INTERPERSONAL AND MOTIVATIONAL DYNAMICS OF SOCIAL SUPPORT PROVISION TOWARD DEPRESSED INDIVIDUALS

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Abstract

Depression occurs within an interpersonal context. Research has shown that depressed individuals perceive significant others as rejecting and unsupportive; however, the thoughts, feelings and behaviours of significant others are often underexamined. Guided by interpersonal theory and self-determination theory, this thesis examined the associations between significant others' basic psychological needs, helping motivations, and interpersonal behaviours toward depressed individuals in an undergraduate sample (Study 1) and a community sample (Study 2). Need satisfaction and autonomous motivation to help were generally associated with more dominant and loving support (i.e., directive and nurturing) whereas need frustration and controlled motivation to help predicted less helpful forms of support (i.e., critical and avoidant). Autonomous motivation to help further interacted with basic psychological needs to predict supportive behaviours. When autonomous motivation to help was low, frustrated providers were more critical and avoidant toward depressed individuals. Significant others who were generally satisfied with their needs, on the other hand, provided more directiveness and nurturance despite lacking autonomous motivation to help. The moderated findings differed for North American and non-North American participants in Study 2. These studies highlighted the interpersonal and motivational aspects of support provided to depressed individuals from the perspective of significant others.

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Introduction

Depression is one of the most widespread and onerous mental health conditions affecting millions of individuals and their families. Ranked as the leading global contributor to non-fatal burden, depression accounts for approximately 7.5% of all total years lived with disability worldwide (World Health Organization, 2017). Depression can be proportionally burdening on individuals' social networks as significant others incur considerable costs to support depressed individuals, sometimes to the detriment of their own mental health (van Wijngaarden, Schene, & Koeter, 2004). Despite the strained relationships between depressed individuals and their significant others, humans have a fundamental and overriding need to maintain strong and stable social bonds with each other (Baumiester & Leary, 1995; Ryan & Deci, 2000). Significant others may be more or less willing to provide support to depressed individuals depending on various dispositional, motivational, and situational factors. Guided by interpersonal theory and self-determination theory, the following research seeks to consider when, why, and how support providers help depressed individuals.

Interpersonal Theory

Depression occurs within an interpersonal context. When faced with emotional distress, depressed individuals often regulate their thoughts, emotions, and behaviours through their social interactions with close others. Research examining the interpersonal dynamics of depressed individuals has been heavily informed by James Coyne's (1976a, 1976b) interactional theory of depression. The theory suggests that depressed individuals' interpersonal behaviours, namely excessive reassurance seeking (i.e., repetitively and persistently seeking assurances of worth and love), elicit frustration and irritation among close others. They go on to avoid or outright reject depressed individuals, which serves to maintain or even exacerbate their symptoms. Synthesizing

decades of research on the interactional theory of depression, Starr and Davilla (2008) conducted a meta-analysis examining the associations between depression, excessive reassurance seeking and interpersonal rejection. Across 38 studies, there was a moderate effect between excessive reassurance seeking and concurrent depression, which was significantly stronger in studies with self-report measures compared to interviews, community samples rather than clinical samples, as well as samples with a higher percentage of female participants (Starr & Davilla, 2008). A subset of 16 studies revealed a small yet significant effect between excessive reassurance seeking and interpersonal rejection, with stronger effects in studies assessing target-reported rejection compared to informant-reported rejection as well as studies referring to romantic relationships compared to non-romantic relationships (Starr & Davilla, 2008). These findings, among others, support the interactional theory of depression and suggest that negative social interactions have pervasive and detrimental effects on depressed individuals (Barrett, & Barber, 2007; Gotlib & Lee, 1989; Hames, Hagan, & Joiner, 2013).

The prevailing maladaptive interpersonal dynamics of depression have overshadowed the adaptive effects of close relationships for depressed individuals (Marroquín, 2011). The stress buffering properties of relationships in times of adversity have been explored in great detail as well as the main effect of social support on mental health outcomes in general (Cohen, 2004). Studies have shown that depressed individuals perceive less support than non-depressed individuals (Lakey & Cronin, 2008). However, Lakey and Cronin (2008) suggest that the social support literature is fraught with theoretical and empirical inconsistencies when it comes to distinguishing perceived from enacted support and separating trait from relational influences in the main effect of support on depression. Hence, it is important to distinguish and account for the separate influences of recipient, provider, and relationship factors on social support outcomes

(Lakey & Orehek, 2011). There is a growing interest among researchers to examine the thoughts, feelings and actions of support providers in particular (Inagaki & Orehek, 2017).

One way of conceptualizing providers' supportive behaviours toward depressed individuals is through an interpersonal circumplex model (Trobst, 2000). Based on interpersonal theory (Kiesler, 1996; Leary, 1957; Wiggins, 1996), the provision of social support is represented in a circular taxonomy of two orthogonal axes or dimensions of interpersonal behaviour; dominance on the vertical axis and love on the horizontal axis. By creating a circular space that blends dominant (i.e., directive vs. avoidant) and loving (i.e., nurturant vs. critical) aspects of support, the circumplex provides a multidimensional conceptualization of providers' interpersonal behaviours compared to traditional social support models (Trobst, 2000). For depressed individuals, support would ideally involve dominant and loving components allowing for directiveness and nurturance. Although past research has examined the interpersonal correlates of social support (Amitay & Mongrain, 2007; Hamann, et al., 2008; Trobst, 2000), no study to my knowledge has explored the dominant and loving forms of support provided toward depressed individuals. In line with the interactional theory of depression, circumplex scholars have suggested that depressed individuals pull for more controlling and rejecting interpersonal behaviours from others (Horowitz et al., 1991; Kiesler, 1996). The interpersonal circumplex provides an appropriate framework for capturing the supportive context critical to the interpersonal milieu of depressed individuals.

Self-Determination Theory

In addition to the interpersonal content of support, the motivational resources of significant others can greatly influence the type of support provided to depressed individuals. To further contextualize support providers' motivation to help depressed individuals, the present

research draws on self-determination theory (SDT; Ryan & Deci, 2000; 2017). Within SDT, there are three basic psychological needs that are central to human motivation, namely, the need for autonomy (i.e., experiencing a sense of psychological agency and choice), the need for competence (i.e., experiencing a sense of effectiveness and mastery), and the need for relatedness (i.e., feeling close and connected to others). When these psychological needs are satisfied, individuals have a more integrated self-concept that is associated with personal well-being and harmonious interpersonal behaviours (Ryan & Deci, 2017). By satisfying their own psychological needs, integrated individuals are better suited to help others. Individuals who experience need frustration, on the other hand, have a more fragmented sense of self, which is linked with ill-being and antisocial behaviours (Ryan & Deci, 2017). Feeling controlled, incompetent, and estranged from others can predispose individuals to act in unhelpful ways.

The general satisfaction and frustration of psychological needs in SDT is further qualified by providers' motives for helping in specific contexts. SDT conceptualizes helping motivation along a self-determined continuum from highly autonomous to highly controlled reasons for helping (Kim, Carver, Deci, & Kasser, 2008; Kindt et al., 2015; Weinstein & Ryan, 2010). *Intrinsic motivation*, the most autonomous and internalized motive, involves deriving inherent satisfaction and enjoyment from the act of helping. *Identified motivation*, while also autonomous in nature, is a value driven motive that consists of helping because it is personally important for one to do so or it reflects the adopted values of one's group or society. As for the controlled end of the continuum, *introjected motivation* involves feeling internally pressured to help out of guilt or for self-approval. Finally, the most controlled motive is referred to as *external motivation*, where behaviour is driven by external forces of rewards and punishments, when helping involves

complying with or avoiding criticism from others. The more autonomous the motive is, the more conducive it is to need satisfaction and adaptive social functioning (Ryan & Deci, 2017).

Past research has shown that autonomous motivation to help is associated with greater psychological benefits for both providers and recipients across various relational contexts, from support in close relationships (Blais, Sabourin, Boucher, & Vallerand, 1990; Deci, La Guardia, Moller, Scheiner, & Ryan, 2006; Hadden, Rodriguez, Knee, & Porter, 2015; Knee, Patrick, Vietor, Nanayakkara, & Neighbors, 2002; La Guardia & Patrick, 2008; Patrick, Knee, Canevello, & Lonsbary, 2007) to prosocial behaviours toward strangers (Gagné, 2003; Hui & Kogan, 2018; Nelson et al., 2015; Weinstein & Ryan, 2010). There have also been clinical applications of helping motivation and need satisfaction among caregivers of individuals with cancer (Kim et al., 2008) and chronic pain (Kindt et al., 2015). Within the context of major depression, clinical trials have shown that perceived therapist autonomy support predicted greater patient motivation and need satisfaction, which in turn, was associated with less depressive severity across treatment conditions (Quitasol, Fournier, Di Domenico, Bagby, & Quilty, 2018; Zuroff et al., 2007; Zuroff, Koestner, Moskowitz, McBride, & Bagby, 2012). Based on the existing literature, helping motivation and basic psychological needs could provide a more nuanced understanding of the interpersonal dynamics between depressed individuals and their significant others.

Autonomous motivation has been previously situated within the dominant and loving quadrant of the interpersonal circumplex (Hmel & Pincus, 2002), which captures both the communal and agentic aspects of acting in a self-determined manner. The interpersonal blend of agency and communion signifies an integrative capacity of expressing love to others while still exercising dominance. Similar to the agentic and communal dimensions of interpersonal behaviours, the needs for autonomy and relatedness in SDT are intricately connected with one

another in the context of close relationships (Ryan & Deci, 2017). Although personal and relational needs can be interpersonally antagonistic with each other (e.g., unmitigated forms of agency and communion), high-quality relationships strike the balance of facilitating close and enduring social connections between individuals without comprising their autonomous functioning (Hadden & Girme, 2020). Helpful support provided to depressed individuals may involve satisfying the need for relatedness through communal behaviours as well as fulfilling the need for autonomy through agentic behaviours.

In a recent theoretical development in basic psychological needs, a circumplex model has been proposed to capture how socializing figures support or thwart individuals' basic psychological needs (Vansteenkiste, Ryan, & Soenens, 2020). Akin to the dominant and loving dimensions of the interpersonal circle, the SDT informed circumplex model consist of directiveness on the vertical axis and need support on the horizonal axis. Autonomy support (i.e., low directiveness, need support) conveys a participative and attuning style of understanding the other whereas control (i.e., high directiveness, need thwarting) encompasses the demanding and domineering elements of pressuring the other. Continuing along the circumplex, a structured style (i.e., high directiveness, need support) involves clarifying and guiding the other compared to a chaotic style (i.e., low directiveness, need thwarting) of abandoning and deferring to other. While the following circumplex model has been applied to the supportive practices of teachers (Aelterman et al. 2019, Vermote et al., 2020), athletic coaches (Delrue et al., 2019) and nurses (Duprez et al., 2020), further research is needed to replicate the effects of directiveness and need support in other relational contexts (Vansteenkiste et al., 2020). Depressed individuals may be particularly sensitive to directiveness and need support from significant others. Self-determined

and interpersonal circumplex models can provide unique insights into the motivational and interpersonal aspects of support provided to depressed individuals.

Overview of Research

The current literature on the interpersonal dynamics of depression is bleak. Decades of research on the interactional theory of depression suggest that depressed individuals burden their significant others with excessive attempts of seeking reassurance, leading to rejection. There is a similar narrative around the lack of social support perceived by depressed individuals. When discussing the social lives of depressed individuals, however, the perspectives of significant others are often overlooked. Although interpersonal circumplex and self-determined theories of support have highlighted key social and motivational factors influencing the provision of support, the roles of these influences on the support provided to depressed individuals have not been explored. In the following research, we examined the associations between support providers' basic psychological needs, helping motivations, and interpersonal behaviours toward depressed individuals.

