Mediterranean Journal of Clinical Psychology

ISSN 2282-1619

MJCP

Volume 11, n 1, 2023

Health Psychology

Can Interpersonal Problems Predict Female Depression?

*Alexandra Fonseca [1, 2, 3 *], Margarida Gaspar de Matos [3], Carlos Gois [1, 3, 4]*

Abstract

Background: Recognized as a common and debilitating condition with a high recurrence rate, depression is considered a severe public health problem. The association between interpersonal problems and depressive disorders is well documented, but studies in non-clinical populations are scarce. The working hypotheses were that (Hp1) depressed women report more interpersonal problems than non-depressed ones, and (Hp2) depression is predicted by interpersonal problems.

Methods: The present study analyzes the relationship between depression and interpersonal problems, assessed by the Inventory of Interpersonal Problems (IIP64), in a non-clinical Portuguese female population (n=240), aged 18 to 81. Two groups of participants were considered, based on the Beck Depression Inventory – short form (BDI-SF) cut-off points: G1 "non-depressed" (n=119, M=44.18, SD=12.34) and G2 "depressed" (n=121, M=41.14, DS=13.74). One-way ANOVA and binary logistic regression with forward selection were performed.

Results: There was a significant difference in interpersonal problems between depressed and non-depressed women. Specifically, when women experienced depressive symptoms, they identified more interpersonal problems. The sub-scales IIP1 dominating/controlling, IIP7 Self-sacrifice and IIP4 Socially inhibited had the most significant impact on the likelihood of depression.

Conclusions: This study emphasizes that clinical practice and universal and selective prevention strategies for depression should include analyses and interventions on factors such as inhibition, reduction of the social network, difficulty in emotional expression and low gratification experienced in interpersonal relationships.

[1] Psychiatry Service of the Department of Neuroscience and Mental Health of CHULN - Hospital de Santa Maria, Lisbon, Portugal

[2] Department of Education, Social Sciences and Humanities, Faculty of Human Kinetics, Lisbon University, Lisbon, Portugal

[3] ISAMB, Faculty of Medicine, Lisbon University, Lisbon, Portugal

[4] Faculty of Medicine, Lisbon University, Lisbon, Portugal

E-mail corresponding author: malexandrafonseca@gmail.com

Keywords:
Depression; Interpersonal Problems; IIP64; Women; Mental Health.

Received: 19 November 2022
Accepted: 12 April 2023
Published: 30 April 2023

Citation: Fonseca, A., de Matos, M.G., Gois, C. (2023). Can Interpersonal Problems Predict Female Depression? *Mediterranean Journal of Clinical Psychology 11*(1). https://doi.org/10.13129/2282-1619/mjcp-3614

1. Introduction

Psychological health presupposes, among other characteristics, the ability to interact in various social environments with different people, and the association between interpersonal problems and psychopathological conditions, including depressive disorders, is well documented (Hirschfeld et al., 2000; Horowitz, 2004; Joiner & Timmons, 2009; McFarquhar, Luyten & Fonagy, 2018).

Recognized as a prevalent and debilitating condition (Smith & Mazure, 2021) and because it has a high recurrence rate, depression is considered a severe public health problem (World Health Organization [WHO], 2017). Depression disorders association with sociodemographic factors have been reported, with consistent data regarding gender, educational level and income. The gender difference is probably the most robust factor in the literature, with a higher incidence of depression in women (Hyde & Mezulis, 2020). Among primary care patients, higher education, being single and being employed are protective factors for becoming depressed (Milanović et al., 2015). In addition, low income appears to be a risk factor for depression, particularly in women, and it still seems evident that maternal depression impacts transgenerational poverty (Smith & Mazure, 2021).

In recent decades, several biological and psychological theories have sought to explain the onset, development, maintenance, and recurrence of depressive disorders. Biological theories have presented distinct and complementary formulations, namely the association with noradrenaline deficits, endocrine disorders, alterations in brain structure, or genetic influence (Bernaras et al., 2019). An example is the Social Signal Transduction Theory of Depression (Slavich & Irwin, 2014; Slavich & Sacher, 2019) which resulted from researchers' interest in biologically plausible formulations linking experiences of social-environmental adversity to depression. The hypothesis underlying this theory is that interpersonal stress signals involving social threats - such as interpersonal conflict, critical appraisal, isolation, or rejection - are represented in brain regions that articulate with other areas that regulate inflammatory processes, which can induce various depressive symptoms, including moodiness, sadness, anhedonia, fatigue, psychomotor slowness, and social-behavioural withdrawal.

Psychoanalytic, cognitive, and behavioural theories, sociocultural models, and interpersonal theory stand out among psychological theories (Bernaras et al., 2019) that associate depression with interpersonal relations and distress. A reciprocal influence has been identified, with depression shaping the type and quality of social interactions and the social context interfering with the individual risk and subjective experience of depression (Kupferberg et al., 2016). Depressive disorders impact the thoughts, feelings and behaviours of the self and others in response to the depressed person (Ren et al., 2018). Depression seems to negatively affect the

availability of emotional support, the emotional support received, perceived understanding and the search for social support (Schetsche et al., 2021). Individuals with depressive symptoms have less initiative for action, performing fewer individual and social activities, which may modify their perception of control over their environment (Myles & Merlo, 2022). In addition, difficulties in understanding and controlling social emotions and identifying signs of threat and relational support can lead to an inability to find practical solutions to interpersonal problems (Roepke & Seligman, 2016). Taken together, all these conditions may reinforce depression.

Understanding reciprocal influences between these factors may justify the weight the literature has given to interpersonal difficulties as predictors of depression (Sheets & Craighead, 2014; Alexandra et al., 2022), considering that people are deeply relational beings that function optimally when experiencing a personal history in a context of positive relationships (Chen et al., 2019).

1.1 Interpersonal problems

Several interpersonal theories have linked depression to the frustrations of the human need to form and maintain strong, secure relationships. Current interpretations of interpersonal theory have been influenced by the importance given to the behavioural attachment system, the emotional distress caused by separation or the threat of separation from someone with whom the individual has strong emotional ties (Bowlby, 1979).

