ISSN: 2690-0726

Research Article

Journal of Educational and Psychological Research

Empathy Before Utility: Quarter-Life Crisis Distress and Perceived Chatbot Empathy as Predictors of Using AI Chatbots as an Emotional Coping Strategy in Emerging Adulthood

Sora Pazer*

IU International University of Applied Sciences, Germany

***Corresponding Author**
Sora Pazer, IU International University of Applied Sciences, Germany.

Submitted: 2026, Jun 19 **Accepted:** 2026, Jul 27; **Published:** 2026, Aug 25

Citation: Pazer, S. (2026). Empathy Before Utility: Quarter-Life Crisis Distress and Perceived Chatbot Empathy as Predictors of Using AI Chatbots as an Emotional Coping Strategy in Emerging Adulthood. *J Edu Psyc Res, 8*(2), 01-12.

Abstract

Emerging adults between the ages of 25 and 35 increasingly report a phase of biographical destabilisation that has come to be described as the quarter-life crisis, and they encounter this phase at a historical moment in which conversational artificial intelligence is continuously available, socially unembarrassing, and free of charge. The present study asks which factors determine whether psychological distress in this life phase is translated into the use of an AI chatbot as an emotional coping strategy, and whether such use is associated with the severity of depressive symptomatology once distress itself is held constant. A cross-sectional online survey of German-speaking emerging adults (N = 130; Mage = 30.16, SD = 3.08; 56.9 % female) assessed quarter-life crisis severity, chatbot use as coping, burnout symptoms, depressive symptoms (PHQ-9), perceived chatbot empathy, perceived usefulness, and perceived ease of use. Hierarchical regression showed that crisis severity predicted chatbot coping use ($\beta = .278$, $p = .001$) and that the acceptance block added substantial variance ($\Delta R^2 = .308$, $p < .001$), with perceived empathy emerging as the dominant predictor ($\beta = .684$, $p < .001$) and perceived usefulness losing predictive force once empathy was entered ($\beta = -.171$, $p = .132$). Perceived empathy did not moderate the crisis-to-use path ($p = .304$). A bootstrapped mediation test found no indirect effect of crisis severity on depressive symptoms through chatbot use (ab = .016, 95 % CI [-.022, .059]). Distressed emerging adults turn to conversational agents primarily because these agents feel understanding rather than because they seem useful, yet such use neither aggravates nor alleviates symptom load.

Keywords: Quarter-Life Crisis, Emerging Adulthood, Conversational Agents, Artificial Intelligence, Coping, Technology Acceptance, Perceived Empathy

1. Introduction

It is shortly after two in the morning, and a twenty-nine-year-old project manager is sitting on the edge of her bed with her phone in her hand. She has been awake for three hours. The contract she signed eleven months ago has turned out to be a professional cul-de-sac, the relationship she assumed would be permanent has become quiet in a way she does not know how to name, and the friends who would once have been called at this hour now have small children and early alarms. She does not open the messaging app. She opens a chat window with a language model, types four sentences about how tired she is of pretending, and receives, within two seconds, a response that is warm, patient, syntactically flawless, and entirely unembarrassed by the hour. She writes for forty minutes. Nobody learns of it.

This scene is neither exotic nor marginal. It describes a form of psychological self-management that has become ordinary within a very short period and that has, as yet, almost no place in the theoretical vocabulary of clinical and occupational psychology. The rapid diffusion of general-purpose conversational agents has produced a situation in which emotionally charged self-disclosure is available continuously, at no cost, without waiting lists, without diagnostic labelling, and without the interpersonal risk that accompanies disclosure to a friend, a partner, or a colleague [1,2]. For a generation that reports historically high levels of psychological strain and simultaneously encounters substantial

structural barriers to psychotherapeutic care, this constellation is consequential [3,4].