The first set of hypotheses pertain to the role of basic psychological needs on supportive behaviours. I predict that providers' general need frustration will be negatively related to dominant and loving support toward depressed individuals whereas general need satisfaction will be positively related to supportive behaviours. Frustrated providers who feel controlled, incompetent, and estranged from others in their lives are more likely to be avoidant and critical of depressed individuals. Significant others who have their basic psychological needs satisfied, on the other hand, have the integrative capacity to provide the directiveness and nurturance depressed individuals need. In addition to need fulfilment more generally, the extent to which

significant others satisfy their basic psychological needs within their relationship to depressed target should similarly predict more helpful forms of support (i.e., directive and nurturing).

Mirroring the pattern of need frustration and satisfaction on supportive behaviours, I predict that providers' autonomous motivation to help will be associated with more dominant and loving support toward depressed individuals whereas controlled motivation to help will be related to less dominant and loving behaviours. The most helpful support occurs when significant others inherently want to help rather than feel pressured to help depressed individuals. The intrinsic and identified subscales of autonomous motivation will be similarly associated with more directive and nurturing forms support whereas the introjected and external subscales of controlled motivation will be related to more critical and avoidant behaviours toward depressed individuals.

I also hypothesize that basic psychological needs and helping motivations will interact to predict the support provided to depressed individuals. More specifically, autonomous motivation to help will moderate the effects of general need frustration and satisfaction on supportive behaviours. When autonomous motivation to help is high, significant others will provide more dominant and loving support independent of whether their needs are frustrated or satisfied. Helping depressed individuals for more autonomous reasons overrides the influence of general need fulfillment to consistently predict more helpful support. However, when autonomous motivation to help is low, providers who are frustrated with their needs will provide less helpful support whereas providers who have their needs satisfied will provide more helpful support. In the absence of autonomous motivation, the general frustration and satisfaction of basic psychological needs matter. That is, individuals who are frustrated with their needs are more likely to be critical and avoidant toward depressed targets when they lack autonomous

motivation to help while those who generally satisfied with their needs have the integrative capacity to continue providing helpful support. Two studies were conducted to test these predictions in an undergraduate (Study 1) and community sample (Study 2).

Study 1

Participants

In Study 1, 349 undergraduate students were recruited from a Canadian university through an undergraduate participant pool. The primary inclusion criterion was having a significant other (i.e., family member, romantic partner, friend) who was currently depressed. Taking into consideration Schönbrodt and Perugini (2013) recommendation of sample sizes approximating $N = 250$ for stable correlation estimates, we oversampled to account for anticipated data exclusions. We omitted participants who responded "No" to the eligibility criteria for the study of having a depressed significant other (n = 5), who were identified as random responders with the Conscientious Responders Scale (CRS; Marjanovic, Struthers, Cribbie & Greenglass, 2012; n = 11), who self-selected to not include their data in the study (n = 6), or had open-ended responses suggesting ineligible or disingenuous responding based on a review by our research team (n = 2). Any incomplete responses were also omitted (n = 13). The final sample for Study 1 was $N = 312$ (71.50% female) with a mean age of 20.13 years old ($SD = 4.29$). In terms of racial diversity, participants identified themselves as White (27.24%), South Asian (23.72%), Middle Eastern (16.35%), Black (12.50%), South East Asian (5.77%), Latin American (3.53%), South American (0.96%), and Mixed (4.49%). The mean score on the short-form Centre for Epidemiological Studies Depression Scale (CESD-10; Andresen, Malmgren, Carter, & Patrick, 1994) was 11.72 (SD = 6.07), where a cut off score of 10 suggests clinically significant levels of depressive symptoms.

Participants also reported on the demographic characteristics of the depressed target. Depressed targets were on average 24.85 years old (*SD* = 10.96). 61.28% of depressed targets were female. They consisted of friends (60.90%), family (31.41%), romantic partners (5.13%), and others (2.56%). With an average relationship length of 9.42 years (SD = 7.13), participants reported interacting with depressed targets daily (40.71%), a few times a week (33.65%), once a week (8.33%), every other week (6.41%), once a month (6.09%), less than once a month (3.85%), and not at all (.96%). To gauge the severity of targets' depression, participants responded to a face valid item, "How depressed is this person?" rated from 1 (*not at all*) to 7 (*very much so*), with an average score of 4.57 (*SD* = 1.13), indicating that participants perceived their targets to be fairly depressed. Additionally, a scale comprised of 8 criteria[1] for Major Depressive Disorder from the Diagnostic and Statistical Manual of Mental Disorders-5th Edition (DSM-5; American Psychiatric Association, 2013) was provided to gauge targets' diagnostic symptoms (see Appendix A). Participants reported that targets met an average of 5.11 (SD = 1.95) out of 8 criteria, which is sufficient to meet the DSM-5 diagnostic criteria for major depression.

Procedure

Participants were recruited to participate through an advertisement posted on the undergraduate research participant pool. In order to participate in the study, participants had to confirm they have a significant other (i.e., family member, romantic partner, friend) who was currently depressed based on a descriptive summary of DSM-5 criteria for Major Depressive Disorder (see Appendix B). They were then provided a link to Qualtrics, an online survey

[1]The suicidality criterion for Major Depressive Disorder in the DSM-5 was omitted to comply with York University's Research Ethics Board (e2019-075).

platform, to take part in the study. After providing their informed consent and demographic information, participants responded to items about their relationship to the depressed target. A battery of questionnaires was administered to participants measuring the constructs relevant to the study's hypotheses. Participants were then debriefed and credited at the end of the study.

Measures

General Need Satisfaction and Frustration. We measured general need satisfaction and need frustration with the Basic Psychological Need Satisfaction and Frustration Scale. (BPNSFS; Chen et al., 2015). Participants responded to 12 items for general need satisfaction (α = .88) and 12 items for general need frustration (α =.87) on a 7-point scale rated from 1 (*not true at all*) to 7 (*completely true*). General need satisfaction was made up of 4 items for autonomy (α = .69; e.g., "I feel a sense of choice and freedom in the things I undertake"), 4 items for competence (α = .89; e.g., "I feel confident that I can do things well"), and 4 items for relatedness (α = .85; e.g., "I feel close and connected with other people who are important to me"). Similarly, general need frustration consisted of 4 items for autonomy (α = .76; e.g., "Most of the things I do feel like I have to"), 4 items for competence (α = .84; e.g., "I have serious doubts about whether I can do things well") and 4 items for relatedness (α = .78; e.g., "I feel the relationships I have are just superficial").

Depression. Participants' depression was assessed with the short-form Centre for Epidemiological Studies Depression Scale (CESD-10; Andresen et al., 1994). The CESD-10 is a self report measure of depression, which asks participants about the frequency of depressive symptoms during the past week (e.g. "I felt depressed"). Participants rated their agreement with 10 statements (α = .83) from 0 (*rarely or none of the time*) to 3 (*all of the time*). Relative to the

full 20 item CESD (Radloff, 1977), the CESD-10 demonstrates strong psychometric properties (Anderson et al., 2013; Björgvinsson, et al., 2013).

Motivation to Help. We assessed participants' motivation to help depressed targets with an adapted version (Kindt et al., 2015) of the Motivation to Help Scale (MTHS; Weinstein & Ryan, 2010). Compared to the original MTHS, the adapted version of the MTHS demonstrated stronger psychometric properties and consisted of additional subscales to reflect the dimensional nature of motivation in SDT (Kindt et al., 2015). The MTHS consisted of 10 items (α = .89) for autonomous motivation to help and 10 items (α = .81) for controlled motivation to help. In terms of subscales, autonomous motivation to help was made up of 5 items for intrinsic motivation (α = .88; e.g., "I help and/or care for this person because I like it") and 5 items for identified motivation (α = .73; e.g., "I help and/or care for this person because I personally valued doing so"). Controlled motivation to help consisted of 5 items for introjected motivation (α = .77; e.g. "I help and/or care for this person because I would feel guilty if I didn't") and 5 items for external motivation (α = .72; e.g., "I help and/or care for this person because this person would get mad at me if I didn't"). Participant indicated their agreement with the 20 items on a 7-point scale rated from 1 (*not true at all*) to 7 (*completely true*).

Need Satisfaction with Target. The extent to which participants had their basic psychological needs satisfied in their relationship with the depressed targets was measured with the Basic Psychological Need Satisfaction Scale-Relationship Domain (BPNS-R; La Guardia, Ryan, Couchman, & Deci, 2000). Participant indicated their agreement with 9 items (α = .84) on a 7-point scale rated from 1 (*not at all true*) to 7 (*very true*). Participants' need satisfaction with targets was assessed with 3 items for autonomy (α = .72; e.g., "when I am with this person, I have a say in what happens and I can voice my opinion"), 3 items for competence (α = .60; e.g.,

"when I am with this person, I feel very capable and effective"), and 3 items for relatedness (α = .70; e.g., "when I am with this person, I feel a lot of closeness and intimacy").

Supportive Behaviours. Participants' supportive behaviours towards depressed targets were measured with the Support Actions Scale Circumplex (SAS-C; Trobst, 2000). The SAS-C consisted of 64 items, 8 for each octant of the interpersonal circumplex: PA/Directive (α = .76; e.g., "I would tell them to let me help with their problem"), BC/Arrogant (α = .77; e.g., "I would advise them to pay attention to what I have to say"), DE/Critical (α = .78; e.g., "I would tell them that nobody likes a crybaby"), FG/Distancing (α = .79; e.g., "I would try to stay at arm's length"), HI/Avoidant (α = .70; e.g., "I would shy away from making suggestions"), JK/Deferential (α = .62; e.g., "I would not give my opinions unless asked"), LM/Nurturant (α = .76; e.g., "I would give them a hug"), and NO/Engaging (α = .83; e.g., "I would try to involve them in social activities"). The SAS-C octants were standardized and weighted to create variables for dominant and loving support as outlined by Trobst (2000). Participants indicated their supportive behaviours on a 7-point scale rated from 1 (*I definitely wouldn't do this*) to 7 (*I definitely would do this*).

Results and Discussion

Preliminary Analyses

The descriptive statistics and zero-order correlations between basic psychological needs, helping motivations, and supportive behaviours are presented in Table 1. The effects of demographic variables on the primary outcomes were also examined. Female providers were significantly more likely to provide loving support to depressed targets than male providers (β = .30, *SE* = .11, t = 5.41, $p < .001$, 95% CI [.39, .84]). Additionally, providers' depression was negatively associated with dominant support (β = -.12, *SE* = .08, t = -2.06, p = .040, 95% CI

[-.34, -.01]). Despite these effects, controlling for gender and depression in the main analyses of basic psychological needs and helping motivations on supportive behaviours did not significantly alter the results.

It was hypothesized that need frustration would predict unhelpful supportive behaviours (i.e., critical and avoidant) toward depressed individuals whereas need satisfaction would predict helpful forms of support (i.e., directive and nurturing). Figure 1 presents a radar chart plotting general need frustration, general need satisfaction, and need satisfaction with the target on the dominant and loving dimensions of the SAS-C. General need frustration was significantly associated with less dominant support (β = -.15 *SE*=.05, *t*=-2.62, *p* = .009, 95% CI [-.21, -.03]) and was non-significantly related to loving support (β = -.09, *SE*=.05 *t*=-1.70, *p* = .091, 95% CI [-.18, .01]). Frustrated significant others were more likely to be avoidant of depressed individuals. General need satisfaction, on the other hand, was positively associated with dominant (β = .25, *SE* = .05, *t* = 4.47, *p* < .001, 95% CI [.14, .36]) and loving support (β = .16, *SE*=.06, *t*=2.752, *p* = .006, 95% CI [.05, .28]). Significant others who were generally autonomous, competent and connected with others in their lives were more likely to provide directiveness and nurturance to depressed individuals. Additionally, higher need satisfaction with the target was associated with more dominant (β = .38, *SE*=.04, *t*=7.12, *p* < .001, 95% CI [.22, .39]) and loving (β = .36, *SE*=.05, t= 6.53, *p* < .001, 95% CI [.21, .39]) behaviours toward targets. Similar to general need satisfaction, providers who felt autonomous, competent and connected with the depressed target were more likely to provide helpful support.

