for entry into adulthood in Hong Kong, implying that persons aged 18 or above have the right and discretion for self-determination in personal matters, such as whether to take part in a study. Consequently, the present study has successfully collected data from 272 participants, and subsequent analyses were all based on the data provided from these participants.

Measures

Perceived social isolation. The subscale of social isolation from Emotional/ Social Loneliness Inventory (ESLI) was adopted to tap on perceived social isolation (DiTommaso & Spinner, 1993). ESLI is a 30-item measure designed to assess emotional and social loneliness and isolation, in which the social isolation subscale contains 7 items, example items include "I spend a lot of time alone" and "I am not part of a social group or organization". The measure is a 4-point scale, higher scores mean more perceived social isolation. The internal consistency was .730 in this study.

Meaning in Life. The presence of meaning subscale in Meaning in Life Questionnaire (MLQ) was used to measure one's meaningful existence. MLQ is a 10-item scale, which was demonstrated reliable and structurally sound in validation research (Steger et al., 2006), and the presence of meaning subscale was proven to be related to a number of well-being, emotional health, and religious variables. Its Cronbach alpha was .860.

Subjective Loneliness. The emotional loneliness subscale of Emotional/ Social Loneliness Inventory (ESLI) was used to measure subjective feelings of loneliness. The emotional loneliness subscale comprises of 8 items, and has been confirmed to have high internal consistency, discriminant and convergent validity in previous research (DiTommaso & Spinner, 1993). In this study, higher scores imply increased subjective loneliness. The alpha reliability was .738.

Emotional Distress. Four statements were constructed to create a measure of emotional distress. They are "I am easily to be anxious while encountering setbacks", "My friends describe me as a person easily irritable.", "I feel that I have difficulty in controlling my emotions.", and "I am a person to feel at ease and free from worry (reversely coded)." Exploratory factor analysis with promax oblique rotation on four axes was performed, with item loadings e" .40 were retained. The advantage of using promax than oblimin rotation is that it is more versatile in dealing with a large dataset (e.g. N³ 200). Results confirmed that the items loading on one latent factor, accounting 55.31% of variance. The factor loadings ranges from .639 and .850, and Kaiser-Meyer-Olkin (KMO) measure in

this EFA analysis was .718, which is above the required heuristic value of .70, indicating sampling adequacy for factor analysis and denoting that the data were appropriate for the current analysis.

Hostile Behavior. The 8-item hostility subscale from the Aggression Questionnaire (AQ) was adapted to measure hostile behavior (García-León et al., 2002), which has been denoted as a common form of aggressive acts in people and was demonstrated to be related to the Spielberger State-Trait Anger Expression Inventory (STAXI), the Cook-Medley Hostility Scale (Ho), and the Buss-Durkee Hostility Inventory (BDHI) (Evren et al., 2012). Higher scores connote more hostility. The Cronbach alpha was .813 in the present study.

Religiosity. One item was used to tap on whether the participant had religious belief or belong to any religious faith. The item is "Do you believe in a religion", and the response is 0= No and 1= Yes, which has the advantage of not specifying to any religious denominations and is considered adequate to discern those who are religious from nonreligious.

Demographic Variables. For gender, it is a dichotomous variable, a code of 0 for males and 1 for females. Participants' ages were measured by a variable of age ranges, in which they were grouped into ranges from aged 18 to 29 (1), 30 to 39 (2), 40 to 49 (3), 50 to 59 (4), and aged 60 or above (5), through which this approach could encourage participants to reveal their ages, although the offset is that it cannot identify the actual age of the participant. Finally, SES is a composite score of participants' educational attainment and monthly income, which were standardized before combining into a composite.

Analytical strategies

First, general and descriptive analyses were conducted. Then, there were a series of OLS regression models to test relationships between emotional distress/ hostile behavior and subjective loneliness as well as perceived social isolation, while controlling for participants' demographic variables, gender, age, and SES. For assurance of the multi-collinearity problems that did not present in all regression analyses, the Variance Inflation Factor (VIF) and Tolerance values were checked, in which VIF should not be greater than 10 and Tolerance values should not be below .10 (Myers, 1990). For testing the mediating effect of meaning in life for the relationship between perceived social isolation and subjective loneliness, the procedures suggested by Baron and Kenny (1986) were followed, plus using Sobel test for significance. For exploring the interaction effect of religiosity by meaning in life on subjective loneliness, an interaction term by centered-mean scores was constructed to reduce regression bias (Aiken & West, 1991).