One of the interpersonal theory assumptions is the principle of complementarity in interpersonal situations. Interpersonal situations are defined here as an actual interaction between two people or a person's mental representation of his relationship with others. The principle of complementarity argues that, in social interaction, one person's behaviour provokes predictable and observable behaviours in the other, but also affective and cognitive responses (Kiesler, 1996). Another central assumption of interpersonal theories is the existence of two dimensions in interpersonal motives and behaviours: affiliation and dominance (Leary, 1957). The first implies communion and affection; the second is associated with power and control. According to interpersonal theory, humans continually strive to satisfy their own needs for affiliation and dominance, with behaviours along the affiliation dimension invoking corresponding and similar reactions and behaviours along the dominance dimension tending to gather opposing behaviours.

Based on these principles, Sullivan argued that all parties involved in interpersonal relationships influence each other and are motivated by two fundamental needs: security and self-esteem. The first implies love or intimacy and presupposes that the person is loved and can establish secure and prolonged relationships; the second implies power and self-esteem and corresponds to the deep conviction that the person is worthy of the respect of significant others (Sullivan, 2014).

Also relevant is the concept of "parataxic distortion", which corresponds to a mental representation of a social interaction that is not faithful to the objective situation. Parataxic distortions result in unmet affiliation or dominance needs and can lead to disruptions in complementarity in interpersonal situations. They mainly correspond to ideas of criticism and abandonment. When parataxic distortions result in the frustration of the individual needs, dysregulation in one of the following systems may occur: in self-concept, influencing thoughts about one's self and others; in the affective system, affecting feelings about one's self and others; in the interpersonal approach, originating behavioural reactions (Wilde & Dozois, 2019).

The idea underlying interpersonal theories postulates that depressive conditions are generally associated with events in the patient's life related to close people and that the quality of meaningful interpersonal relationships or the threat of change or interruption can lead to depressive symptoms in genetically vulnerable individuals (Weissman, Markowitz & Klerman, 2017).

A study in a Portuguese clinical population of depressed women explored the association between childhood and adolescent adversities with triggers for depression (Fonseca et al., 2021a). Among the results, we highlight that family conflicts, relationship difficulties between parents and children and family violence were the most reported adversities in childhood and adolescence; reports of significant interpersonal problems at an early age were associated with more interpersonal problems throughout development; and interpersonal disputes as depressive triggers were related to interpersonal dispute problems during childhood and adolescence. Family and marital conflicts and professional problems, along with physical illness and the death of a loved one, have also been identified as the main triggers for female depression (Fonseca et al., 2021b).

The importance of interpersonal problems in psychopathological conditions, particularly in depressive disorders, justified the need for assessment instruments, standing out the Interpersonal Problems Inventory (IIP) (Horowitz et al., 2000). The Interpersonal Problems Inventory was developed based on interpersonal theories, of which Sullivan's approach is striking.

The focus on multidisciplinary approaches seeking to explain the high incidence of depressive disorders (Hyde & Mezulis, 2020), particularly in female populations, reflects the scientific and social concern about the impact of these disorders on individual and social life quality. Therefore, it is essential to look for evidence-based factors that help prevent depression.

1.2 The present study

The present study aimed to deepen previous research on the relationship between interpersonal problems and depression by investigating the relation between the two variables in a non-clinical Portuguese female population, applying the IIP64.

In line with the interpersonal theory, we hypothesized that depressed women report more interpersonal problems than non-depressed ones (Hp1) and that depression is predicted by interpersonal problems (Hp2).

The specific purposes of the present study were threefold. First, to examine the relationship between depression and sociodemographic variables. Second, to compare interpersonal problems between depressed and non-depressed women. Third, to assess how well the IIP64 subscales predict depression.

2. Methods

This study is part of a more extensive study to assess the relationship between interpersonal problems, resilience, self-regulation and depression in a non-clinical sample of Portuguese women. Detailed methodology, sample characteristics and instruments were previously presented (Alexandra et al., 2022).

2.1 Data collection

This cross-sectional study used an online questionnaire published on social networks from April to September 2021. Participants were asked to complete a sociodemographic data form with multiple-choice answers and scales to assess interpersonal problems, resilience, self-regulation and depression. All participants were informed about the purpose of the study and provided voluntary electronic consent. To minimize multiple responses, each participant could only complete the survey once (based on IP address).

Procedures and protocols used were approved by the Ethical Committee of the Center for Electroencephalography and Clinical Neurophysiology (CENC - Approval number 2/2021) and in accordance with the Declaration of Helsinki.

2.2 Participants

The original study sample consists of 1842 women aged 18 to 81 and has been described in detail elsewhere (Alexandra et al., 2022). The sample was a self-selected non-probability sample of Portuguese women residents in Portugal. For this study, only two groups of participants were considered, based on the Beck Depression Inventory – short form (BDI-SF) cut-off points: G1 (n=119), with 0 points on the BDI-SF, was considered a group with no signs of depression, referred to as "non-depressed"; and G2 (n=121), with a BDI-SF score of 15 or higher, was

considered a group with depressive indicators, referred to as "depressed". The present study's sample (n= 240) consists of women aged between 18 and 81 years.

2.3 Instruments

Interpersonal problems were measured by the Inventory of Interpersonal Problems (IIP-64) (Horowitz et al., 2000), scale translated to Portuguese by Machado & Salgado (Sousa, 2013). The Beck Depression Inventory – short form (BDI-SF) (Beck & Beck, 1972) was used to measure depression. Designed to measure interpersonal distress, the Inventory of Interpersonal Problems (IIP-64) (Horowitz et al., 2000) comprises 64 items. It is divided into two parts, one consisting of statements about behavioural inhibitions and the second on items that focus on behavioural excesses. The responses are given on a 5-point Likert scale ranging from 0 to 4, with higher scores corresponding to more interpersonal distress. The 64 items are divided into eight sub-scales, each with eight items. Raw sub-scale scores are obtained by calculating the sum of the eight item responses for each of the eight scales, and IIP total score results from the sum of the eight sub-scales.