As for the relations between helping motivations and supportive behaviours, it was hypothesized that helping for autonomous (i.e. wanting to help) rather than controlled (i.e., pressured to help) reasons would predict more helpful forms of support toward depressed

individuals. Autonomous motivation to help was positively associated with both dominant (β = .40, *SE*=.04, *t*= 7.44, *p* < .001, 95% CI [.20, .35]) and loving support (β = .36, *SE*=.04, *t*= 6.50, *p* < .001, 95% CI [.18, .34]). Significant others provided more directive and nurturing forms of support when they helped depressed targets for volitional reasons. Controlled motivation to help was negatively associated with loving support (β = -.14, *SE*=.05, *t*=-2.39, *p* = .018, 95% CI [-.22, -.02]) and non-significantly associated with dominant support (β = .06, *SE*=.05, *t*=.98, *p* = .327, 95% CI [-.05, .14]). Significant others who felt pressured to help were more critical toward depressed individuals.

The subscales for autonomous (i.e., intrinsic and identified) and controlled (i.e., introjected and external) motivation to help were examined next. See Figure 2 for a radar chart plotting the motivation to help subscales on the SAS-C. Intrinsic motivation predicted more dominant (β =.39, *SE*=.03, *t*=7.26, *p* < .001, 95% CI [.17, .29]) and loving (β =.33, *SE*=.03, *t*=6.00, *p* < .001, 95% CI [.14, .27]) support. Similarly, identified motivation was positively associated with both dominant (β =.35, *SE*=.04, *t*=6.33, *p* < .001, 95% CI[.18, .33]) and loving (β =.33, *SE*=.04, *t*=6.07, *p* < .001, 95% CI [.18, .34]) support. These findings indicate that significant others who derived inherent satisfaction from helping or saw the moral value of helping were more likely to provide helpful support to depressed individuals. The controlled motivation subscales, on the other hand produced divergent effects. Introjected motivation was positively associated with dominant support (β =.18, *SE*=.04, *t*=3.20, *p* = .002, 95% CI [.05,.19]) and non-significantly associated with loving support (β =-.01, *SE*=.04, *t*=-.12, *p* = .910, 95% CI [-.08, .07]), which was inconsistent with the original prediction made for the controlled subscale. This finding instead suggests that individuals who were internally pressured to help out of guilt or for self-approval provided more directive support to depressed individuals. External

motivation, on the other hand, was negatively associated with loving support (β =-.25, *SE*=.05, *t*=-4.52, $p < .001$, 95% CI [-.30,-.12]) and marginally associated with less dominant support (β =-.11, *SE*=.05, *t*=-1.97, $p = .050$, 95% CI [-.18, .00]). Significant others were more critical and avoidant of depressed individuals when they felt externally pressured to help.

Moderation Analyses

In addition to the effects of basic psychological needs and helping motivations on supportive behaviours respectively, it was hypothesized that needs and motivations would interact to predict loving and dominant support toward depressed individuals. Hayes (2012) PROCESS and bootstrapping procedure (Model 1) was used to test the moderating effect of autonomous motivation to help on the association between general need frustration and loving support (see Table 2). Autonomous motivation and general need frustration were mean centred prior to analysis. There was a significant positive interaction between autonomous motivation and general need frustration on loving support ($b = .09$, $SE = .04$, $t = 2.39$, $p = .017$, 95% CI [.02, .16]). Simple slopes tests were conducted to further probe the interaction (see Figure 3). For participants higher on autonomous motivation (+1 SD), general need frustration did not significantly alter the degree of loving support provided to depressed targets ($b = .02$, $SE = .06$, $t = .30$, $p = .767$, 95% CI [-.11, .15]). When providers enjoyed or valued helping their depressed significant other, they provided loving support independent of whether their basic psychological needs were frustrated or not. However, for participants lower on autonomous motivation (-1 SD), there was a significant negative relation between general need frustration and loving support (b =-.21, $SE = .07$, $t = -3.02$, $p = .003$, 95% CI [-.34, -.07]). This suggests that frustrated significant others were more critical of depressed targets when autonomous motivation was low.

The same prediction was made for the moderating role of autonomous motivation on the association between general need frustration and dominant support. Autonomous motivation interacted with general need frustration in predicting dominant support (b = .09, SE = .03, t = 2.54, p = .012, 95% CI [.02, .15]). The main effects and interaction terms are presented in Table 3. When participants were more autonomously motivated to help, there was a non-significant association between general need frustration and dominant support (b = -.03, SE = .06, t = -.50, p =.619, 95% CI [-.15, .09]), compared to a significant negative association between general need frustration and dominant support (b= -.25, SE = .062, t = -3.98, p < .001, 95% CI [-.37, -.13) when participants were low on autonomous motivation. Similar to the provision of loving support, significant others provided more directiveness when they helped for volitional reasons whether their needs were frustrated or not; however, frustrated significant others were more avoidant of depressed individuals when they lacked autonomous motivation to help.

To further distinguish general need frustration from general need satisfaction, it was also hypothesized that autonomous motivation to help would moderate the associations between general need satisfaction and supportive behaviours[2]. In the opposite pattern of general need frustration, there were significant negative interactions between autonomous motivation and general need satisfaction on loving support (b= -.15, SE = .05, t = -3.29, p = .001, 95% CI [-.25, -.06]) and dominant support (b = -.11, SE = .04, t = -2.48, p = .014, 95% CI [-.19, -.02]). The main effects and interaction terms on loving and dominant support are presented in Tables 4 and

[2] Although the interactions between autonomous motivation and general need satisfaction on supportive behaviours were hypothesized and highlighted here, the interactions between autonomous motivation and need satisfaction with the target were also explored. However, autonomous motivation to help did not significantly moderate the relations between need satisfaction with the target and supportive behaviours. This suggests that the motivational context of helping depressed targets interacts with the extent that significant others' needs are generally satisfied or frustrated in their lives to predict support rather than need satisfaction specific to their relationship with the depressed target.

5. Figure 4 illustrates the simple slopes of participants' general need satisfaction on loving support at different levels of autonomous motivation. For participants with higher levels of autonomous motivation, there were non-significant associations between general need satisfaction and loving (b = -.11, SE = .08, t = -1.30, p = .20, 95% CI [-.26, .05]) and dominant (b = .04, SE = .07, t = .56, p = .58, 95% CI [-.11, .19]) support respectively. Similar to the previous moderating effects, significant others were more directive and nurturing toward depressed individuals when they helped for autonomous reasons, which remained the case whether their needs were satisfied or not. When participants were less autonomously motivated to help, however, there was a significant positive association between general need satisfaction and both loving (b = .28, SE = .08, t = 3.37, p< .001, 95% CI [.12, .44]) and dominant (b= .31, SE = .08, t = 4.04, p < .001, 95% CI [.16, .46]) support. Unlike frustrated significant others, individuals who were satisfied with their needs provided more directiveness and nurturance to depressed targets despite lacking autonomous motivation to help.

Study 1 provided preliminary support for the hypothesized effects of providers' basic psychological needs and helping motivations on the supportive behaviours provided to depressed targets. General need frustration was associated with unhelpful support (i.e., avoidant) whereas general need satisfaction was associated with more helpful support (i.e., directive and nurturing). Need satisfaction with the target was also associated with more dominant and loving forms of support. These findings highlight the predictive value of providers' basic psychological needs on the type of support provided to their depressed significant other.

Supportive behaviours toward depressed targets were also influenced by providers' reasons for helping. Autonomous motivation to help was positively associated with both dominant and loving forms of support whereas controlled motivation to help was negatively

associated with loving support only. While the intrinsic and identified subscales of autonomous motivation consistently predicted directive and nurturing forms of support to depressed targets, the introjected and external subscales of controlled motivation provided a more nuanced pattern. Introjected motivation was associated with more directive support whereas external motivation was associated with being more critical and avoidant toward depressed targets. The various motivations for helping depressed individuals differentially predicted the type of support provided.

Autonomous motivation to help further moderated the associations between general need frustration and satisfaction on supportive behaviours. Individuals provided helpful support to depressed individuals when they were autonomously motivated, whether their needs were generally frustrated or satisfied. When autonomous motivation to help was lacking, however, general need frustration and satisfaction mattered. When autonomous motivation to help was low, frustrated significant others provided less helpful support whereas those who were generally satisfied with their needs were more helpful. These moderated results underscore the effects of providers' basic psychological needs on supportive behaviours depending on their motivation to help. In Study 2, I sought to systematically replicate these findings in a community sample.

Study 2

Participants

We recruited community members from "Prolific Academic", which is a UK based crowdsourcing platform. The same sample size calculations and data exclusion procedures from Study 1 were used. 350 individuals completed an initial screener to confirm their relationship with an individual who was currently depressed. Of those, 303 took part in the actual study. 7 participants were excluded for following reasons: responding "No" to the eligibility criteria for

the study after the screener (n = 1), selecting to not include their data in the study (n = 1), and open-ended responses suggesting ineligible or disingenuous responding based on a review by our research team (n = 5). The final sample consisted of 296 adults (183 females). Participants had an average age of 31.81 years old (SD = 11.39). We recruited participants from predominantly English-speaking countries: United Kingdom (59.12%), United States (18.24%), Canada (14.53%), as well as other countries (8.11%). Participants' ethnic backgrounds varied from White (78.04%), Black (5.41%), South Asian (4.39%), East Asian (3.72%), South East Asian (2.36%), Latin American (1.01%), Middle Eastern (.68%), and Mixed (4.39%). Participants' employment status ranged from being employed full-time (46.60%), employed part-time (19.93%), students (11.82%), students with part time job (6.08%), unemployed (10.47%), retired (2.36%), and at home caregivers (2.36%). The highest level of education participants achieved ranged from a doctoral degree (2.70%), master's degree (13.51%), college diploma or associate degree (11.15%), in progress college education (19.93%), high school (18.58%), and less than high school (.34 %). In terms of relationship status, participants were single (34.46%), in a casual relationship (2.70%), in a committed relationship (3.72%), common law (3.72%), married (30.74%), separated (1.01%), divorced (2.70%), and widowed (0.34%). The mean score on the CESD-10 (Andresen et al., 1994) was 11.03 (SD = 6.78), where a cut off score of 10 suggests clinically significant levels of depressive symptoms.

Participants also reported on the demographic characteristics of the depressed target. Depressed targets were on average 34.67 years old (SD = 14.97). 57.78% of the depressed targets were female. They primarily consisted of friends (46.96%), family members (30.41%), romantic partners (18.31%), and others (4.05%). The average relationship length between participants and targets was 10.85 years (SD = 14.97). Participants reported interacting with

depressed targets daily (43.9%), a few times a week (33.45%), once a week (8.45%), every other week (6.76%), once a month (3.72%), less than once a month (3.38%), and not at all (.34%). Participants reported that targets met an average of 5.20 (SD = 1.76) out of 8 DSM-5 criteria for depression and responded to the item, "How depressed is this person?" with a mean of 4.79 (SD = .923) These descriptive items generally suggest that participants perceived targets as moderately depressed.

Procedure

Participants were initially screened on Prolific for whether they have a significant other (i.e., family member, romantic partner, friend) who was currently depressed based on the same descriptive summary of DSM-5 criteria for Major Depressive Disorder (APA, 2013) from Study 1. Those who confirmed their eligibility were then provided a link to a Qualtrics survey to take part in the study. After providing their informed consent and demographic information, participants responded to items about their relationship to the depressed target. A battery of questionnaires was administered to participants measuring the constructs relevant to the study's hypotheses. Participants were debriefed and compensated £2.27 at the end of the study.

Measures

General Need Satisfaction and Frustration. We measured general need satisfaction and need frustration with the Basic Psychological Need Satisfaction and Frustration Scale. (BPNSFS; Chen et al., 2015). Participants responded to 12 items for general need satisfaction (α = .92) and 12 items for general need frustration (α =.90) on a 7-point scale rated from 1 (*not true at all*) to 7 (*completely true*). General need satisfaction was made up of 4 items for autonomy (α = .82; e.g., "I feel a sense of choice and freedom in the things I undertake"), 4 items for competence (α = .92; e.g., "I feel confident that I can do things well"), and 4 items for

relatedness (α = .87; e.g., “I feel close and connected with other people who are important to me”). Similarly, general need frustration consisted of 4 items for autonomy (α = .82; e.g., “Most of the things I do feel like I have to”), 4 items for competence (α = .90; e.g., “I have serious doubts about whether I can do things well”) and 4 items for relatedness (α = .83; e.g., “I feel the relationships I have are just superficial”).