Findings

Descriptive statistics and correlations of the study variables

In this study, 184 participants from the total sample of 272 people were females, accounting for 67.6%. The mean of the age ranges was 2.36 (SD= 1.267), representing that the average ages of the participants were at their mid thirties. For the educational attainment of the participants, the mean was 3.33 (SD=1.277), connoting that the average educational level was a college diploma/ associate degree. In addition, the mean of monthly income was 3.21 (SD=1.852), indicating that the average monthly income of the participants is at around HKD 15,000. In our sample, 131 participants (48.2%) showed that they were with a religious belief.

Table 1. Descriptives and Pearson Correlations of the Study variables (N=272)

		Mean [Freq]	SD [%]	1	2	3	4	5	6
1	Religiosity	.481[131]	.501 [48.2%]	--	--	--	--	--	--
2	Meaning in life	22.886	7.021	.257*	--	--	--	--	--
3	Perceived social isolation	5.242	3.498	-.094	-.289*	--	--	--	--
4	Subjective Loneliness	5.261	4.315	-.019	-.253*	.596*	--	--	---
5	Emotional Distress	16.136	4.416	-.038	-.254*	.165*	.330*	--	--
6	Hostility	13.820	4.360	-.076	-.253*	.376*	.468*	.582*	--
*p<.01									

Table 1 displays the descriptive statistics and correlations of the study variables, in which religiosity was positively correlated with meaning in life, and meaning in life substantially and negatively correlated with perceived social isolation and subjective loneliness, as well as the two outcome variables, emotional distress and hostile behaviors, in this study. For perceived social isolation, it had a robust positive correlation with subjective loneliness, r= .596, which shares 35.52 % of variance for the association and has the effect size of Z_r = .686, SE_z = .061, p<.01, denoting a considerable magnitude for the relationship. Again, perceived social isolation was positively correlated with emotional distress and hostility respectively, r_s = .165 and .376, p< .01. Subjective loneliness was also positively correlated with emotional distress and hostility, r_s = .330 and .468, p_s< .01, which have the effect size of Z_r = .342 for the former and Z_r =.473 for the later, both significant at p< .01, expressing a moderate extent for these effect sizes. Finally, emotional distress and hostile behavior was positively and concretely correlated, r= .582, p< .01. However, such magnitude does not show a problem of shared method variance.

Results for Hypothesis 1

Table 2 shows the regression results, in which model 2a displays that perceived social isolation was significantly and robustly predictive of subjective feelings of loneliness, b= .596, p< .01. The model explains 35.3% of variance. Column two is another regression model (model 2b), in which both perceived social isolation and subjective loneliness were added to predict the outcome of emotional distress, plus adjusting for participants' background characteristics. Results showed that subjective loneliness was significantly and positively predictive of distress, b= .378, p< .01, but perceived social isolation did not show a significant effect however. In addition, participants' gender and age were significant predictors related to emotional distress, in which being female and with younger ages showed more distress, b_s = .147 and -.260, both were significant at the level of p< .01.

Table 2. OLS coefficients of linear regression for variables predicting subjective loneliness, emotional distress, and hostility

| | Subjective Loneliness | | Emotional Distress | | Hostility | |
| | Model 2a | | Model 2b | | Model 2c | |
Predictors	β	t	β	t	β	t
Gender	.024	.484	.147**	2.645	-.005	.-.099
Age	.060	1.192	-.260**	-4.60	-.184**	-3.488
SES	-.042	-.834	-.043	-.769	.126*	2.375
Perceived Social Isolation	.596**	12.152	-.050	-.728	.140*	.2.165
Subjective Loneliness	--	--	.378**	5.476	.408**	6.311
F (df1, df2)	37.966 (4, 267)		12.660 (5, 266)		21.930 (5, 266)	
Adjusted R²	.353		.177		.279	
*p<.05, **p<.01						

In Model 2c, the outcome was changed to hostility that was commonly reckoned as a product of being socially excluded and rejected in literature. In this model, both subjective loneliness and perceived social isolation were significantly predictive of hostile behavior, b_s = .408 and .140, p<.01 and .05 respectively. Moreover, participants with being older ages and lower SES were less hostile, and the model explains 27.9% of variance. As a result, hypothesis 1 was largely held, in which participants' subjective loneliness was shown as a function of perceived social isolation, which were both predictive of hostility. However, perceived social isolation did not have a significant effect on emotional distress when adding subjective loneliness into account.