The high scores on each sub-scale can be interpreted as follows. IIP1 Domineering/Controlling - need for control or manipulation; loss of control can lead to a feeling of threat, resulting in difficulty accepting other points of view and a rigid attitude. IIP2 Vindictive/Self-Centered - hostile dominance problems; experiences and expression of anger and irritability; tendency to be unconcerned about the needs of others. IIP3 Cold/Distant - weak feelings of affection and little connection with others; difficulty in making and keeping long-term commitments with others. IIP4 Socially Inhibited - shyness, social awkwardness or anxiety; difficulty in expressing feelings to other people and taking initiative for social contact. IIP5 Nonassertive - a severe lack of self-confidence and self-esteem; difficulty being firm with other people, assuming opinions and dealing with disapproval. IIP6 Overly Accommodating - an excess of friendly submissiveness, trying to please others and earn their approval, and avoiding being assertive to maintain close relationships. IIP7 Self-Sacrificing – excessive affiliation, too much availability to others, and difficulty defining and keeping boundaries in interpersonal relationships. IIP 8 Intrusive/Needy – friendly dominance, readiness to take control; difficulty spending time with themselves.

Psychometric research on IIP64 has repeatedly demonstrated its validity and reliability, reporting acceptable internal consistency values, with Cronbach alpha ranging from 0.76 to 0.85 and good test-retest reliability (r from 0.58 to 0.84) (Horowitz et al., 2000). In the sub-scales, the following Cronbach alphas were found: 0.67 for Domineering /Controlling, 0.64 for Vindictive/Self-Centered, 0.74 for Cold/Distant, 0.82 for Socially Inhibited, 0.86 for

Nonassertive, 0.76 for Overly Accommodating, 0.77 for Self-Sacrificing and 0.57 for Intrusive/Needy, presenting an acceptable internal consistency.

Depression was assessed using the Beck Depression Inventory – short form (BDI-SF) (Beck & Beck, 1972). The BDI-SF comprises 13 items, constituting an abbreviated version of the 21-item BDI. This scale is frequently used in non-clinical contexts since it allows a shorter and quantifiable assessment of depressive symptomatology. On a Likert scale arranged in order of progressive severity, the subject is asked to select the one "that best describes how they have been feeling during the last two weeks, including today". The total score corresponds to the direct sum of the values of all the items. The original BDI-SF had similar internal consistency to the long form (Beck et al., 1988); Pearson's correlation coefficients between the BDI and the BDI-SF ranged from 0.89 to 0.97, so it was considered a consistent instrument and a good substitute for the 21-item BDI (Beck et al., 1974).

2.4 Variables

The sociodemographic variables were obtained concerning the participant's age, education level, professional status, number of children, household status, and regular medication. Age was treated as a continuous variable and also as a nominal variable, with two groups: "18 to 39 years" and "40 years and older"; the level of education was assessed as a nominal variable, including the response possibilities "up to 12 years of schooling" and "more than 12 years of schooling", considering compulsory education as a cutoff point; employment status was assessed as a nominal variable, with possible quotes "professionally active" and "professionally inactive", the latter of which includes situations of unemployment, sick leave and retirement.; the number of children was considered a nominal variable, including the response possibilities "0 or 1 children" and "2 or more children"; and the type of medication was regarded as a nominal variable, including "antidepressants" and "others". Interpersonal problems were assessed as a continuous variable, with scores on each sub-scale and a score on the total scale. Depression was evaluated as a nominal variable, as previously described, with a BDI-SF score of 15 as a cutoff point between G1, "non-depressed", and G2, "depressed".

2.5 Statistical analyses

Internal consistency reliability was analyzed for each sub-scale of IIP64 and for the whole scale by calculating Cronbach α. Descriptive statistics (i.e., mean and standard deviation for continuous variables, and percentages regarding categorical variables) were studied for sociodemographic variables and the sub-scales of interpersonal problems.

A chi-square test of independence was performed to examine the relation between depressed and non-depressed women and the sociodemographic variables. In addition, a one-way

ANOVA was conducted to compare the effect of interpersonal problems (IIP Total score and each sub-scale) on depression. Finally, binary logistic regression with forward stepwise selection was used to analyze the sub-scales of interpersonal problems that predict depression. All analyses were conducted using the Statistical Package for Social Sciences, version 25(SPSS).

3. Results

240 women were included in this study, with 119 in G1 and 121 in G2. The sample demographic characteristics are presented in Table 1.

The mean age of non-depressed women was slightly higher (G1, M=44.18, SD=12.34) than that of depressed ones (G2, M=41.14, DS=13.74). Both groups showed high percentages with an educational level above compulsory schooling and a high percentage of active professionals. G2 had higher percentages than G1 of professionally inactive women. Most women live accompanied, and more than half sample has one child or none.

Table 1. Sociodemographic characteristics (n=240)

Variables	Total sample	Non-depressed (G1)	Depressed (G2)	Chi-square test (χ^2)
% (n)	240	49.6 (119)	50.4 (121)	
Age (years)				χ^2= 5.482; p<.05
18 to 39	84 (35%)	33 (27.7%)	51 (42.1%)	
≥ 40	156 65%)	86 (72.3%)	70 (57.9%)	
Education Level				χ^2= 5.290; p<.05
Up to 12 years of schooling	73 (30.4%)	28 (23.5%)	45 (37.2%)	
more than 12 years of schooling	167 (69.6%)	91 (76.5%)	76 (62.8%)	
Professional Status				χ^2= 15.158; p= <.001
Professionally inactive	79 (32.9%)	25 (21%)	54 (44.6%)	
Professionally active	161 (67.1%)	94 (79%)	67 (55.4%)	
Number of Children				χ^2= 1.653, p= ns
0 to 1	137 (57.1)	63 (52.9%)	74 (61.2%)	
≥ 2	103 (42.9)	56 (47.1%)	47 (38.8%)	
Household Status				χ^2= 2.083; p= ns
Living alone	40 (16.7%)	24 (20.2%)	16 (13.2%)	
Living accompanied	200 (83.3%)	95 (79.8%)	105 (86.8%)	
Regular medication				χ^2= 28.019; p<.001
Yes	120 (50%)	39 (32.8%)	81 (66.9%)	
Medication type				χ^2= 17.290; p<.001
Antidepressants	42 (35.6%)	4 (10%)	38 (48.7%)	
Other	76 (64.4%)	36 (90%)	40 (51.3%)	