The life phase in which this constellation appears most acutely is the period between the middle of the third and the middle of the fourth decade of life. Arnett described the years following adolescence as a distinct developmental period characterised by identity exploration, instability, self-focus, a subjective sense of being in-between, and a broad horizon of possibility [5,6]. What Arnett framed largely as an opportunity structure has, in subsequent research, revealed a darker counterpart. Robinson and colleagues reconstructed the early adult crisis as a holistic phase model in which a period of felt entrapment gives way to separation, exploration, and eventual rebuilding, and Robinson demonstrated that the post-university transition produces both locked-out and locked-in forms of crisis, the former defined by exclusion from desired roles and the latter by commitment to roles experienced as alien [7,8]. The colloquial term quarter-life crisis has since acquired empirical substance: it denotes a syndrome of biographical disorientation, occupational doubt, comparison-driven inadequacy, and anticipatory regret that clusters in the years when educational credentials have been obtained but their biographical yield remains uncertain.

Epidemiologically, this period is no longer the low-risk interval it was once assumed to be. Depressive and anxiety-related symptom burdens among young adults have risen markedly across high-income countries over the past fifteen years, and the age band in which first-onset depressive episodes cluster overlaps substantially with the age band in which occupational entry and family formation are negotiated. At the same time, the average waiting period for outpatient psychotherapy in Germany continues to be measured in months rather than weeks, and help-seeking in this age group is additionally suppressed by stigma, low mental health literacy, and a preference for self-reliance [4]. The gap between the point at which distress becomes subjectively unbearable and the point at which professional help becomes available is therefore wide, and it is precisely this gap into which conversational agents have moved.

The existing evidence on such agents is dominated by intervention studies. Rule-based and manualised systems such as Woebot have been shown to reduce depressive symptoms over short intervention windows, and meta-analytic syntheses report small to moderate effects on depression and distress alongside considerable heterogeneity and methodological limitations [1,9,10]. What these studies examine, however, is the efficacy of designed therapeutic protocols delivered by a machine. What they do not examine is the spontaneous, unprescribed, non-clinical use of general-purpose chatbots by distressed people who have not been assigned to any protocol and who are not patients in any formal sense. This is the more common behaviour, and it is almost entirely unexplained.

The research gap addressed here is therefore not the question of whether psychological strain and chatbot use are associated. That association is plausible on almost any account of coping. The relevant question is a mechanistic one: through what appraisal does distress become chatbot use, and which properties attributed to the system govern that translation. Classical technology acceptance research would predict that use is driven by perceived usefulness and, secondarily, by perceived ease of use [11,12]. Yet an instrument that is approached at two in the morning after a sleepless night is not obviously being evaluated as an instrument. The user is not solving a task; the user is seeking to be received. If that is so, the decisive determinant should not be instrumental utility but the perceived emotional responsiveness of the system, the degree to which it appears to understand.

The present study therefore pursues three questions. First, does the severity of quarter-life crisis distress predict the extent to which AI chatbots are used as an emotional coping strategy? Second, when the classical acceptance determinants and a perceived-empathy component are entered simultaneously, which of them carries the predictive weight? Third, does chatbot coping use function as a mechanism that links crisis distress to depressive symptomatology, that is, does the behaviour have measurable symptomatic correlates once distress itself is controlled?

Answering these questions has consequences that reach beyond the psychology of technology. If perceived empathy rather than perceived usefulness governs the uptake of conversational agents in states of distress, then the design of digital mental health tools, the training of practitioners who will increasingly meet clients that arrive pre-processed by machine conversation, and the regulatory assessment of systems that generate the experience of being understood without any corresponding clinical accountability all require a different empirical basis than the one currently in use.

2. Theoretical Background

2.1. The Quarter-Life Crisis as a Developmental and Occupational Phenomenon

The theoretical status of the quarter-life crisis has long been uncertain, in part because the concept entered the literature through popular publication rather than through construct validation. Its developmental anchoring, however, is secure. Arnett proposed emerging adulthood as a period that is demographically distinct from both adolescence and settled adulthood, marked by the postponement of stable employment, cohabitation, and parenthood, and by an unusually high density of identity-relevant decisions [5]. The structural conditions that produced this period, the expansion of tertiary education, the flexibilisation of labour markets, and the erosion of standardised biographies, have intensified rather than abated in the two decades since.