Results for hypothesis 2

Table 3 tests the mediation of meaning in life between perceived social isolation and subjective loneliness. Prior to testing the mediating effect of meaning in life, we followed the three procedures proposed by Baron and Kenny (1986), in which perceived social isolation needed to be significantly predictive of subjective loneliness that was fulfilled in model 2a in Table 2, b= .596, p< .01, and secondly perceived social isolation needed to be significantly predictive of meaning in life that was verified in Model 3a in the first column of Table 3, b= -.298, p< .01. Finally, meaning in life should be significantly predictive of subjective loneliness that was shown in the second column of Table 3 (Model 3b), = -.290, p< .01.

Table 3. OLS coefficients of linear regression for variables predicting meaning in life, and subjective loneliness

| Predictors | Meaning in Life | | Subjective Loneliness | | | |
| | Model 3a | | Model 3b | | Model 3c | |
	β	t	β	t	β	t
Gender	-.059	-1.036	-.028	-.482	.017	.350
Age	.248**	4.300	.132*	2.144	.088	1.712
SES	-.018	.309	-.068	-1.146	-.044	-.880
Perceived social isolation	-.298**	-5.226	--	--	.562**	10.995
Meaning in life	--	--	-.290**	-4.808	-.114*	-2.163
F (df1, df2)	11.737 (4, 267)		6.514 (4, 267)		31.727 (5, 266)	
Adjusted R^2	.137		.075		.362	
*p<.05, **p<.01						

If one's meaningful existence significantly mediates the relationship between perceived social isolation and feelings of loneliness, the regression coefficient of perceived social isolation on subjective loneliness would be substantially diminished or becomes insignificance. In Model 3c of *Table 3*, perceived social isolation was still a significant robust predictor of subjective loneliness, with slightly shrunk coefficient, b= .562, p< .01, after the addition of meaning in life as a mediator, which was also significantly related to decreased feelings of loneliness, b= -.114, p< .05. Albeit Sobel test corroborated the significant mediating effect of meaning in life on the relation of perceived social life and subjective loneliness, Z= 3.534, SE=.0299, p< .001; and the model change statistics also vouched for the effect of mediation, F_{ch} (df1, df2)= 25.21 (1, 266), p< .01, DR^2= .011. Taken together, hypothesis 2 was held as meaning in life appeared to be a significant mediator between the relation of perceived social isolation and subjective loneliness, although perceived social isolation persistently showed its robust positive effect on the outcome of loneliness. The final model for subjective loneliness (Model 3c) accounts 36.2% of variance, in which both perceived social isolation and meaning in life predicted a feeling of loneliness positively and negatively.

Results for hypothesis 3

It is anticipated that meaningful existence would have profound impacts to do with on one's emotional outcomes and hostility directly. In *Table 4*, the outcome variable is emotional distress from model 4a to model 4c and hostility from Model 4d to Model 4g. It is shown that controlling for the demographic covariates, meaning in life was substantially and negatively predictive of emotional distress, b= -.208, p< .01, which connotes that higher levels of meaning in life would occasion decreased emotional distress. The inverse relationship between meaning in life and emotional distress was significantly held even adding perceived social isolation, although the magnitude was slightly shrunk b= -.169, p< .01. In the final model of emotional distress (Model 4c), meaning in life still showed its significant and negative effect on the outcome of emotional distress, b= -.128, p< .05, after including both perceived social isolation and subjective loneliness. In this model, perceived social isolation was diluted into insignificance when subjective loneliness was included. In addition, being male and with older ages were significantly related to less emotional distress.

Table 4. OLS coefficients of linear regression for variables predicting emotional distress and hostility

	Emotional Distress						Hostility					
	Model 4a		Model 4b		Model 4c		Model 4d		Model 4f		Model 4g	
Predictors	β	t	β	t	β	t	β	t	β	t	β	t
Gender	.136*	2.341	.146*	2.522	.140*	2.530	-.009	-.151	.018	.329	.011	.213
Age	-.186**	-3.056	-.196**	-3.228	-.227**	-3.904	-.176**	-2.902	-.202**	-3.518	-.239**	-4.461
SES	-.068	-1.148	-.062	-1.060	-.047	-.829	.067	1.138	.081	1.466	.100	1.934
Perceived social isolation	--	--	.125*	2.071	-.076	-.1099	--	--	.331**	5.790	.094	1.474
Meaning in life	-.208**	-3.491	-.169**	-2.714	-.128*	-2.137	-.238**	-4.007	-.134*	-2.278	-.086	-1.563
Subjective Loneliness	--	--	--	--	.359**	5.184	--	--	--	--	.421**	6.617
F (df1, df2)	8.358 (4,267)**		7.627 (5,266)**		11.453 (6,265)**		9.011 (4,267)**		14.793 (5,266)**		21.608 (6,265)**	
Adjusted R²	.098		.109		.188		.106		.203		.313	
*p<.05, **p<.01												