n, number; M, mean; SD, standard deviation; %, percentage

In the analysis of the association between socio-demographic variables and depression, there was a significant association between age [χ^2(1, n=240) = 5.482; p<.05], educational level [χ^2(1, n=240) = 5.290; p<.05], professional status [χ^2(1, n=240) = 15.159; p<.001], regular medication

intake [$\chi^2(1, n=240) = 28.019; p<.001$] and type of medication [$\chi^2(1, n=240) = 17.290; p<.001$]. Women with depression were more likely than women without depressive symptoms to be younger, to have a lower level of education, to be less professionally active and more likely to take regular medication, particularly antidepressants.

The proportion of subjects who reported being depressed did not differ by number of children [$\chi^2(1, n=240) = 1.653; p=$ ns] and household status [$\chi^2(1, n=240) = 2.083; p=$ ns].

A one-way ANOVA between subjects was conducted to compare the effect of interpersonal problems (IIP Total score) on depression. There was a significant effect of interpersonal problems on depression at the p<.05 level [F(1, 238) = 125.03, p <.001]. Table 2 presents the results of one-way ANOVA for the eight IIP sub-scales.

Table 2. Means, Standard Deviations, and One-Way Analyses of Variance in Interpersonal problems IIP64 sub-scales

	Non-depressed		Depressed		
	M	*SD*	*M*	*SD*	*F*(1,238)
IIP1 Domineering/Controlling	4.19	3.31	8.85	5.00	71.82***
IIP2 Vindictive/Self-Centered	3.86	3.10	7.61	4.61	54.59***
IIP3 Cold/Distant	3.96	4.47	8.65	5.12	57.04***
IIP4 Socially Inhibited	4.34	4.10	11.65	6.51	107.97***
IIP5 Nonassertive	7.26	5.35	14.05	7.24	68.03***
IIP6 Overly Accommodating	8.24	4.77	13.35	5.56	58.27***
IIP7 Self-Sacrificing	9.63	4.96	15.38	6.42	60.14***
IIP8 Intrusive/Needy	6.40	4.06	10.08	4.46	44.85***

M, mean; SD, standard deviation; *** $p<.001$

The results allowed us to conclude that depressed women report more interpersonal problems than non-depressed ones (Hp1). There was a statistically significant difference in the mean of all sub-scales of the Inventory of Interpersonal Problems between G1 and G2, with depressive women identifying more interpersonal problems.

Having all IIP64 sub-scales significantly distinguish depressed and non-depressed women, the 8 sub-scales were included in a binary logistic regression with forward selection to identify the possible interpersonal problems predictors of depression (see table 3). Odds ratios (OR) and their 95% confidence intervals were estimated, and associations with p<0.05 were considered statistically significant. A p-value threshold of .01 was used to set a limit on the total number of variables included in the final model.

Table 3. Binary logistic regression analysis with forward selection using G1 (non-depressed) and G2 (depressed) as dependent variable

Independent Variables	B	Std Error	Wald	df	p	OR (95% CI)
Step3						
IIP1Domineering/ controlling	.116	.045	6.555	1	.010	1.123 (1.028-1.227)
IIP7 Self-sacrificing	.081	.031	6.991	1	.008	1.085 (1.021-1.152)
IIP4 Socially inhibited	.174	.038	21.365	1	.000	1.190 (1.106-1.282)

p value; OR, odds ratio;

The final model included 3 IIP64 sub-scales, specifically IIP1 domineering/controlling, IIP7 Self-sacrificing and IIP4 Socially inhibited, as risk factors for depression, to be explored in further studies. Stepwise forward logistic regression indicated primary contributions of domineering/ controlling sub-scale on depression, with additional influences - in order of importance - of self-sacrificing and socially inhibited sub-scales of interpersonal problems. Our results showed that depression could only partially be predicted by interpersonal problems (Hp2).

4. Discussion

It was possible to identify 121 women (out of a universe of 1842) with depressive symptoms, corresponding to 6.6% of the participants in the online survey. The present study was conducted exclusively through an online questionnaire, which may justify a higher resistance to participation from the population with depressive disorders, as reported in the literature (Kelfve et al., 2020). In fact, the percentage we ascertained is much lower than that reported in the second wave of the European Health Interview Survey, which analyzed data from respondents living in 27 European countries. In Portugal, the rates of depression were among the highest in Europe for the general population (9.15%), after Iceland (10.33%), Luxembourg (9.74%) and Germany (9.24%). However, when analyzing the incidence according to gender, Portuguese women stood out with an incidence of 13.24%, only surpassed by Icelandic women (14.02%) (Arias-de la Torre et al., 2021). The prevalence of depression in the Portuguese female population and the knowledge that these disorders are a significant cause of disability justify extensive nationwide studies to detect people at risk and develop psychosocial and psychological interventions with demonstrated effectiveness.

Most of the sample of the present study was working and living accompanied. Non-depressed (G1) and depressed (G2) women showed high percentages in education higher than compulsory

schooling in Portugal. These results align with studies indicating that people with more resistance to responding to online surveys are more likely to be single and less educated (Kelfve et al., 2020).

Women with depression (G2) were less likely than women without depressive symptoms (G1) to be professionally active. Our analysis included the unemployed, on sick leave, and retired women in the "professionally inactive" group. The results confirm the literature that states that workers score lower on depression scales than the unemployed (Vilagut et al., 2016, Virgolino, 2022), people on sick leave (Amiri & Behnezhad, 2021) and those in retirement. (Segel-Karpas et al., 2018).