Robinson et al. supplied the phase-analytic structure [7]. Their holistic model describes an initial condition of felt entrapment within a role commitment experienced as inauthentic, followed by separation from that commitment, a period of exploration marked by both liberation and anxiety, and finally a reconstruction of commitments on revised premises. Crucially, the model treats crisis as developmentally productive rather than pathological, a claim that has empirical support but that should not obscure the

substantial subjective distress incurred during the middle phases. Robinson subsequently differentiated locked-out from locked-in crisis forms, the first arising when access to desired adult roles is blocked, the second when such roles have been attained but are experienced as foreign [8]. The two forms produce comparable levels of distress through opposite structural routes.

A parallel line of reasoning can be developed from occupational health psychology. The Job Demands-Resources model holds that strain arises from the interaction of chronically elevated demands with insufficient resources, and that the health-impairment process operates through the progressive depletion of energetic capacity [13,14]. The occupational entry phase is characterised by a specific and unfavourable configuration: demands are high and often poorly specified, autonomy is low because organisational standing has not yet been acquired, and the resources that buffer strain in later career stages, professional identity, network capital, financial reserves, are not yet available. Conservation of Resources theory sharpens this account by explaining why loss spirals accelerate in precisely this phase; individuals with thin resource reservoirs are both more vulnerable to initial loss and less able to invest in resource acquisition [15].

Quarter-life crisis distress can therefore be reconstructed as the subjective correlate of a developmentally typical resource deficit, expressed simultaneously in biographical doubt, occupational strain, and affective symptom load. This reconstruction has an important implication for the present study. If crisis distress reflects a deficit in social and psychological resources rather than merely a cognitive uncertainty about goals, then the behaviours it generates should be resource-seeking behaviours, and a continuously available conversational partner constitutes a resource whose acquisition cost is close to zero.

2.2. Conversational Agents as Instruments of Emotion Regulation

Coping has been theorised since Lazarus and Folkman as the sum of cognitive and behavioural efforts deployed to manage demands appraised as exceeding personal resources, with the classical distinction between problem-focused and emotion-focused strategies [16]. The emotion-regulation tradition inaugurated by Gross refined this account by specifying the temporal locus of regulatory attempts and by distinguishing antecedent-focused from response-focused strategies [17,18]. Within this framework, the articulation of distress to an attentive listener occupies a distinctive position: it is simultaneously a cognitive-change strategy, since verbalisation reorganises the appraisal, and a social-support strategy, since it presupposes a recipient.

The therapeutic value of articulation as such has been documented independently of any recipient. Pennebaker demonstrated that structured written disclosure of emotionally significant experience produces measurable improvements in physical and psychological health, an effect attributed to the imposition of narrative structure on inchoate affect [19]. This finding is directly relevant to the present question, because it establishes that a substantial portion of the benefit of disclosure does not require a human interlocutor. A conversational agent that elicits articulation may therefore produce genuine regulatory effects even in the complete absence of understanding on the part of the system.

Empirical work on human-chatbot interaction supports this reading. Ho et al. found that emotional self-disclosure to a chatbot produced relational, emotional, and psychological benefits comparable to those obtained from disclosure to a human partner, provided that participants believed the exchange to be responsive [20]. Skjuve et al. documented the development of relationship-like bonds between users and conversational agents over extended periods, including experiences of intimacy and reciprocity [2]. These findings become intelligible against the background of the media equation, which established that human beings respond to computers with the social scripts they apply to persons, largely automatically and without endorsing the belief that the machine is a person [21,22]. Epley et al. supplied the motivational account: anthropomorphism intensifies when effectance motivation is high and when social connection is deficient, precisely the constellation that defines quarter-life crisis distress [23].