Model 4d shows the direct effect of meaning in life on hostility, when controlling for participants' demographics, in which, like Model 4a, meaning in life was robustly predictive of hostility in an inverse direction, b= -.238, p< .01. Further, the negative relation between meaning in life and hostility still significantly remained, b= -.134, p< .05, after adding perceived social isolation that also showed robust positive effect on the outcome, b= .331, p< .01. However, the

effect of meaningful existence on hostility was disappeared, b= -.086, p> .05, when taking into account of subjective loneliness in the analysis (Model 4g), in which the later one was strongly and positively predictive of the outcome of hostility, b= .421, p< .01. In addition, in this series of models, being older ages was still a significant predictor of less hostility. As a result, hypothesis 3 was partially held, as meaning in life only showed its direct negative and significant effect on emotional distress, but did not hold for the outcome of hostility when adding subjective loneliness into account.

Results for hypothesis 4

For testing hypothesis 4, we first regressed meaning in life on religiosity while controlling for participants' demographic variables. Looking at Model 5a in *Table 5*, religiosity was positively and significantly predictive of one's meaningful existence, b= .237, p< .01, in which among the demographic variables only being older ages had a positive effect on better life meaning, b= .214, p< .01. Furthermore, the beneficial effect of religiosity on promoting meaning in life was still significantly held, b= .212, p< .01, after adding perceived social isolation in the model (Model 5b) that was also a significant predictor of meaning in life, b= -278, p< .01; and the predictive power of religiosity was only slightly shrank 10.5%.

Table 5. OLS coefficients of linear regression for variables predicting meaning in life and subjective loneliness								
	Meaning in Life				Subjective Loneliness			
	Model 5a		Model 5b		Model 5c		Model 5d	
Predictors	β	t	β	t	β	t	β	t
Gender	-.081	-1.371	-.095[+]	-1.687	-.025	-.407	.013	.269
Age	.214**	3.599	.218**	3.852	.119[+]	1.900	.079	1.539
SES	.014	.244	.001	.009	-.068	-1.114	-.040	-.805
Religiosity	.237**	3.986	.212**	3.696	.023	.365	.042	.812
Perceived social isolation	--	--	-278**	-4.996	--	--	.574**	11.353
Religiosity x Meaning in Life (Centered Mean)	--	--	--	--	-.205**	-3.968	-.104[+]	-1.947
F (df1, df2)	8.690 (4, 267)		12.567 (5, 266)		3.785 (5,266)		26.154(6,265)	
Adjusted R^2	.102		.176		.049		.358	
[+]p< .1, *p<.05, **p<.01								

In order to test the moderating effect of religiosity on subjective loneliness through its enhancement of meaning in life, an interaction term of religiosity by meaning in life was created. Before creating the interaction term, we transformed the predictor of meaning in life into centered scores in purpose of reducing multicollinearity and facilitating interpretation (Aiken & West, 1991). In Model 5c, the interaction term was significantly predictive of subjective loneliness, b= -

.205, p< .01, in which the negative sign of the regression coefficient denotes that religiosity had an regulating effect on the negative function of meaning in life in subjective loneliness. In Model 5d, the interaction effect of religiosity by meaning in life was marginally significantly held after adding perceived social isolation, b= -.104, p=.053, while the later still showed a robustly positive effect on subjective loneliness, b= .574, p< .01.