Involving critical psychosocial challenges, unemployment is a particularly worrying situation, as depression in this group appears to be associated with lower reemployment rates (Wege et al., 2017), likely because depression is known to affect work participation and income (Rizvi et al., 2015). Unemployment and depression can thus create a cycle of reciprocal conditioning that worsens the chances of overcoming both situations.

Regarding sick leave, a recent meta-analysis shows that symptoms of depression increase the risk of sick leave by more than 1.5 in women (Amiri & Behnezhad, 2021). The relationship between the two factors can also be reciprocal: if depressive symptoms imply an increase in sick leave, sick leave of another aetiology and its consequences can also cause or exacerbate depressive symptoms. Focusing on the need to return to work and the reduction of psychological suffering justifies rapid clinical interventions in situations of sick leave. In recent years, research has sought answers in psychotherapy, where early psychotherapeutic intervention appears to reduce the duration of sick leave (Marco et al., 2018).

Also, retirement may increase depressive symptoms as well as depressive symptoms may increase the likelihood of retirement (Segel-Karpas, 2018). Possible explanations for the increase in depressive symptoms are the weakening of the social bond, the loss of a structured daily routine and the decrease in available personal resources. Identifying workers close to retirement age who are at risk of depression should therefore be considered in preventive interventions.

The present study found a significant difference in interpersonal problems between depressed and non-depressed women groups. Specifically, when women experience depressive symptoms, they present more interpersonal problems. These data reinforce those obtained in the more extensive study - from which we drew the present study sample – where depression scale scores positively correlated with interpersonal problems (Alexandra et al., 2022), and are in agreement with previous literature associating depression with increased interpersonal distress (Hirschfeld et al., 2000; McFarquhar, Luyten & Fonagy, 2018).

According to our results, the interpersonal problems sub-scales IIP1 Dominating/controlling, IIP7 Self- Self-sacrificing and IIP4 Socially inhibited are those with the greatest impact on the possibility of depression occurring. High scores on the IIP1 reflect the need for control since its loss is associated with feelings of less worth and self-respect. This characteristic justifies difficulties in hearing another person's opinion or point of view without feeling insecure and challenged (Horowitz et al., 2000). Those who score high on the IIP7 describe themselves as warm, caring and likeable, socially desirable traits. However, they may be overly available and have difficulty setting boundaries in interpersonal relationships; being overly protective of others can also make it difficult to recognize and express anger. IIP4 is associated with feelings of shyness or anxiety in the presence of others, making it challenging to initiate social interactions and share feelings. People who score high on the Social Inhibition sub-scale have difficulty handling criticism or disapproval, which they associate with a risk of rejection.

The association of the IIP1 sub-scale with depression may be related to the tendency for depressed people to be less likely to experience the behaviour of others as sympathetic and supportive (Overall & Hammond, 2013), justifying a rigidity of behaviour and withdrawal from others as a way of avoiding feelings of disappointment, contempt or social rejection (Girard et al., 2013). In this sense, the propensity of depressed individuals not to establish reassuring interpersonal relationships boycotts one of the protective factors of depressive recurrence, which is precisely the existence of supportive relationships.

Regarding the sub-scale IIP4, several previous studies have proposed a relationship between depression and social inhibition, highlighting that depressed people exhibit difficulties in being sociable and assertive (McEvoy et al., 2013) and describe interactions as less pleasant and intimate (Kupferberg et al., 2016). In addition, interpersonal difficulties may result from reduced motivation and less empathic responses in social interactions. These data are critical given the evidence that perceived emotional and instrumental support and an extensive and diverse social network are associated with lower rates of depression (Santini et al., 2015) and that the quality of interpersonal relationships impacts daily depressed mood and loneliness (Kuczynski et al., 2022).

A comparative study between depressed outpatients and normative samples assessed interpersonal measures of goals, effectiveness, and problems. Depressed patients reported having less trust and more interpersonal distress and placed more importance on goals to avoid adverse reactions and receive positive feedback from others. In addition, they were especially prone to avoid conflicts and situations that could lead to social humiliation; showed a lack of confidence in their ability to be clear, strong and assertive; and reported more problems

associated with their characteristics of inhibition, accommodation and difficulty in interpersonal confrontation (Locke et al., 2016). These results seem to agree with the findings of the present study, namely high results in IIP1, which may justify attributing greater importance to the goals of avoiding adverse reactions and receiving positive feedback from others; high scores in IIP7, synonymous with difficulty in setting boundaries in interpersonal relationships and being firm in interpersonal conflicts, showing a lack of confidence in their ability to be strong and assertive; and high scores on the Socially Inhibited (IIP4) sub-scale, which reflects less confidence and more distress in interpersonal contexts, with consequent inhibition of action and initiative.

In the present study, not having clinical information about the group of women with indicators of depression should be considered in the conclusions presented. Furthermore, depression is a heterogeneous disorder, and different subtypes may be associated with varying profiles of interpersonal distress. Chronic and acute forms of depression, for example, appear to give rise to distinct behaviours, with more significant social avoidance in acute depression (Ley et al., 2011), and major depressive disorder with higher scores in the non-assertive, socially inhibited and self-sacrificing IIP sub-scales (Wongpakaran et al., 2012). Patients with chronic depression reported higher difficulty differentiating and describing their emotions than episodically depressed patients (van Randenborgh et al., 2012). Moreover, patients with major depressive disorder with comorbid depressive personality reported more interpersonal distress than patients without a personality disorder; they were more likely to have interpersonal problems related to dominance and control than submission (Barrett & Barber, 2007).

The exploratory nature of our analysis of the relationship between different types of interpersonal distress and depression in the Portuguese female population warrants cautious interpretation of the results and highlights the need for further research in this area. However, it emphasized that clinical interventions and strategies for the primary prevention of depression must include factors such as inhibition, reduction of the social network, difficulty in emotional expression and low gratification experienced in interpersonal relationships.