The specific affordances of the conversational agent as a coping instrument can accordingly be enumerated. It is available without temporal restriction, which matters because distress peaks disproportionately at night. It imposes no reciprocal obligation, which removes the cost that disclosure to friends carries in a life phase where social capital is already strained. It cannot be embarrassed, cannot become fatigued, and cannot transmit information to third parties. And it delivers unconditional positive regard as a default output property rather than as an achievement of professional discipline. Whether this constellation constitutes a resource or a substitute that forestalls the acquisition of genuine resources is an empirical question of considerable importance, and one that the present design can address only in correlational form.

2.3. Technology Acceptance and the Limits of Instrumental Explanation

The dominant framework for explaining the adoption of information technology remains the Technology Acceptance Model in its original and extended forms. Davis proposed that behavioural intention is determined by perceived usefulness, defined as the subjective expectation that using a system will enhance performance, and by perceived ease of use, defined as the expectation that use will be effortless [11]. The model has been validated across an extraordinary range of contexts and extended into TAM3 and the unified formulation offered by Venkatesh et al., which added social influence and facilitating conditions as determinants [12,24].

The explanatory success of this framework should not obscure its origins. TAM was developed to explain the adoption of workplace productivity software by employees whose relation to the system was instrumental by construction. Its dependent variable is task performance, and its two determinants are the two dimensions along which a tool can be evaluated with respect to a task. When

the object of adoption is an entity that produces the experience of being listened to, the model's construct definitions become strained. Perceived usefulness can of course be extended to cover emotional benefit, and it frequently is in health technology research, but such an extension conceals rather than resolves the conceptual problem: it treats an affective relation as a special case of instrumental evaluation.

There is reason to expect that this concealment carries an empirical cost. If users in states of acute distress evaluate a conversational agent along an affective dimension that is only weakly captured by usefulness items, then models that include usefulness but omit the affective dimension will attribute to usefulness a variance share that properly belongs elsewhere. The consequence is a well-behaved model with a misidentified mechanism. Testing this possibility requires that both determinants be measured and entered simultaneously, since only their joint entry reveals which retains predictive force when the other is controlled.

2.4. Perceived Empathy as an Affective Acceptance Determinant

The construct proposed here as the missing affective determinant is perceived empathy, understood as the user's subjective attribution of emotional comprehension to the system. The definitional caution required is considerable. Perceived empathy is not empathy. Large language models produce empathic register as a statistical property of their training distribution and their alignment procedure; no phenomenal state corresponds to the output. What is measured is therefore an attribution made by the user, and the theoretical claim is that this attribution, irrespective of its accuracy, governs behaviour.

The precedent for this claim comes from psychotherapy process research. Across four decades of outcome studies, therapist empathy has emerged as one of the most robust predictors of therapeutic benefit, with meta-analytic estimates placing it among the strongest of the common factors, and the working alliance shows a comparably stable association with outcome [25,26]. What these literatures measure is not the therapist's internal state but the client's perception of being understood. The active ingredient, methodologically speaking, has always been the attribution.

Bickmore and Picard demonstrated that relational agents designed to display social and emotional responsiveness sustained user engagement over months, and that the relational dimension rather than the informational dimension accounted for retention [27]. Self-determination theory offers a complementary account: relatedness constitutes a basic psychological need whose satisfaction is intrinsically motivating, and an interlocutor that consistently signals acceptance addresses this need directly, whether or not it possesses the states it signals [28].

The hypothesis that follows is therefore specific and falsifiable. If distressed emerging adults approach chatbots as tools, perceived usefulness should dominate the prediction of use and perceived empathy should add little. If they approach them as interlocutors, perceived empathy should dominate and the predictive contribution of perceived usefulness should diminish or vanish once empathy is controlled.