Depression. Participants’ depression was assessed with the short-form Centre for Epidemiological Studies Depression Scale (CESD-10; Andresen et al., 1994). The CESD-10 is a self-report measure of depression, which asks participants about the frequency of depressive symptoms during the past week (e.g. “I felt depressed”). Participants rated their agreement with 10 statements (α = .88) from 0 (*rarely or none of the time*) to 3 (*all of the time*). Relative to the original 20 item CESD (Radloff, 1977), the CESD-10 demonstrates strong psychometric properties (Anderson et al., 2013; Björgvinsson, et al., 2013).

Motivation to Help. We assessed participants’ motivation to help depressed targets with the Motivation to Help Scale (MTHS; Kindt et al., 2015). Compared to the original MTHS, the adapted version of the MTHS demonstrated stronger psychometric properties and consisted of additional subscales to reflect the dimensional nature of motivation in SDT (Kindt et al., 2015). The MTHS consisted of 10 items (α = .87) for autonomous motivation to help and 10 items (α = .67) for controlled motivation to help. In terms of subscales, autonomous motivation to help was made up of 5 items for intrinsic motivation (α = .91; e.g., “I help and/or care for this person because I like it”) and 5 items for identified motivation (α = .69; e.g., “I help and/or care for this person because I personally valued doing so”). Controlled motivation to help consisted of 5 items for introjected motivation (α = .61; e.g. “I help and/or care for this person because I would feel guilty if I didn’t”) and 5 items for external motivation (α = .54; e.g., “I help and/or care for

this person because this person would get mad at me if I didn't"). Participant indicated their agreement with the 20 items on a 7-point scale rated from 1 (*not true at all*) to 7 (*completely true*).

Need Satisfaction with Target. The extent to which participants had their basic psychological needs satisfied in their relationship with the depressed targets was measured with the Basic Psychological Need Satisfaction Scale-Relationship Domain (BPNS-R; La Guardia, Ryan, Couchman, & Deci, 2000). Participant indicated their agreement with 9 items (α = .89) on a 7-point scale rated from 1 (*not at all true*) to 7 (*very true*). Participants' need satisfaction with targets was assessed with 3 items for autonomy (α = .79; e.g., "when I am with this person, I have a say in what happens and I can voice my opinion"), 3 items for competence (α = .78; e.g., "when I am with this person, I feel very capable and effective"), and 3 items for relatedness (α = .78; e.g., "when I am with this person, I feel a lot of closeness and intimacy").

Supportive Behaviours. Participants' supportive behaviours towards depressed targets were measured with the Support Actions Scale Circumplex (SAS-C; Trobst, 2000). The SAS-C consists of 64 items, 8 for each octant of the interpersonal circumplex: PA/Directive (α = .79; e.g., "I would tell them to let me help with their problem"), BC/Arrogant (α = .79; e.g., "I would advise them to pay attention to what I have to say"), DE/Critical (α = .80; e.g., "I would tell them that nobody likes a crybaby"), FG/Distancing (α = .80; e.g., "I would try to stay at arm's length"), HI/Avoidant (α = .82; e.g., "I would shy away from making suggestions"), JK/Deferential (α = .70; e.g., "I would not give my opinions unless asked"), LM/Nurturant (α = .77; e.g., "I would give them a hug"), and NO/Engaging (α = .83; e.g., "I would try to involve them in social activities"). The SAS-C octants were standardized and weighted to create variables for dominant and loving support as outlined by Trobst (2000). Participants indicated

their supportive behaviours on a 7-point scale rated from 1 (*I definitely wouldn't do this*) to 7 (*I definitely would do this*).

Results and Discussion

Preliminary Analyses

The descriptive statistics and zero-order correlations between basic psychological needs, helping motivations, and supportive behaviours are presented in Table 6. The effects of demographic variables on the primary outcomes were also examined. Female providers were significantly more likely to provide loving support to depressed targets than male providers (β = .19, *SE* = .11, *t* = 3.29, *p* = .001, 95% CI [.15, .58]). Providers' age was positively associated with loving support (β = -.12, *SE* = .00, *t* = 1.98, *p* = .049, 95% CI [.00, .02]). Despite these effects, controlling for gender and age in the main analyses of basic psychological needs and helping motivations on supportive behaviours did not significantly alter the results.

The hypotheses surrounding basic psychological needs and supportive behaviours were examined first. Figure 5 presents a radar chart plotting general need frustration, general need satisfaction and need satisfaction with the target on the dominant and loving dimensions of the SAS-C. General need frustration was significantly associated with less dominant (β = -.17, *SE*=.05, *t*=-2.94, *p* = .004, 95% CI [-.23, -.05]) and loving (β = -.21, *SE*=.04, *t*=-3.64, *p* < .001, 95% CI [-.25, -.07]) support. When significant others felt generally frustrated with their psychological needs, they were more avoidant and critical of depressed individuals. General need satisfaction, on the other hand, was positively associated with dominant (β = .20, *SE*=.05, *t*=3.41, *p* = .001, 95% CI [.07, .28]) and loving support (β = .20, *SE*=.05, *t*=3.45, *p* = .001, 95% CI [.07, .27]). Significant others who were generally satisfied with their needs were more likely to provide directiveness and nurturance to depressed individuals. Higher need satisfaction with

the target was also associated with more dominant (β = .31, *SE*=.04, *t*=5.47, *p* < .001, 95% CI [.15, .32]) and loving (β = .31, *SE*=.04, *t*=5.59, *p* < .001, 95% CI [.15, .31]) behaviours toward targets. Similar to feeling generally satisfied with their lives, the fulfillment of significant others' needs for autonomy, competence and relatedness within their relationship to depressed targets predicted more helpful support.

The hypothesized relations between helping motivations and supportive behaviours were examined next. As predicted, autonomous motivation was positively associated with both dominant (β = .44, *SE*=.05, *t*= 8.33, *p* < .001, 95% CI [.29, .47]) and loving (β = .46, *SE*=.04, *t*= 8.67, *p* < .001, 95% CI [.29, .46]) support. Significant others who inherently wanted to help depressed individuals provided more directiveness and nurturance. As for feeling pressured to help, controlled motivation was positively associated with dominant support (β = .18, *SE*=.07, *t*=3.10, *p* <.001, 95% CI [.07, .33]) and non-significantly associated with loving support (β = .01, *SE*=.06, *t*=.14, *p* = .889, 95% CI [-.12, .13]). Although it was predicted that significant others who feel pressured to help depressed individuals would provide unhelpful forms of support, the following inconsistent finding could be clarified by examining the subscales of controlled motivation.

The subscales for autonomous (i.e., intrinsic and identified) and controlled (i.e., introjected and external) motivation to help were examined next. See Figure 6 for a radar chart plotting the helping motivation subscales on the SAS-C. Intrinsic motivation predicted more dominant (β =.35, *SE*=.04, *t*=6.27, *p* < .001, 95% CI [.16, .30]) and loving (β =.35, *SE*=.04, *t*=6.39, *p* < .001, 95% CI [.16, .30]) support. Significant others who enjoyed helping depressed individuals were more likely to be directive and loving toward them. Similarly, identified motivation was positively associated with both dominant (β =.46, *SE*=.05, *t*=8.82, *p* < .001, 95%

CI [.33, .51]) and loving (β =.48, *SE*=.05, *t*=9.22, $p < .001$, 95% CI [.33, .50]) support. Significant others who valued helping depressed individuals provided more helpful support. Introjected motivation was also positively associated with both dominant (β =.22, *SE*=.01, *t*=3.73, $p < .001$, 95% CI [.09, .29]) and loving (β =.23, *SE*=.05, *t*=3.95, $p < .001$, 95% CI [.10, .29]) support. Providers who felt internally pressured to help depressed targets still provided helpful forms of support. External motivation, on the other hand, was negatively associated with loving support (β =-.24, *SE*=.05, *t*=-4.14, $p < .001$, 95% CI [-.32, -.11]) and non-significantly associated with dominant support (β =.08, *SE*=.06, *t*= 1.29, *p* = .199, 95% CI [-.04, .18]). Significant other who felt externally pressured to help were particularly critical of depressed individuals.

Moderation Analyses

The moderating effect of autonomous motivation to help on the relations between basic psychological needs and supportive behaviours was examined next. There were nonsignificant interactions between autonomous motivation to help and general need frustration on dominant (*b*=- .01, *SE* = .04, *t* =- .30 , *p* = .764, 95% CI [-.08, .06]) and loving (*b*= .00, *SE* = .03, *t* = -.01 , *p* = .996, 95% CI [-.07, .06]) support. Based on these null interactions that failed to replicate from Study 1, various demographic variables in Study 2 were explored to potentially account for this difference between samples. Study 1 was comprised of a North American undergraduate sample while Study 2 consisted of a community sample primarily from the United Kingdom (59.12%) among other English-speaking countries, suggesting that geographical location may be worth exploring further. To examine whether the moderating effect was influenced by geographical location, Hayes (2012) PROCESS and bootstrapping procedure (Model 3) was used to test a three-way interaction between geographical location (dummy coded as North American

and non-North American), autonomous motivation and general need frustration on supportive behaviours. The three-way interaction was significant for loving support (b = -.24, SE = .07, t = -3.47, p < .001, 95% CI [-.38, -.10]) but not dominant support (b = -.04, SE = .07, t = .58, p = .562, 95% CI [-.19, .10]). The main effects and interaction terms on loving support are presented in Table 7.

Simple slopes tests were conducted to probe the conditional effects of the significant three-way interaction (see Figure 7). For North American participants, general need frustration did not significantly alter the degree of loving support provided when participants were more autonomously motivated to help (b = .06, SE = .09, t = .63, p = 526, 95% CI [-.12, .24]). North American individuals who enjoyed or valued helping depressed individuals consistently provided more loving support independent of whether their needs were generally frustrated or not. However, there was a significant negative relation between general need frustration and loving support when North American participants were less autonomously motivated to help (b = -.34, SE = .08, t = -2.91, p = .004, 95% CI [-.40, -.08]. This indicates that North American individuals who were generally frustrated with their needs were more critical of depressed targets when they lacked autonomous motivation to help.

As for non-North American participants, there was a significant negative relation between general need frustration and loving support when autonomous motivation was high (b = -.24, SE = .07, t = -3.37, p < .001, 95% CI [-.38, -.10]). Non-North American individuals who were frustrated with their needs were more critical of depressed targets even when they tried to help for volitional reasons. General need frustration did not significantly alter the provision of loving support when non-North American participants were less autonomously motivated to help (b = .00, SE = .08, t = .04, p = .969, 95% CI [-.16, .16]). Non-North American individuals

provided the same amount of nurturing support to depressed individuals when they lacked the autonomous motivation to help, whether their needs were satisfied or not.

In the following analyses, general need frustration was substituted for general need satisfaction as a predictor. The three-way interaction between geographical location, autonomous motivation to help and general need satisfaction was significant for loving support (b = .24, SE = .07, t = 3.12, p = .002, 95% CI [.09, .40]) but not for dominant support (b = .05, SE = .08, t = .55, p = .581, 95% CI [-.12, .21]). See Table 8 for the main effect and interaction terms for loving support. Simple slopes tests were used to probe the three-way interaction (see Figure 8). For North American participants, there was a significant positive relation between general need satisfaction and loving support when autonomous motivation was low (b = .20, SE = .09, t = 2.23, p = .03, 95% CI [.03, .024]). That is, North American individuals who had their needs satisfied were more likely to nurture depressed targets despite lacking autonomous motivation to help. General need satisfaction did not significantly alter the degree of loving support provided when North American participants were more autonomously motivated to help (b = -.13, SE = .10, t = -1.23, p = .220, 95% CI [-.37, .10]). When North American individuals helped depressed targets for autonomous reasons, they provided nurturing support whether they were generally satisfied with their needs or not.