5. Strengths and limitations

The strengths of this study comprised the diversity of the sample, the use of theory-based scales and items, and the fact that the data were collected over a limited period, providing a picture of the perceptions and behaviours of the target population. However, analyzing the results must consider the limitations inherent to this work. First, the fact that the survey was conducted online may have conditioned the characteristics of the participants, either by access limitations or because they may be participants with a greater interest in the subject. Although trust in the online research process is still questionable (Latkovikj & Popovska, 2019), there is growing

evidence that online methods are a valid and effective health research tool, resulting in lower costs and more easily spread across the population on a large scale (Whitaker et al., 2017).

A second limitation of the present study concerns the selection of G2 exclusively based on the results obtained in the BDI-SF, without any other complementary clinical assessment. It is important to note that the validity of the diagnosis made through online questionnaires is not comparable to that made in face-to-face clinical interviews (Sagar et al., 2020). Although we cannot consider that G2 meets the diagnostic criteria for depressive disorders according to the diagnostic classification systems, it consists of women who have manifested distress associated with depressive symptoms.

The World Health Organization (WHO, 2017) has emphasized the need to prevent depression. In its guidelines, the WHO stresses the importance of programs in schools, prevention initiatives aimed at families and specific interventions for the elderly. Despite of this, one of the main gaps pointed out by the literature is that there are very few prevention programs for children (Bernaras, 2019). We would add the importance of developing programs adjusted to the needs of different stakeholders, with an emphasis on the female population.

This requires a well-articulated and coordinated multidisciplinary intervention strategy based on data from clinical and non-clinical populations. Identifying areas of intervention for accepting depressive disorders, their rapid monitoring, and prevention measures to avoid becoming depressed is a current challenge involving health policies and populations. In addition, behavioural changes related to interpersonal distress should not only reinforce social skills, but also promote proactive communication strategies, in families and in all social contexts, capable of fostering the development of emotional expression. Standardized and regular evaluations of social functioning and distress and of the effectiveness of interventions should not be forgotten.

6. Key-messages

- The high prevalence of depression in the Portuguese female population justifies large national studies to detect people at risk.
- Interactions in primary care should be seen as an opportunity to assess risk factors for psychosocial and emotional distress, particularly depressive indicators.
- The development of psychosocial and psychological interventions with proven effectiveness, in areas that involve interpersonal problems, such as proactive communication, emotional expression, self-confidence and assertiveness, should be valued as a preventive measure to reduce the risk of depression.

Ethical approval

Procedures and protocols used were approved by the Ethical Committee of the Center for Electroencephalography and Clinical Neurophysiology (CENC - registration number 2/2021) and in accordance with the Declaration of Helsinki.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

Due to confidentiality, supporting data can only be made available to bona fide researchers subject to a confidentiality agreement and must be requested from the main author via email.

Conflict of interest statement

The authors declare that they have no conflicts of interest to disclose.

Acknowledgments

The first author was awarded a Doctoral Scholarship from the General Directorate of Higher Education, under Order No. 8584/2017 (2nd series), of 29 September.

Author Contributions

The authors confirm contribution to the paper as follows. AF: study conception and design; data collection; analysis and interpretation of results: draft manuscript preparation. MGM: study conception and design; analysis and interpretation of results. CG: draft manuscript preparation. All authors reviewed the results and approved the final version of the manuscript.

References

1. Amiri, S. & Behnezhad, S. (2021). Depression symptoms and risk of sick leave: a systematic review and meta-analysis. *Int Arch Occup Environ Health 94,* 1495–1512 (2021). https://doi.org/10.1007/s00420-021-01703-0
2. Arias-de la Torre, J., Vilagut, G., Ronaldson, A., Serrano-Blanco, A., Martín, V., Peters, M., Valderas, J. M., Dregan, A., & Alonso, J. (2021). Prevalence and variability of current depressive disorder in 27 European countries: a population-based study. *Lancet Public Health, 6*:e729–38. https://doi.org/10.1016/S2468-2667(21)00047-5
3. Barrett, M.S., & Barber, J.P. (2007). Interpersonal profiles in major depressive disorder. *Journal of clinical psychology, 63(3),* 247–266. https://doi.org/10.1002/jclp.20346
4. Beck, A.T. & Beck, R.W. (1972) Screening Depressed Patients in Family Practice – A Rapid Technic. *PostgraduateMedicine, 52*(6), 81-85. https://doi.org/10.1080/00325481.1972.11713319
5. Beck, A.T., Rial, W.Y., & Rickels, K. (1974). Short form of depression inventory: cross-validation. *Psychological reports, 34(3*), 1184–1186.
6. Beck, A.T., Steer, R.A., & Garbin, M.G. (1988). Psychometric Properties of the Beck Depression Inventory: Twenty-Five Years of Evaluation. *Clinical Psychology Review, 8*, 77-100. http://dx.doi.org/10.1016/0272-7358(88)90050-5

   Bernaras, E., Jaureguizar, J., & Garaigordobil, M. (2019). Child and adolescent depression: A review of theories, evaluation instruments, prevention programs, and treatments. *Frontiers in psychology*, *10*, 543. https://doi.org/10.3389/fpsyg.2019.00543
7. Bowlby, J. (1979). The Bowlby-Ainsworth attachment theory. *Behavioral and Brain Sciences, 2(4)*, 637-638. https://doi.org/10.1017/S0140525X00064955
8. Chen, C.K., Nehrig, N., Chou, L.J., McGowan, R., Guyton, A.F., Mustafiz, F., & Bailey, R.W. (2019). Patient extratherapeutic interpersonal problems and response to psychotherapy for depression. *American Journal of Psychotherapy, 72(4),* 101-122. https://doi.org/10.1176/appi.psychotherapy.20190005
9. Fonseca, A., Gaspar de Matos, M., Gois, C., Botelho Guedeso, F. (2022). Interpersonal Problems, Resilience, Self-Regulation and Depression on A Non-Clinical Female Population - A Cross-Sectional Study. *Psychology and Behavioral Science International Journal, 19*(3): 556011. https://doi.org/10.19080/PBSIJ.2022.19.556011
10. Fonseca, A., Lebre, P., Fialho, T., Gois, C., & Gaspar de Matos, M. (2021a). Female Depression: Adverse Childhood and Adolescent Experiences and its relations with Depressive Triggers. *Mediterranean Journal of Clinical Psychology, 9*(3). https://doi.org/10.13129/2282-1619/mjcp-3164
11. Fonseca, A., Lebre, P., Fialho, T., Gois, C., & Gaspar de Matos, M.G. (2021b) Triggering factors of depression in women: a clinical population cross-sectional study. *Acta Psychopathologica, 7*(5), 1-8.