2.5. Burnout, Depressive Symptomatology, and the Question of Consequence

The final theoretical question concerns consequence. Burnout, as conceptualised by Maslach et al. and reformulated in the two-dimensional model of exhaustion and disengagement underlying the Oldenburg Burnout Inventory, denotes a strain state produced by chronic demand exposure [29,30]. Its relation to depressive symptomatology is contested; Bianchi et al. argued on the basis of an extensive review that the discriminant validity of the two constructs is weaker than the separate literatures assume, while defenders of the distinction maintain that burnout is situationally bounded in a way that depression is not [31]. For the present purposes the debate matters because both constructs are measured, and any interpretation of their association must acknowledge that a substantial part of the shared variance may be construct overlap rather than causal transmission.

The substantive question is whether chatbot coping use occupies a position in the pathway from crisis distress to symptom load. Three outcomes are conceivable. Use may function as a resource that attenuates the transmission, in which case a negative association with symptoms should appear once distress is controlled. Use may function as an avoidance strategy that forestalls effective help-seeking and thereby aggravates symptom load, in which case a positive residual association should appear. Or use may be a behavioural correlate of distress with no independent symptomatic significance, in which case the zero-order association between use and symptoms should disappear entirely once distress is partialled out. The third possibility is theoretically the least dramatic and empirically the most probable, and it is worth stating in advance that a null finding here would carry genuine informational value in a literature that has been dominated by intervention studies with strong prior commitments in both directions.

2.6. The Present Model and Hypotheses

The model tested in this study accordingly places chatbot coping use at the centre and asks what determines it and what follows from it. Five hypotheses were formulated in advance of analysis.

H1 states that the severity of quarter-life crisis distress is positively associated with the use of AI chatbots as an emotional coping strategy, controlling for age, gender, current psychotherapeutic treatment, and general technology affinity.

H2 states that perceived chatbot empathy predicts chatbot coping use over and above crisis severity and the classical acceptance determinants.

H3 states that perceived usefulness and perceived ease of use predict chatbot coping use, with the qualification derived in section 2.3 that the contribution of perceived usefulness will be substantially reduced when perceived empathy is entered simultaneously.

H4 states that perceived empathy moderates the association between crisis severity and chatbot coping use, such that distress is translated into use most strongly when the system is perceived

as emotionally responsive.
H5 states that chatbot coping use mediates the association between crisis severity and depressive symptomatology.

3. Method

3.1. Study Design

The study employed a cross-sectional, non-experimental online survey design with a single measurement occasion. This design was selected because the phenomenon under investigation, the spontaneous use of general-purpose conversational agents for emotional self-regulation, occurs outside institutional settings and cannot be observed prospectively without altering the behaviour through the act of observation. The design permits the estimation of associations and of conditional associations, and it permits the statistical decomposition of a total effect into direct and indirect components in the formal sense defined by Hayes [32]. It does not permit causal inference. The mediation and moderation terminology used throughout this article is therefore statistical rather than causal, and the directional language employed in the hypotheses reflects theoretical derivation rather than demonstrated temporal precedence. This limitation is revisited in section 5.3.

3.2. Sample and Recruitment

The analytic sample comprised 130 German-speaking adults between 25 and 35 years of age (M = 30.16, SD = 3.08). With respect to gender, 74 participants identified as female (56.9 %), 52 as male (40.0 %), and 4 as diverse (3.1 %). Employment status was distributed as follows: 76 participants were employed full time (58.5 %), 30 part time (23.1 %), 17 were enrolled in a course of study (13.1 %), and 7 were seeking employment (5.4 %). Thirty-two participants (24.6 %) reported that they were currently in psychotherapeutic treatment.

Recruitment proceeded through social media channels, university mailing lists, and non-clinical online communities addressing questions of career development and life-phase transition. Participation was voluntary, anonymous, and uncompensated. No identifying information was collected, and no IP addresses were stored. The median completion time was approximately twelve minutes. Inclusion required current age within the specified band, sufficient German language proficiency, and at least occasional prior use of an AI chatbot, since the acceptance items presuppose experience with the object being evaluated. The resulting sample is a self-selected convenience sample and is not representative of the German population in the corresponding age band; the implications of this are addressed in section 5.3.