Figure 2 displays the interaction effect of meaning in life by high and low religiosity, in which participants were also categorized into high and low meaning in life by the mean score. As shown, the regression slope between the relation of meaning in life and subjective loneliness comes to steeper for those participants who were low in religiosity, and regression slope for those who are more religious turns out to be flatter. As a result, being as a moderator religiosity has something to do in regulating the relation between meaningful life and sense of loneliness.
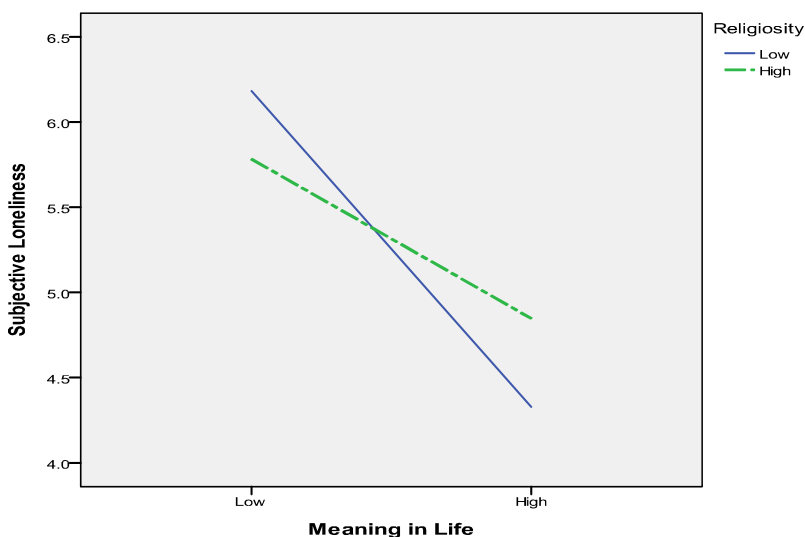

Figure 2. Simple slopes depicting the interaction of meaning in life by high and low religiosity on subjective loneliness.

Discussion

The present study offers corroboration to attest the deleterious effects of different forms of social isolation on human health outcomes. It is true that meaningful existence and health functioning of humanity are substantially bolstered in a healthy framework of interpersonal relationships, which tallies with the thesis of Baumeister and Leary (1995) that the need to belong and be accepted

is the natural drive of human beings, failing to do so may occasion negative emotional and behavioral consequences (Baumeister & Leary, 1995; Twenge et al., 2001). In this study, we adopt perceived social isolation in real life settings, which was rated by the participants to gauge their own levels of being socially rejected or excluded. We believe that this self-rating of perceived social isolation in real life experiences could give capacity to trigger one's true crux of relational evaluation, which would be crucial to capture one's direct psychological and behavioral responses to the status of social isolation (Leary, 2005).

The contributions of the current work to literature are four folds. First, in this research we attempted to discern different forms of social isolation, and explore their relations. Second, both negative emotional and behavioral consequences were investigated as the function of different forms of social isolation. Third and fourth include that both the possible mediator of meaning in life and moderator of religiosity were examined in order to see their regulating effects on different forms of social isolation, emotional and behavioral outcomes.

In this study, subjective loneliness was strongly predicted by one's perceived social isolation, which was net of participant's background characteristics. In other words, one's cognition of being socially isolated that is more important than whether the isolation itself is authentically existing or not, and it has a robust effect to bring about a sense of loneliness. Furthermore, any forms of social isolation have been verified to have detrimental impacts on emotional distress and hostility, in which both perceived social isolation and subjective loneliness were positively and significantly predictive of hostile behavior, and the late one was significantly related to more emotional distress. Therefore, hypothesis 1 is largely held.

One important observation that can be drawn from the Model 2 series is the positive effects of subjective loneliness on both emotional distress and hostility, which are more robust and proximal in comparison to the distal predictor of perceived social isolation. It can be said that the predictive power of perceived social isolation was mediated and shared by one's subjective feelings of loneliness, as we do observe that the predictive power of perceived social isolation to the two outcomes had shrunked substantially in Model 4c and Model 4g after adding subjective loneliness in the models. This is consonant with the perspective of self-referent cognitions (Harter & Whitesell, 2003) and the cognitive-affective processing system theory (Simon et al., 2007), in which subjective feelings occasioned by one's perceptions may involve how one goes to interpret and decrypt the perceived situation, which would have more direct effects on psychological and behavioral outcomes.

For meaning in life acting as a mediator between perceived social isolation and subjective loneliness, the regression result showed that meaningful existence did significantly mediate the relationship between perceived social isolation and subjective loneliness. Both Sobel test, Z= 3.534, SE= .0299, p< .001, and

regression model change statistics, F_{ch} (df1, df2)= 25.21 (1, 266), p< .01, DR^2= .011, corroborate the significant mediation, although the positive effect of percei-ved social isolation on subjective loneliness was nevertheless still concrete and its predictive power only shrank 5.7%. As meaning in life refers to feelings of self-perceived significance and worth of one's life, which may offset the detrimental effect of perceived social isolation on subjective loneliness. However, the relation-ship between perceived social isolation and meaningful existence is reciprocal, in which one needs to find out and establish his or her life meaning through a web of positive interpersonal relationships. Therefore, being socially isolated may have more harm to do with meaningful existence, which is vouched in Model 3a, showing that higher perceived social isolation resulted in lower life meaning.