For non-North American participants, on the other hand, there was a significant positive relation between general need satisfaction and loving support when non-North American participants were more autonomously motivated to help (b = .21, SE = .09, t = 2.36, p = .019, 95% CI [.02,.04]). Non-North American individuals who were generally satisfied with their needs were more likely to be nurturing toward depressed targets when they helped for volitional reasons. General need satisfaction was non-significantly associated with loving support when

non-North American participants were less autonomously motivated to help (*b* = .00, *SE* = .08, *t* = .04, p = .969, 95% CI [-.16, .16]). Non-North American individuals provided the same amount of nurturing support to depressed individuals when they lacked the autonomous motivation to help, whether their needs were satisfied or not.

The intention of Study 2 was to replicate the findings from Study 1 in a community sample. Similar to Study 1, participants who reported less need frustration and greater need satisfaction (general and relationship-specific) were more directive and nurturing toward depressed targets rather than avoidant and critical. As predicted, autonomous motivation to help was positively associated with both dominant and loving support, which was also demonstrated in Study 1. Contrary to predictions, controlled motivation was positively associated with dominant support in Study 2 compared to the negative relation between controlled motivation and loving support found in Study 1. The effects of autonomous and controlled subscales on supportive behaviours provided further insights into the inconsistent finding. As in Study 1, the intrinsic and identified subscales of autonomous motivation were both positively related to dominant and loving support suggesting that those who enjoy and value supporting depressed targets provided more directiveness and nurturance. The controlled subscales, on the other hand, had divergent effects on support such that external motivation was negatively related to loving support whereas introjected motivation was positively related to loving and dominant support. Similar to Study 1, providers who were externally pressured to help were unhelpful whereas those who were internally pressured to help managed to be helpful toward depressed individuals.

Although the moderated effect in Study 1 was not replicated in Study 2, there was a significant three-way interaction between geographical location, autonomous motivation, and basic psychological needs on loving support. North American participants whose needs were

generally frustrated were more critical of depressed targets when they lacked autonomous motivation to help compared to the nurturance that was provided by those who were generally satisfied with their needs, similar to Study 1. This effect, however, was not obtained for non-North American participants. Instead, non-North American participants who were generally satisfied with their needs were more nurturing, particularly when they were autonomously motived, whereas those who were generally frustrated with their needs were critical toward depressed targets even when they tried to help for volitional reasons.

General Discussion

Depressed individuals are inextricably influenced by their social environments. The existing literature highlights the interpersonally toxic nature of excessive reassurance seeking among depressed individuals, which over time, erodes social support and elicits rejection from close others (Coyne, 1976a; 1976b). However, the thoughts, feelings and behaviours of significant others are often overlooked in the interpersonal context of depression. This set of studies provides a novel investigation into the interpersonal and motivational aspects of support provided toward depressed individuals. More specifically, this work extends our understanding of the interpersonal milieu of depressed individuals by examining the basic psychological needs, helping motivations, and the dominant and loving behaviours of their significant others.

The predictions concerning the basic psychological needs of significant others and the support provided to depressed individuals were largely supported. General need frustration predicted less dominant support in Studies 1 and 2 and less loving support in Study 1. Significant others who generally felt controlled, incompetent, and estranged in their lives were more likely to be avoidant and, to a lesser extent, critical in their support, which was unhelpful to depressed individuals. General need satisfaction, on the other hand, was positively associated with more

dominant and loving support towards depressed targets in Studies 1 and 2. When significant others felt more autonomous, competent, and related in their lives, they in turn, were more helpful to depressed individuals by offering directiveness and nurturance. The contrasting forms of support provided by significant others whose needs were either generally frustrated or satisfied suggests that the absence of psychological need satisfaction does not by definition simply imply its frustration (Bartholomew et al., 2011; Ryan & Deci, 2017; Vansteenkiste & Ryan, 2013). The extent to which significant others' needs are frustrated or satisfied can differentially affect the type of support provided to depressed individuals.

Need satisfaction with the depressed target—the extent to which significant others felt that their psychological needs were satisfied in their specific relationship rather than in general—was also associated with more dominant and loving support across both studies. This finding is consistent with the hierarchical model of self-determination theory (Vallerand, 1997), wherein domain-specific need satisfaction (i.e., relationship with target) is embedded within need satisfaction at global level (i.e., general satisfaction). It makes sense that need satisfaction with the target, would be related to, yet distinct from general need satisfaction, as evidenced by the small to medium correlations between the variables in the studies. Similarly, need satisfaction with the target should have stronger effects than general need satisfaction on supportive behaviours toward depressed individuals given the relationship-specific context, which was also demonstrated.

Helping motivation also influenced the type of support provided toward depressed individuals. The most consistent and salient effects on supportive behaviours concerned autonomous motivation to help. Autonomous motivation to help was associated with more dominant and loving forms of support to depressed individuals in Study 1 and 2. Significant

others who wanted to help because they derived inherent satisfaction from helping or saw the moral value of helping were more likely to provide depressed individuals with directive and nurturing support. Controlled motivation to help, on the other hand, was negatively associated with loving support in Study 1 and positively associated with dominant support in Study 2. The different effects for the introjected and external subscales of controlled motivation provided some insight into the inconsistent findings.

The introjected subscale of controlled motivation was positively associated with dominant support in Study 1 and both loving and dominant support in Study 2. Individuals who felt internally pressured to help primarily provided more directive support toward depressed individuals. The external subscale of controlled motivation, on the other hand, was associated with less loving support in Studies 1 and 2 and less dominant support in Study 1, although the association was marginally significant. Significant others who felt externally pressured to help were primarily more critical toward depressed targets. Introjected providers are directive yet emotionally indifferent in their support compared to externally motivated providers who are predominantly cold toward depressed individuals. It is important to note that the introjected and external subscales had poor internal consistency ratings in Study 2, which may partially account for the inconsistent associations with supportive behaviours. While the divergent effects of introjected and external motivation on support are intriguing, they need to be cautiously interpreted.

From the perspective of self-determination theory, the associations between helping motivations and supportive behaviours map onto the dimensional structure of motivation. More optimal forms of support were provided when significant others' reasons for helping were more autonomous than controlled. Falling on the most controlled end of the continuum, the external

subscale was associated with the least helpful forms of support provided to depressed individuals. Introjected motivation was less controlled than external motivation and consisted of internal motives that drew on dominant and loving supportive tendencies but not as much as the identified and intrinsic subscales situated on the autonomous end of the motivation continuum. Although intrinsic motivation is conceptualized as more internalized than the value driven aspects of identified motivation, the effects of the two subscales on supportive behaviours were similar across the two studies. Furthermore, the intercorrelations between need satisfaction with the target and the motivation to help subscales in Study 1 (see Table 1) and Study 2 (see Table 6) also reflect a similar dimensional pattern such that providers experienced greater need satisfaction within their relationship the more autonomous their motivation to help was.

From the perspective of interpersonal theory, the varied effects of motivation on interpersonal behaviour could also be understood in terms of interpersonal complementarity (Carson, 1969; Kiesler, 1996). Externally motivated providers behave in less loving and more rejecting ways that push depressed individuals away whereas introjected providers behave in more dominant and controlling ways that pull depressed individuals closer. Providers with intrinsic and identified motivations to help, on the other hand, pull depressed individuals on both the dominance and love axis with a balance of directive and nurturing forms of support. Similar to helping motivation, significant others who had their needs satisfied pulled depressed individuals closer with directiveness and love whereas those who were frustrated with their needs pushed depressed individuals away with criticism and avoidance. These findings highlight the complementary dynamics of basic psychological needs and helping motivation on the interpersonal circumplex.

There were mixed findings concerning the moderating role of autonomous motivation to help on the associations between basic psychological needs and supportive behaviours. In Study 1, there were significant interactions between autonomous motivation and general need frustration as well as autonomous motivation and general need satisfaction on both dominant and loving support. When significant others inherently wanted to help depressed individuals, they provided more helpful support regardless of whether their needs were generally satisfied or frustrated. When autonomous motivation was lacking, however, general need frustration and satisfaction mattered. Significant others who were generally frustrated with their needs were more critical and avoidant of depressed targets when autonomous motivation was low whereas those who were generally satisfied with their needs were more directive and nurturing. In conditions where it may be difficult to help for autonomous reasons, frustrated providers were less helpful than satisfied providers. This moderation effect in Study 1 was partially replicated in Study 2.

Although the hypothesized moderating effect of autonomous motivation to help on the relations between basic psychological needs and supportive behaviours was non-significant in Study 2, there was a three-way interaction between geographical location, autonomous motivation, and basic psychological needs on loving support. For North American participants, basic psychological needs were not significantly related to loving support when autonomous motivation was high, but less need frustration and greater need satisfaction predicted loving support when autonomous motivation was low. This finding replicates the moderating effect found in the North American undergraduate sample in Study 1.

The moderating effect differed for non-North American participants in Study 2. When autonomous motivation was high, general need frustration was associated with less loving

support whereas general need satisfaction was associated with more loving support. The associations between basic psychological needs and loving support were non-significant when autonomous motivation was low. Non-North American individuals who were less frustrated and more satisfied with their needs provided more loving support for autonomous reasons. The beneficial effects of need fulfillment appear to be more salient for North American individuals helping depressed individuals under demotivating circumstances whereas need fulfillment among non-North American individuals leads to more helpful support under highly motivating circumstances. It is theoretically unclear why the moderated effect of autonomous motivation to help on basic psychological needs and supportive behaviours differed substantially between North American and Non-North American participants. This unexpected result may reflect an idiosyncratic aspect of the sample in Study 2. Further research is needed to replicate this moderated effect with different samples.

The interactions between autonomous motivation and basic psychological needs in Studies 1 and 2 generally had more predictive value for loving support than dominant support. This may reflect a broader pattern with the interpersonal circumplex where individual differences map onto the love axis more strongly than the dominance axis due to the contextual nature of social support provisions (Trobst, 2000; Wiggins & Trobst, 1997). That is, significant others may be disproportionally more likely to provide nurturing or critical forms of support (i.e., love) toward depressed individuals based on their general need frustration or satisfaction, whereas directive or avoidant behaviours (i.e., dominance) may be more influenced by the situational context.

The present research supports and extends the current literature on social support and depression with a focus on the needs, motivations, and interpersonal behaviours of support

providers. To my knowledge, this is the first set of studies examining the roles of helping motivations and basic psychological needs on the support provided to depressed individuals, contributing to the growing SDT literature on helping (Gagné, 2003, Kim et al., 2008; Kindt et al., 2015; Ryan & Deci, 2017; Weinstein & Ryan, 2010). By exploring significant others' dominant and loving behaviours toward depressed individuals within the interpersonal circumplex, the current research expanded on the interpersonal aspects of depression beyond rejection as well as the situational context of social support for depressed individuals.

These studies also highlighted the significant overlap between interpersonal theory and self-determination theory. Consistent with Hmel & Pincus (2002), need satisfaction and autonomous motivation to help distinctly mapped onto the dominant and loving quadrant of SAS-C. Applied to the SDT informed circumplex model (Vansteenkiste et al., 2020), this interpersonal profile would reflect the structured support quadrant marked by high need support and high directiveness. Although it would appear theoretically consistent with SDT for need satisfaction and autonomous motivation to map more strongly on the autonomy support quadrant instead (i.e., high need support and low directiveness), the results from the following studies may reflect a unique feature of helpful support provided toward depressed individuals who are known to pull for direction from others (Horowitz et al., 1991; Kiesler, 1996). Given that the social environment plays a critical role in either supporting or thwarting basic psychological needs (Ryan & Deci, 2017), autonomy support provided to depressed individuals would align with satisfying their basic psychological needs and enhancing their well-being whereas controlling forms of support would cause frustration and exacerbate depressive symptoms (Ibarra-Rovillard & Kuiper, 2011). From the perspective of significant others, however, the combination of directive and nurturing elements of interpersonal behaviours toward depressed individuals aligns

more closely with the basic psychological needs and motivations of support providers. These findings accentuate the need to use circumplex models to better understand the interpersonal and motivational dynamics of support provided to depressed individuals.