A sensitivity analysis conducted with G*Power 3.1 indicated that a sample of 130 provides a power of .80 to detect an increment of f^2 = .062 for a single predictor entered at the final step of a hierarchical regression containing eight predictors, corresponding to a semipartial correlation of approximately .24 [33]. The sample is therefore adequately powered for medium-sized effects and underpowered for small ones, a consideration of particular relevance to the interpretation of the non-significant interaction term.

3.3. Measures

Quarter-life crisis severity was assessed with a seven-point Likert scale ranging from 1 (does not apply at all) to 7 (applies completely), covering biographical disorientation, occupational doubt, social comparison, and the subjective sense of falling behind an expected developmental schedule. A representative item content concerns the feeling that one's life is not developing according to the trajectory one had assumed at the end of formal education. Higher scores indicate greater crisis severity.

Chatbot use as an emotional coping strategy was assessed with a five-point frequency scale ranging from 1 (never) to 5 (very often), referring to the use of AI chatbots in situations of emotional strain, including the disclosure of worries, the search for reassurance, and the working through of interpersonal or occupational difficulties. Higher scores indicate more frequent use.

Burnout symptomatology was assessed with an adapted five-point instrument oriented on the exhaustion and disengagement dimensions of the Oldenburg Burnout Inventory, with response options ranging from 1 (very rarely) to 5 (very often) [30]. Depressive symptomatology was assessed with the Patient Health Questionnaire-9, a nine-item instrument with a sum score ranging from 0 to 27 and established cut-off values at 5, 10, 15, and 20 for mild, moderate, moderately severe, and severe symptomatology respectively [34,35].

Perceived chatbot empathy was assessed with a five-point agreement scale ranging from 1 (do not agree at all) to 5 (fully agree), covering the attribution of emotional comprehension, responsiveness, and non-judgemental reception to the system. Perceived usefulness and perceived ease of use were assessed with five-point agreement scales constructed in accordance with the operational definitions given by Davis and adapted to the conversational-agent context [11]. General technology affinity was assessed with a five-point scale ranging from 1 (very low) to 5 (very high).

The data file available for the present analysis contains aggregated scale scores rather than item-level responses. Internal consistency coefficients could therefore not be recomputed, and Table 1 reports distributional characteristics in place of alpha coefficients. This constitutes a documented limitation of the present analysis rather than of the instruments, and it is treated as such in section 5.3.

3.4. Statistical Analysis

All analyses were conducted in Python 3.13 using pandas, SciPy, and statsmodels. The analytic sequence proceeded in four steps. First, descriptive statistics, distributional characteristics, and clinical cut-off frequencies were computed for all study variables. Skewness and kurtosis were inspected to verify the tenability of the normality assumption for the regression residuals; all values fell within the interval commonly regarded as unproblematic. Second, zero-order Pearson correlations were computed among all continuous variables, with Spearman coefficients calculated as a robustness check for the two central associations.

Third, the determinants of chatbot coping use were examined by means of a four-step hierarchical multiple regression. Step 1 entered the control variables age, gender, current psychotherapeutic treatment, and technology affinity. Step 2 added quarter-life crisis severity. Step 3 added the acceptance block consisting of perceived empathy, perceived usefulness, and perceived ease of use. Step 4 added the product term of crisis severity and perceived empathy. All continuous variables were standardised prior to analysis, so that the reported coefficients for continuous predictors are standardised regression weights and the coefficients for the two dichotomous predictors express group differences in standard-deviation units of the outcome. Increments in explained variance were tested by means of hierarchical F tests. Multicollinearity was assessed through variance inflation factors, the highest of which reached 2.79, well below conventional thresholds.

Fourth, the mediation hypothesis was tested using the ordinary least squares path-analytic framework described by Hayes, corresponding to PROCESS Model 4 with crisis severity as predictor, chatbot coping use as mediator, and the PHQ-9 sum score as outcome [32]. The indirect effect was estimated with 5,000 percentile bootstrap resamples and a 95 % confidence interval, following the recommendations of Preacher and Hayes and MacKinnon et al.; a random seed was fixed to ensure reproducibility. The identical model was re-estimated with the burnout score as outcome [36,37]. The significance threshold was set at $\alpha = .05$ throughout, and exact p values are reported.