12. Girard, J.M., Cohn, J.F., Mahoor, M.H., Mavadati, S., Rosenwald, D.P. (2013). Social risk and depression: evidence from manual and automatic facial expression analysis. *2013 10th IEEE International Conference and Workshops on Automatic Face and Gesture Recognition (FG),* 1–8. https://doi.org/10.1109/FG.2013.6553748
13. Hirschfeld, R.M., Montgomery, S.A., Keller, M.B., Kasper, S., Schatzberg, A.F., Möller, H.J., Healy, D., Baldwin, D., Humble, M., Versiani, M., Montenegro, R., & Bourgeois, M. (2000). Social functioning in depression: a review. *The Journal of Clinical Psychiatry, 61(4)*, 268–275. https://doi.org/10.4088/jcp.v61n0405
14. Horowitz, L., Alden, L., Wiggins, J., & Pincus, A. (2000). *Inventory of Interpersonal Problems Manual.* The Psychological Corporation.
15. Horowitz, L.M. (2004). *Interpersonal Foundations of Psychopathology*. American Psychological Association. https://doi.org/10.1037/10727-000
16. Hyde, J. & Mezulis, A.M. (2020). Gender differences in depression: biological, affective, cognitive, and sociocultural factors. *Harvard Review of Psychiatry, 28(1)*, 4-13. https://doi.org/10.1097/HRP.0000000000000230
17. Joiner, T.E., & Timmons, K.A. (2009). Depression in its interpersonal context. In I. Gotlib & C. Hammen (Eds.), Handbook of depression (Vol. 2, pp. 322339). Guilford Press.
18. Kelfve, S., Kivi, M., Johansson, B., & Lindwall, M. (2020). Going web or staying paper? The use of web-surveys among older people. *BMC Medical Research Methodology, 20*(1). https://doi.org/10.1186/s12874-020-01138-0
19. Kiesler, D.J. (1996). *Contemporary Interpersonal Theory and Research: Personality, Psychopathology and Psychotherapy*. Wiley.
20. Kuczynski, A.M., Halvorson, M.A., Slater, L.R., & Kanter, J.W. (2022). The effect of social interaction quantity and quality on depressed mood and loneliness: A daily diary study. *Journal of Social and Personal Relationships, 39(3),* 734-756. https://doi.org/10.1177/02654075211045717
21. Kupferberg, A., Bicks, L., & Hasler, G. (2016). Social functioning in major depressive disorder. *Neuroscience & Biobehavioral Reviews, 69,* 313-332. https://doi.org/10.1016/j.neubiorev.2016.07.002
22. Latkovikj, M.T., & Popovska, M.B., (2019), Online research about online research: Advantages and disadvantages. *E-methodology, 6,* 44-56. https://doi.org/10.15503/emet2019.44.56
23. Leary, T. (1957). *Interpersonal diagnosis of personality; a functional theory and methodology for personality evaluation.* Ronald Press.
24. Ley, P., Helbig-Lang, S., Czilwik, S., Lang, T., Worlitz, A., Brücher, K. & Petermann, F. (2011) Phenomenological differences between acute and chronic forms of major depression in inpatients, *Nordic Journal of Psychiatry, 65(5),* 330-337. https://doi.org/10.3109/08039488.2011.552121
25. Locke, K.D., Sayegh, L., Penberthy, J.K., Weber, C., Haentjens, K., & Turecki, G. (2017). Interpersonal circumplex profiles of persistent depression: Goals, self-efficacy, problems, and effects of group therapy. *Journal of Clinical Psychology, 73(6),* 595-611. https://doi.org/10.1002/jclp.22343.

26. Marco, J.H., Alonso, S. & Andani, J. (2018): Early intervention with cognitive behavioral therapy reduces sick leave duration in people with adjustment, anxiety and depressive disorders. *Journal of Mental Health, 29(3),* 247-255. https://doi.org/10.1080/09638237.2018.1521937
27. McEvoy, P.M., Burgess, M.M., Page, A.C., Nathan, P., & Fursland, A. (2013). Interpersonal problems across anxiety, depression, and eating disorders: A transdiagnostic examination. *British Journal of Clinical Psychology, 52(2),* 129–147. https://doi.org/10.1111/bjc.12005
28. McFarquhar, T., Luyten, P., & Fonagy, P. (2018). Changes in interpersonal problems in the psychotherapeutic treatment of depression as measured by the Inventory of Interpersonal Problems: A systematic review and meta-analysis. *Journal of Affective Disorders, 226,* 108-123. https://doi.org/10.1016/j.jad.2017.09.036
29. Milanović, S.M., Erjavec, K., Poljičanin, T., Vrabec, B., & Brečić, P. (2015). Prevalence of depression symptoms and associated socio-demographic factors in primary health care patients. *Psychiatria Danubina, 27(1),* 0-37. https://doi.org/10.1111/j.1440-1819.2008.01801.x
30. Myles, L., & Merlo, E. (2022). Elucidating the Cognitive Mechanisms Underpinning Behavioural Activation. *International Journal of Psychological Research*, *15*(1), 126–132. https://doi.org/10.21500/20112084.5400
31. Overall, N.C., & Hammond, M.D. (2013). Biased and Accurate: Depressive Symptoms and Daily Perceptions Within Intimate Relationships. *Personality and Social Psychology Bulletin*, *39*(5), 636–650. https://doi.org/10.1177/0146167213480188
32. Ren, P., Qin, X., Zhang, Y., & Zhang, R. (2018). Is Social Support a Cause or Consequence of Depression? A Longitudinal Study of Adolescents. *Frontiers in psychology, 9*, 1634. https://doi.org/10.3389/fpsyg.2018.01634
33. Rizvi, S.J., Cyriac, A., Grima, E., Tan, M., Lin, P., Gallaugher, L.A., McIntyre, R.S., & Kennedy, S.H. (2015). Depression and employment status in primary and tertiary care settings. Canadian journal of psychiatry. *Revue canadienne de psychiatrie, 60(1),* 14–22. https://doi.org/10.1177/070674371506000105
34. Roepke, A.M., & Seligman, M.E. (2016). Depression and prospection. *British Journal of Clinical Psychology*, *55*(1), 23-48. https://doi.org/10.1111/bjc.12087
35. Sagar, R., Chawla, N., & Sen, M.S. (2020). Is it correct to estimate mental disorder through online surveys during COVID-19 pandemic?. *Psychiatry research, 291*, 113251. https://doi.org/10.1016/j.psychres.2020.113251
36. Santini Z.I., Koyanagi A., Tyrovolas S., Mason C., Haro J.M. (2015). The association between social relationships and depression: A systematic review. *Journal of Affective Disorders, 175,* 53-65. https://doi.org/10.1016/j.jad.2014.12.049.
37. Schetsche, C., Jaume, L.C., Gago-Galvagno, L., & Elgier, A.M. (2021). Social support and its associations with Depression and Anxiety: an in-depth Analysis using Structural Equation Modeling. *Mediterranean Journal of Clinical Psychology, 9(2).* https://doi.org/10.13129/2282-1619/mjcp-3017