In addition, hypothesis 3 for the direct negative effects of life meaning on emotional distress and hostility are partially held, in which meaningful existence did significantly predict less emotional distress, net of both perceived social isolation and subjective loneliness (Model 4c). However, it did not show any effect on hostility when adding subjective loneliness (Model 4g), in which its preventing effect on hostility may be offset by the detrimental effect of subjective loneliness. As Cacioppo et al. (2009) reckoned that loneliness would be powerful in debilitating one's capacity of self-regulation, which is the ability to change one's cognitions, emotions, as well as behavior to better meet social standards and personal goals. As a result, loneliness became a strong predictor of hostility. Future study should put more emphasis in the substantial effects of subjective loneliness on psychological and behavioral maladjustments, and other measures of meaning in life are suggested to employ in the investigations in order to assure whether subjective loneliness would overpower its negative effect on hostile behavior.

Going further, as religious involvement is an important resource to enhance one's meaningful existence, this study attempted to investigate whether a mode-rating effect of one's religiosity on dwindling the positive function of perceived social isolation on subjective loneliness. In our model (Model 5a), one's religiosity did have a beneficial effect on life meaning, and this effect was also net of perceived social isolation (Model 5b). Although the interaction term of religiosity by meaning in life was significantly predictive of one's subjective loneliness, b= -.205, p< .01, denoting that life meaning would be a more pronounced mediator for those less religious individuals in occurrence of feelings of loneliness, the interaction term was only marginally significant when adding perceived social isolation on the model (Model 5d), b= -.104, p= .053.

In fact, *figure 2* shows the moderating effect of religiosity, denoting a discer-nible difference in the slope lines of the religious and non-religious groups. However, the question of how and why religiosity may enhance one's meaningful existence has still not yet received substantial attention in literature right up to now. If life meaning that is believed to be an important personal resource to relent

the deleterious impact of perceived social isolation on subjective loneliness and is also accepted to be powerfully influential of one's emotional and behavioral health, further studies on the relationships between religiosity, meaning in life, and any forms of social isolation are much promptly needed. More than that, a more psychometrically sound and precise measure of religiosity is preferred as the religious measure in the current study is only a dichotomous indicator (1= religiosity, 0= without religiosity).

Conclusion

It has been evidenced in this study that psychological well-being in terms of emotional distress and hostility would be substantially and adversely influenced by people's magnitudes of different forms of social isolation, if relational evaluation is harmfully taxed to extent that someone considers as important and crucial enough to devastate his or her self-worth (Cacioppo et al., 2009; Cattan et al., 2005; Schnittker, 2007; Twenge et al., 2003). However, future research should extend to incorporate the objective measures of social isolation in comparison to those perceived and subjective forms of social isolation. Furthermore, the underplays of meaning in life as a mediator and religiosity as a moderator to the relationships between social isolation and health outcomes have an overt merit to be scrutinized in more detail in the future, which are difficult for a single study to utter a whole clear picture, like the current one.

More than that, research in the future should stretch to include more participants' sociodemographic characteristics in analyzing the associations between social isolation and psychological well-being, as well as their interactive effects, for structural factors such as gender, age, income, race/ethnicity, educational attainment, and income may restrain one's opportunities for social integration into meaningful groups and social roles, all of which could powerfully contribute to individual differences in the status of social isolation and loneliness (Cacioppo & Hawkley, 2005). In addition, personality characteristics should take more roles in relation to perceived and subjective social isolation and health outcomes. Future inquiries could have an attempt to research the traits of the "Big Five" such as neuroticism, shyness, non-conscientiousness, low self-esteem, insecure attachment styles, as well as pessimism in relation to extents of social isolation and their consequences on psychological and behavioral outcomes. (Cacioppo et al., 2009; Cacioppo et al., 2006; Nolen-Hoeksema & Ahrens, 2002; Savikko et al., 2005).

On the other hand, the current study contains certain limitations. First, it is a cross-sectional study with convenient sample. A longitudinal fashion with more representative community participants would augment the generalizability and convincing causal-order relationships. Second, more precise and psychometrically sound as well as different measures of social isolation, religiosity, as well as

health outcomes should be adopted in future investigations, which could emit a more actual terrain of the relationships and also have a comparative value. Finally, extension of mental health and behavioural outcomes as a function of being socially isolation should be considered, these may include hopelessness, anxiety, and camouflaging as well as anti-social behaviour.

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