Limitations and Future Directions

While this research adds to the extant literature, it is not without its limitations. Despite controlling for gender, which is known to have a strong effect on social support provisions (Trobst, Collins, & Embree, 1994), the participants in both studies were primarily female. This can be overcome in future research with more a gender balanced sample. Although participants were initially screened and responded to items about their significant other's depressive symptoms and severity, it was based on self-report and rooted in participants' perception of someone they deem to be depressed. Significant others' reports are nonetheless revealing in the interpersonal context of depression (Lakey, & Cronin, 2008), where depressed individuals are known to overperceive negative interpersonal outcomes, like rejection, relative to significant others (Starr & Davila, 2008). Future research should explore the correspondence of the support provided and received by depressed individuals and their significant others with dyadic designs.

Despite the strong evidence linking basic psychological needs, helping motivation and supportive behaviours, one important limitation of the present research involves its cross-sectional design, which does not allow one to infer causality. Future research should consider examining the same associations with a longitudinal design. In a daily diary study, Kindt et al. (2016) demonstrated that helping motivation (i.e., more autonomous reasons and less controlled reasons for helping) among caregivers of individuals with chronic pain predicted better affective, help-specific and relationship outcomes, which was accounted for by need satisfaction within the relationship. Longitudinal designs can also be used to explore alternative hypotheses regarding

the erosion of support provided to depressed individuals over time. The interactional theory of depression (Coyne, 1976a; 1976b) suggests that significant others provide helpful support to depressed individual at first and rejection only becomes more salient over time following excessive attempts by depressed individuals to seek reassurance. The erosion of support may stem from significant others who experience need frustration and feel pressured to help depressed individuals. Significant others who have their needs satisfied and help for autonomous reasons may remain resilient and supportive toward depressed individuals over time.

The effects of basic psychological needs and helping motivations on the support provided to depressed individuals could also be examined with an experimental design to support causal conclusions. Weinstein & Ryan (2010) previously demonstrated the causal role of helping motivation on engaging in prosocial behaviours by manipulating participants' sense of choice in various helping tasks. Participants experienced greater need satisfaction, positive affect, and engaged in more helpful behaviours when they were given the choice to help (i.e. autonomous motivation) rather than pressured to help (i.e., controlled motivation). Similar to previous experimental paradigms used to examine social interactions with depressed individuals (Hammen & Peters, 1977, 1978; Howes & Hokanson, 1979; Marks & Hammen, 1982; Rook, Pietromonaco, & Lewis, 1994), autonomous and controlling aspects of the interpersonal context can be manipulated to examine the influence that helping motivation has on the support provided to depressed targets.

Finally, the findings from these studies have applied implications. The principles behind basic psychological needs and helping motivation could be integrated into supportive interventions tailored to significant others of depressed individuals. By learning how to bolster autonomous motivation to help and satisfy psychological needs as a support provider, significant

others can go onto provide more helpful forms of support toward depressed individuals. Given the interpersonal nature of depression, significant others could have an immense impact on the course of the disorder and could help reduce the costs and disability associated with the illness by providing effective support.

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Appendix A

Please indicate if the person showed or reported the following symptoms during the **same 2-week period** and represent a change from previous functioning.

Depressed mood most of the day, nearly every day (i.e., feels sad, empty, hopeless, appears tearful).

YES
NO
I DON'T KNOW

Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day.

YES
NO
I DON'T KNOW

Significant weight loss when not dieting or weight gain or decrease or increase in appetite nearly every day.

YES
NO
I DON'T KNOW

Psychomotor agitation (i.e., restlessness) or retardation (i.e., slowed down) nearly every day.

YES
NO
I DON'T KNOW

Insomnia or hypersomnia (sleeping too much) nearly every day.

YES
NO
I DON'T KNOW

Fatigue or loss of energy nearly every day.

YES
NO
I DON'T KNOW

Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day.

YES
NO
I DON’T KNOW

Diminished ability to think or concentrate, or indecisiveness, nearly every day.

YES
NO
I DON’T KNOW

Appendix B

Please think of someone you know who is **currently depressed.**

This person could be, for instance, a friend, a family member, romantic partner, or an acquaintance. Depression is marked by a persistent feeling of sadness and loss of interest for at least 2 weeks. Depression may also involve changes in weight, sleeping problems, slowing or agitation, feelings of worthlessness, difficulty concentrating or indecisiveness, or suicidal ideation.

Sometimes it takes a few minutes to think of someone who is depressed. If someone doesn't come to mind right away, please take as much time as you need to think about it.

Do you know someone who is currently depressed?

YES

NO

Table 1

Means, Standard Deviations, Cronbach Alphas, and Zero-Order Correlations between Variables in Study 1

	N	M	SD	α	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.MTH (Autonomous)	308	4.88	1.25	.89	—														
2.MTH (Intrinsic)	309	4.73	1.50	.88	.95**	—													
3.MTH (Identified)	309	5.03	1.19	.73	.91**	.73**	—												
4.MTH (Controlled)	308	3.47	1.09	.81	.47**	.41**	.48**	—											
5.MTH (Introjected)	309	4.30	1.38	.77	.59**	.50**	.61**	.89**	—										
6.MTH (External)	310	2.64	1.15	.72	.20**	.18**	.19**	.83**	.48**	—									
7.NST (Total)	308	4.86	1.09	.83	.32**	.34**	.26**	-.15**	-.01	-.27**	—								
8.GNS (Total)	308	5.03	.91	.87	.21**	.19**	.22**	-.03	.02	-.08	.27**	—							
9.GNF (Total)	309	3.48	1.09	.88	.03	.03	.01	.23**	.17**	.24**	-.22**	-.67**	—						
10.LOV†	298	-.00	.93	NA	.36**	.33**	.33**	-.14*	-.01	-.25**	.36**	.16**	-.10	—					
11.DOM†	297	.01	.87	NA	.40**	.39**	.35**	.06	.18**	-.11*	.38**	.25**	-.15**	.15*	—				
12.High DOM Low LOV	309	3.22	.92	.85	.19**	.20**	.14*	.31**	.28**	.26**	.04	.12*	.04	-.48**	.50**	—			
13.Low DOM Low LOV	304	2.65	.81	.84	-.25**	-.24**	-.21**	.24**	.08	.36**	-.42**	-.15**	.21**	-.62**	-.60**	.29**	—		
14.Low Dom High LOV	307	4.51	.77	.75	.13*	.14*	.13*	.07	.07	.06	.01	.06	.06	.48**	-.43**	-.09	.24**	—	
15.High DOM High LOV	308	5.40	.92	.89	.55**	.54**	.49**	.09	.22**	-.09	.42**	.33**	-.13*	.64**	.66**	.27**	-.42**	.29**	—

MTH= Motivation to Help, NST= Need Satisfaction with the Depressed Target, GNS= General Need Satisfaction, GNF= General Need Frustration, LOV= Loving support dimension, DOM= Dominant support dimension, † Variable was standardized, *p <.05, **p <.01.

Table 2

Interaction between General Need Frustration and Autonomous Motivation to Help on Loving Support

					95% CI	
	b	*SE*	*t*	*p*	LL	UL
Intercept	0.02	0.05	0.43	0.67	-0.08	0.12
GNF	0.09	0.06	1.51	0.13	-0.03	0.20
AMTH	0.28	0.04	6.61	0.00	0.19	0.36
GNF*AMTH	-0.15	0.05	-3.29	0.00	-0.25	-0.06

GNF= General Need Frustration, AMTH= Autonomous Motivation to Help

Table 3

Interaction between General Need Satisfaction and Autonomous Motivation to Help on Loving Support

					95% CI	
	b	*SE*	*t*	*p*	LL	UL
Intercept	0.00	0.05	-0.07	0.94	-0.10	0.09
GNS	-0.09	0.05	-1.98	0.05	-0.18	0.00
AMTH	0.28	0.04	7.04	0.00	0.20	0.36
GNS*AMTH	0.09	0.04	2.39	0.02	0.02	0.16

GNS= General Need Satisfaction, AMTH= Autonomous Motivation to Help

Table 4

Interaction between General Need Frustration and Autonomous Motivation to Help on Dominant Support

					95% CI	
	b	*SE*	*t*	*p*	LL	UL
Intercept	0.01	0.05	0.19	0.85	-0.08	0.10
GNF	-0.14	0.04	-3.24	0.00	-0.22	-0.05
AMTH	0.29	0.04	7.84	0.00	0.22	0.36
GNF*AMTH	0.09	0.03	2.54	0.01	0.02	0.15

GNF= General Need Frustration, AMTH= Autonomous Motivation to Help

Table 5

Interaction between General Need Satisfaction and Autonomous Motivation to Help on Dominant Support

					95% CI	
	b	*SE*	*t*	*p*	LL	UL
Intercept	0.04	0.05	0.79	0.43	-0.06	0.13
GNS	0.17	0.05	3.31	0.00	0.07	0.28
AMTH	0.27	0.04	6.98	0.00	0.19	0.34
GNS*AMTH	-0.11	0.04	-2.48	0.01	-0.19	-0.02

GNS= General Need Satisfaction, AMTH= Autonomous Motivation to Help

Table 6

Means, Standard Deviations, Cronbach Alphas, and Zero-Order Correlations between Variables in Study 2

	N	M	SD	α	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.MTH (Autonomous)	292	4.83	1.10	.87	—														
2.MTH (Intrinsic)	293	4.52	1.42	.91	.92**	—													
3.MTH (Identified)	294	5.16	1.05	.69	.85*	.57**	—												
4.MTH (Controlled)	294	3.89	.84	.67	.41**	.33**	.41**	—											
5.MTH (Introjected)	295	4.78	1.06	.61	.55**	.43**	.57**	.84**	—										
6.MTH (External)	295	3.00	.99	.54	.12	.09	.09	.81**	.35**	—									
7.NST (Total)	295	4.75	1.22	.89	.54**	.53**	.41**	.03	.17**	-.14*	—								
8.GNS (Total)	295	5.14	1.05	.92	.23**	.22**	.20**	.11	.13*	.05	.27**	—							
9.GNF (Total)	295	3.28	1.19	.90	-.12*	-.11	-.10	.06	.01	.09	-.23**	-.77**	—						
10.LOV†	292	.01	.91	NA	.46**	.35**	.48**	.01	.23**	-.24**	.31**	.20**	-.21**	—					
11.DOM†	289	-.00	.95	NA	.44**	.35**	.46**	.18**	.22**	.08	.31**	.20**	-.17**	.16**	—				
12.High DOM Low LOV	293	3.10	.86	.83	.28**	.27**	.24**	.35**	.21**	.37**	.08	.14*	.01	-.33**	.64**	—			
13.Low DOM Low LOV	294	2.50	.80	.85	-.34**	-.24**	-.39**	.08	-.09	.23**	-.36**	-.14*	.26**	-.61**	-.68**	.01	—		
14.Low Dom High LOV	293	4.65	.84	.83	.22**	.21**	.16**	.10	.17**	-.01	.03	.10	-.01	.53**	-.46**	-.20**	.22**	—	
15.High DOM High LOV	294	5.45	.89	.89	.68**	.58**	.64**	.25**	.37**	.02	.36**	.26**	-.17**	.62**	.71**	.40**	-.53**	.17**	—

MTH= Motivation to Help, NST= Need Satisfaction with the Depressed Target, GNS= General Need Satisfaction, GNF= General Need Frustration, LOV= Loving support dimension, DOM= Dominant support dimension, † Variable was standardized, *p <.05, **p <.01.