38. Segel-Karpas, D., Ayalon, L., & Lachman, M.E. (2018). Retirement and depressive symptoms: A 10-year cross-lagged analysis. *Psychiatry research, 269,* 565-570. https://doi.org/10.1016/j.psychres.2018.08.081
39. Sheets, E.S., & Craighead, W.E. (2014). Comparing chronic interpersonal and non-interpersonal stress domains as predictors of depression recurrence in emerging adults. *Behavior Research and Therapy, 63,* 36–42. https://doi.org/10.1016/j.brat.2014.09.001.
40. Slavich, G.M., & Irwin, M.R. (2014). From stress to inflammation and major depressive disorder: a social signal transduction theory of depression. *Psychological bulletin, 140(3),* 774–815. https://doi.org/10.1037/a0035302
41. Slavich, G.M. & Sacher, J. (2019). Stress, sex hormones, inflammation, and major depressive disorder: Extending Social Signal Transduction Theory of Depression to account for sex differences in mood disorders. *Psychopharmacology 236*, 3063–3079. https://doi.org/10.1007/s00213-019-05326-9
42. Smith, M.V. & Mazurre, C.M., (2021). Mental Health and Wealth: Depression, Gender, Poverty, and Parenting. *Annual Review of Clinical Psychology, 17*, 181-205. https://doi.org/10.1146/annurev-clinpsy-071219-022710
43. Sousa, M.A.A. (2013). *Preditores de Recuperação nas Perturbações do Comportamento Alimentar: Estudo Prospectivo de Longa Duração*. [Unpublished master dissertation]. Escola de Psicologia de Braga, Universidade do Minho.
44. Sullivan, H. S. (2014). The interpersonal theory of psychiatry. In *An Introduction to Theories of Personality*, 137-156. Psychology Press.
45. van Randenborgh, A., Hüffmeier, J., Victor, D., Klocke, K., Borlinghaus, J., & Pawelzik, M. (2012). Contrasting chronic with episodic depression: an analysis of distorted socio-emotional information processing in chronic depression. *Journal of affective disorders, 141(2-3)*, 177-184. https://doi.org/10.1016/j.jad.2012.02.039
46. Vilagut, G., Forero, C. G., Barbaglia, G., & Alonso, J. (2016). Screening for Depression in the General Population with the Center for Epidemiologic Studies Depression (CES-D): A Systematic Review with Meta-Analysis. *PloS one*, *11*(5), e0155431. https://doi.org/10.1371/journal.pone.0155431
47. Virgolino, A., Costa, J., Santos, O., Pereira, M.E., Antunes, R., Ambrósio, S., Heitor, M.J., & Carneiro, A.V. (2022). Lost in transition: a systematic review of the association between unemployment and mental health, *Journal of Mental Health, 31(3)*, 432-444. https://doi.org/10.1080/09638237.2021.2022615
48. Wege, N., Angerer, P., & Li, J. (2017). Effects of Lifetime Unemployment Experience and Job Insecurity on Two-Year Risk of Physician-Diagnosed Incident Depression in the German Working Population. *International Journal of Environmental Research and Public Health, 14(8),* 904. https://doi.org/10.3390/ijerph14080904
49. Weissman, M.M., Markowitz, J.C., & Klerman, G.L. (2017). *The guide to interpersonal psychotherapy* (updated and expanded Ed.). Oxford University Press.

50. Whitaker, C., Stevelink, S., & Fear, N. (2017). The Use of Facebook in Recruiting Participants for Health Research Purposes: A Systematic Review. *Journal of medical Internet research, 19(8),* e290. https://doi.org/10.2196/jmir.7071
51. Wilde, J.L., & Dozois, D.J. (2019). A dyadic partner-schema model of relationship distress and depression: Conceptual integration of interpersonal theory and cognitive-behavioral models. *Clinical psychology review*, *70*, 13-25. https://doi.org/10.1016/j.cpr.2019.03.003
52. World Health Organization (WHO), (2017). Depression disorder (depression). Available online at: http://www.who.int/mediacentre/factsheets/fs369/en/
53. Wongpakaran, T., Wongpakaran, N., Sirithepthawee, U., Pratoomsri, W., Burapakajornpong, N., Rangseekajee, P., ... & Temboonkiat, A. (2012). Interpersonal problems among psychiatric outpatients and non-clinical samples. *Singapore Med J*, *53*(7), 481-487. https://doi.org/10.11622/smedj.2015035

DOI: 10.13129/2282-1619/mjcp-3614