Table 7
Three-way interaction between General Need Frustration, Autonomous Motivation and Location on Loving Support

					95% CI	
	b	*SE*	*t*	*p*	LL	UL
Intercept	0.00	0.05	-0.02	0.98	-0.09	0.09
GNF	-0.11	0.04	-2.83	0.01	-0.19	-0.03
AMTH	0.33	0.04	7.45	0.00	0.24	0.42
LOC	0.03	0.10	0.25	0.80	-0.17	0.22
GNF*AMTH	-0.03	0.04	-0.83	0.41	-0.10	0.04
GNF*LOC	-0.03	0.08	-0.41	0.68	-0.19	0.13
AMTH*LOC	0.05	0.09	0.58	0.56	-0.13	0.23
GNF*AMTH*LOC	-0.24	0.07	-3.47	0.00	-0.38	-0.10

GNF= General Need Frustration, AMTH= Autonomous Motivation to Help, LOC= Location

Table 8

Three-way interaction between General Need Satisfaction, Autonomous Motivation and Location on Loving Support

					95% CI	
	b	*SE*	*t*	*p*	LL	UL
Intercept	0.00	0.05	-0.01	0.99	-0.10	0.10
GNS	0.09	0.05	1.80	0.07	-0.01	0.18
AMTH	0.34	0.05	7.50	0.00	0.25	0.43
LOC	0.00	0.10	0.03	0.98	-0.20	0.21
GNS*AMTH	0.02	0.04	0.38	0.70	-0.07	0.10
GNS*LOC	0.07	0.10	0.71	0.48	-0.12	0.26
AMTH*LOC	0.03	0.09	0.30	0.76	-0.16	0.21
GNS*AMTH*LOC	0.24	0.08	3.12	0.00	0.09	0.40

GNS= General Need Satisfaction, AMTH= Autonomous Motivation to Help, LOC= Location

Figure 1

Radar chart of General Need Frustration, General Need Satisfaction and Need Satisfaction with the Target projected onto the SAS-C for Study 1. Dots represent mean values and colored regions represent bootstrapped 95% confidence intervals (computed and plotted using the circumplex package for R; Girard, Zimmermann & Wright, 2018)

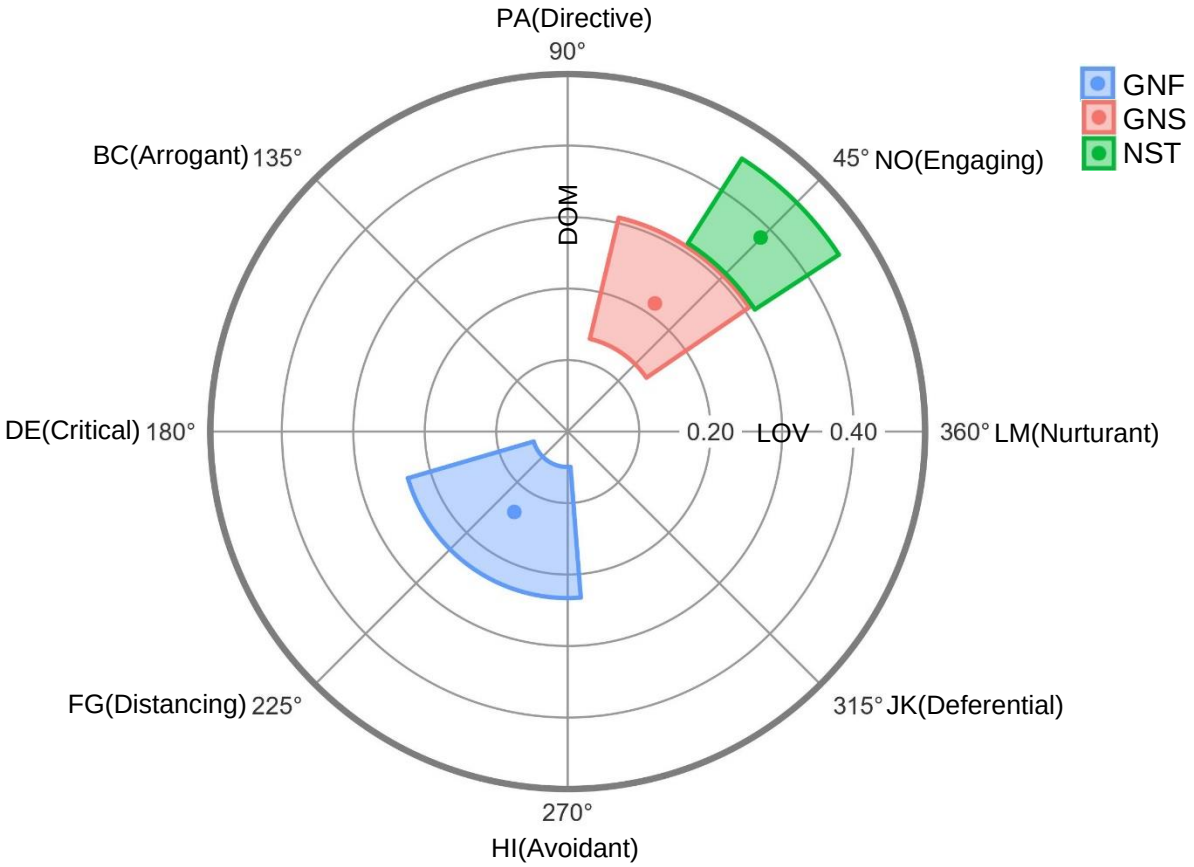

Figure 2

Radar chart of Motivation to Help subscales projected onto the SAS-C for Study 1. Dots represent mean values and colored regions represent bootstrapped 95% confidence intervals (computed and plotted using the circumplex package for R; Girard et al., 2018).

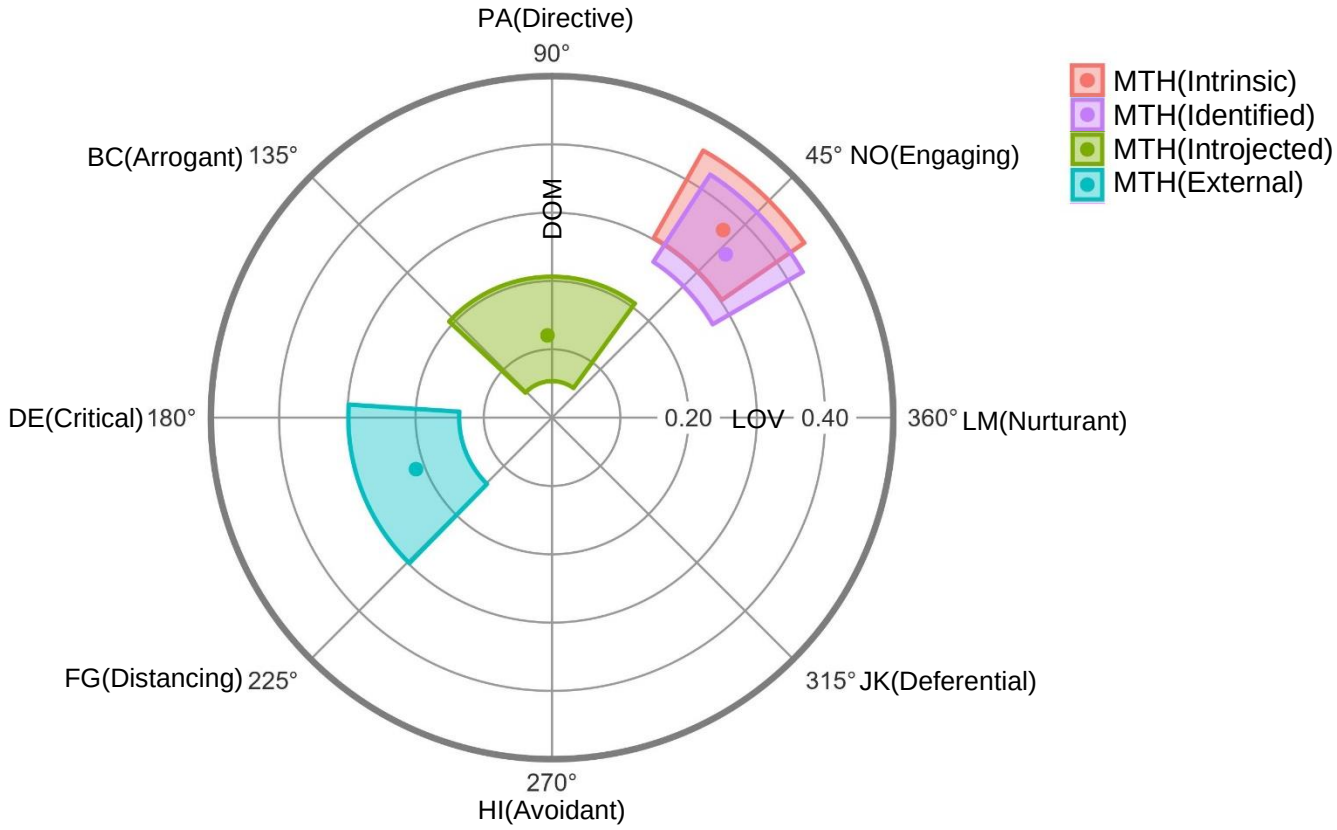

Figure 3

Simple Slopes of Autonomous Motivation to Help by General Frustration on Loving Support for Study 1.

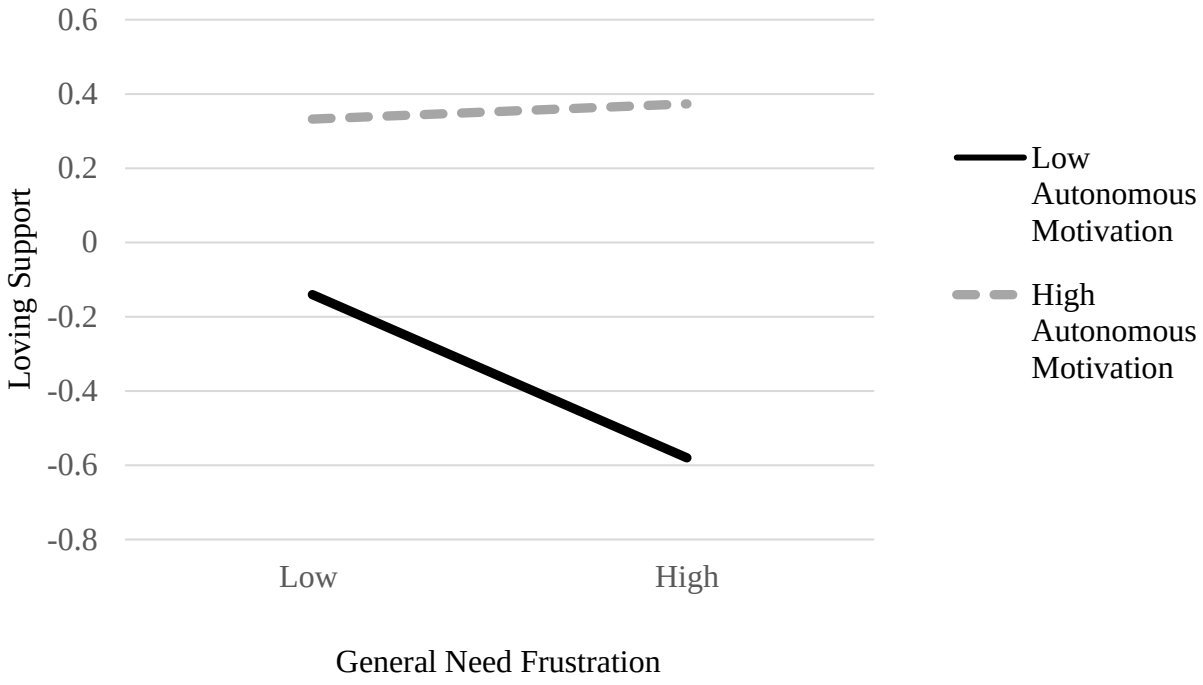

Figure 4

Simple Slopes of Autonomous Motivation to Help by General Need Satisfaction on Loving Support for Study 1.

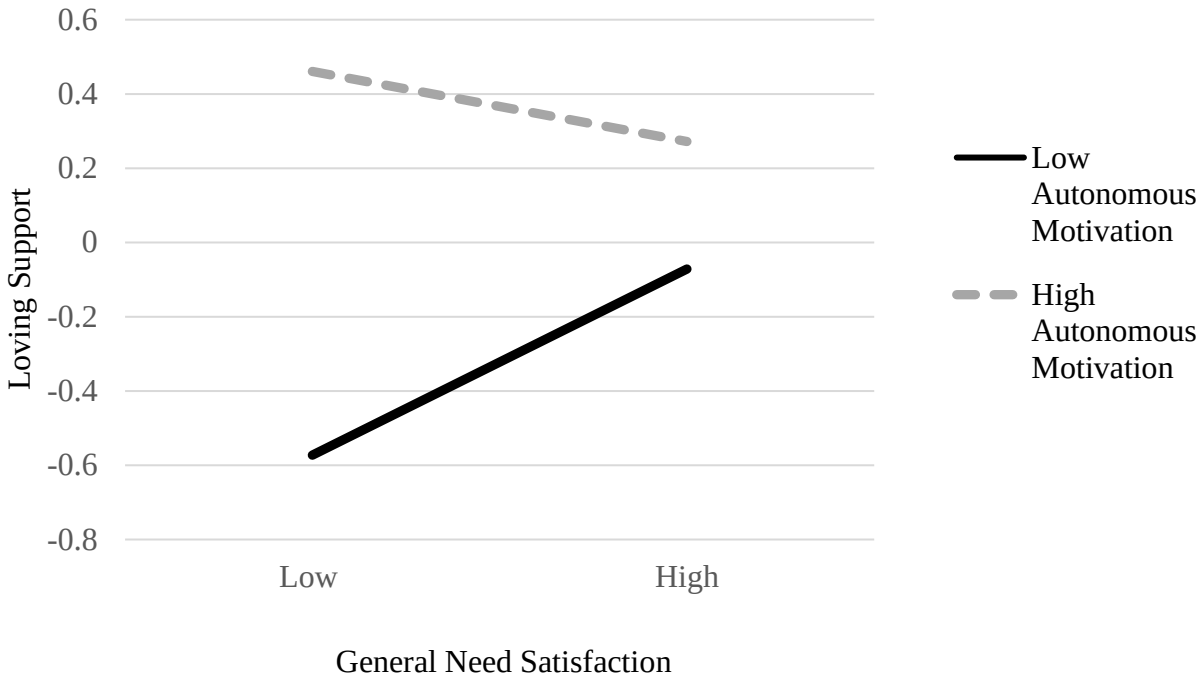

Figure 5

Radar chart of General Need Satisfaction, General Need Frustration and Need Satisfaction to Target projected onto the SAS-C for Study 2. Dots represent mean values and colored regions represent bootstrapped 95% confidence intervals (computed and plotted using the circumplex package for R; Girard et al., 2018).

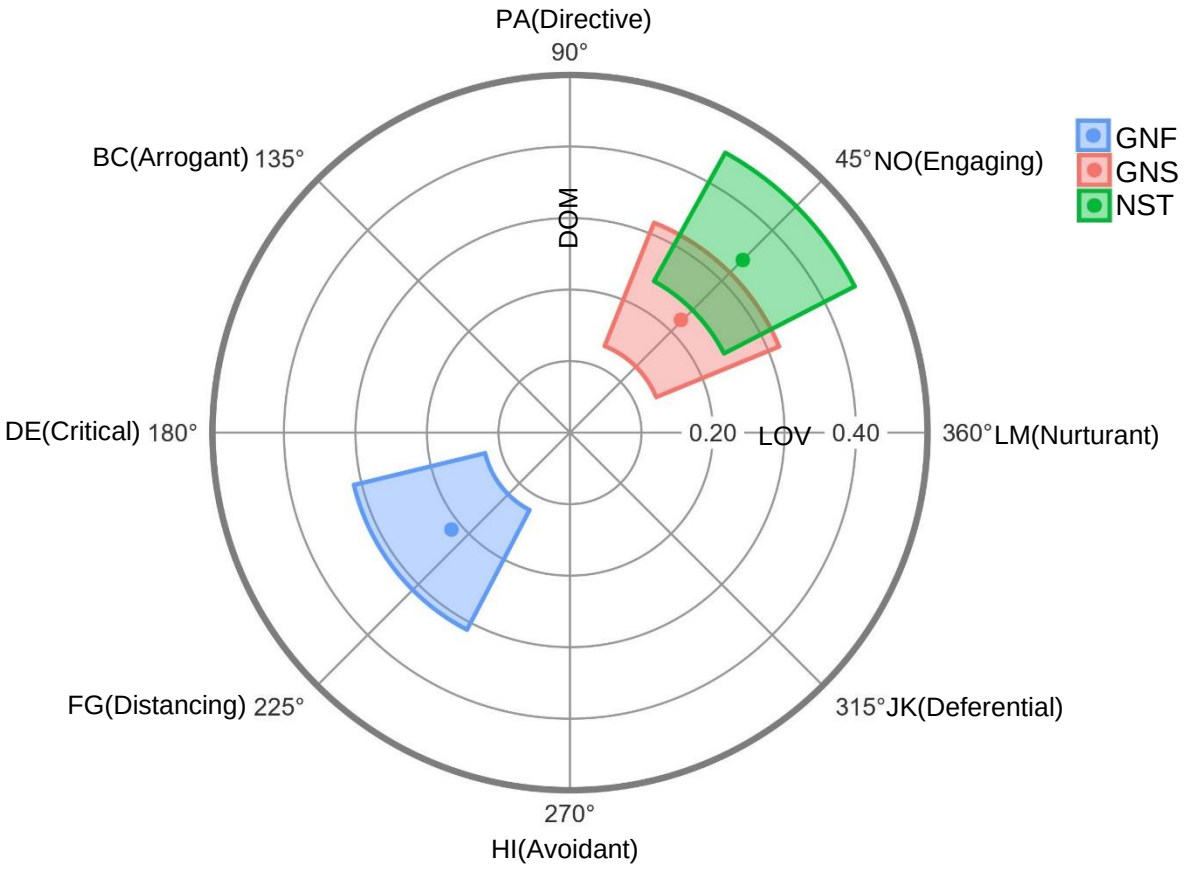

Figure 6

Radar chart of Motivation to Help subscales projected onto the SAS-C for Study 2. Dots represent mean values and colored regions represent bootstrapped 95% confidence intervals (computed and plotted using the circumplex package for R; Girard et al., 2018).

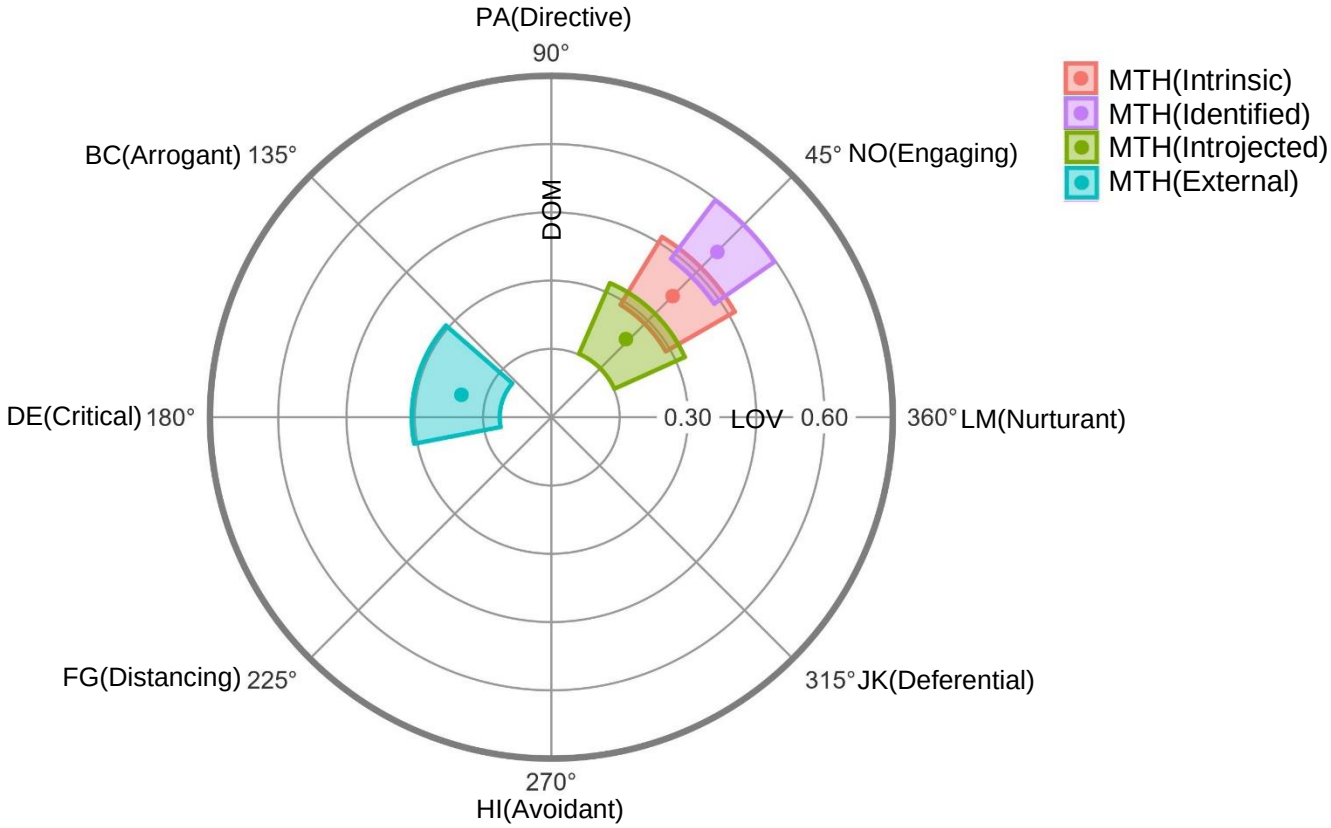

Figure 7

Simple Slopes of Autonomous Motivation to Help by General Need Frustration by Location on Loving Support for Study 2.

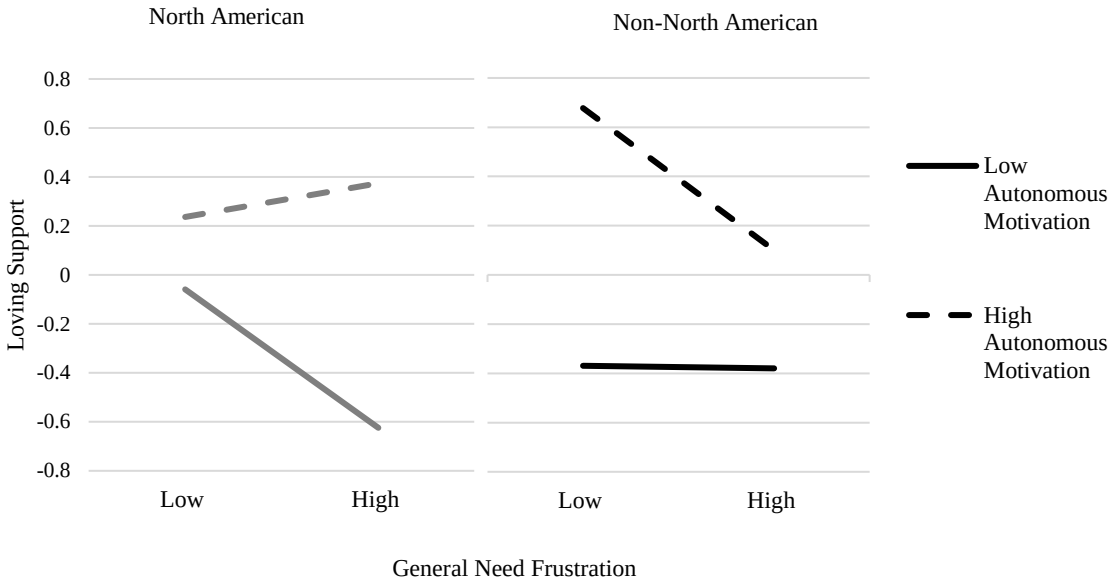

Figure 8

Simple Slopes of Autonomous Motivation to Help by General Need Satisfaction by Location on Loving Support for Study 2.