4. Results

4.1. Descriptive Findings

Table 1 presents means, standard deviations, observed ranges, and distributional characteristics for all continuous study variables. Quarter-life crisis severity was elevated across the sample (M = 4.17, SD = 1.07 on a seven-point scale), with 74 participants (56.9 %) scoring above the theoretical scale midpoint. Chatbot use as an emotional coping strategy occupied an intermediate position (M = 3.03, SD = 0.76 on a five-point scale); 67 participants (51.5 %) reported at least occasional use in situations of emotional strain, and 16 participants (12.3 %) reported frequent or very frequent use.

The symptom load in this non-clinical sample was substantial. The mean PHQ-9 sum score of 11.97 (SD = 4.67) falls within the range conventionally classified as moderate depressive symptomatology. Ninety-three participants (71.5 %) reached or exceeded the cut-off of 10 that is generally used to indicate clinically relevant depressive symptoms, and 39 participants (30.0 %) reached or exceeded the cut-off of 15 corresponding to moderately severe symptomatology [35]. The burnout score (M = 2.77, SD = 0.70) likewise indicates a moderate strain level.

Among the acceptance variables, perceived ease of use was rated highest (M = 4.15, SD = 0.61), followed by perceived usefulness (M = 3.54, SD = 0.60) and perceived empathy (M = 3.13, SD = 0.90). The pattern is instructive in itself: participants regard conversational agents as easy to operate, moderately useful, and only ambivalently understanding, and the variance of the empathy attribution is markedly greater than that of the other two acceptance dimensions. Skewness values ranged from -0.50 to 0.04 and kurtosis values from -1.20 to 0.17, indicating no substantial departure from normality.

Variable	Response range	*M*	*SD*	Observed range	Skewness	Kurtosis
Age (years)	25-35	30.16	3.08	25.00-35.00	-0.14	-1.20
Technology affinity	1-5	3.73	0.81	1.96-5.00	0.00	-0.92
Quarter-life crisis severity	1-7	4.17	1.07	1.48-6.89	-0.01	-0.12
AI chatbot use as coping	1-5	3.03	0.76	1.00-5.00	-0.06	-0.18
Burnout symptomatology	1-5	2.77	0.70	1.00-4.33	-0.29	0.10
Depressive symptoms (PHQ-9)	0-27	11.97	4.67	0.00-27.00	0.02	0.17
Perceived chatbot empathy	1-5	3.13	0.90	1.00-5.00	0.04	-0.40
Perceived usefulness	1-5	3.54	0.60	2.11-5.00	0.00	-0.44
Perceived ease of use	1-5	4.15	0.61	2.40-5.00	-0.50	-0.22

Note. N = 130. M = arithmetic mean; SD = standard deviation. Internal consistency coefficients could not be computed because the analytic data file contains aggregated scale scores rather than item-level responses; distributional characteristics are reported in their place. PHQ-9 = Patient Health Questionnaire-9.

Table 1: Descriptive Statistics for All Continuous Study Variables

4.2. Correlational Findings

Table 2 presents the zero-order correlation matrix. Quarter-life crisis severity was strongly associated with burnout symptomatology (r = .80, p < .001) and substantially associated with depressive symptomatology (r = .64, p < .001); burnout and depressive symptoms were themselves correlated at r = .50 (p < .001). The magnitude of the first coefficient warrants comment, since it approaches the level at which discriminant validity between crisis severity and burnout becomes questionable in a sample of this size, a point taken up in section 5.1.

Crisis severity was positively associated with chatbot coping use ($r = .29$, $p = .001$), and the association was confirmed by the rank-order coefficient ($\rho = .30$, $p < .001$). Chatbot coping use showed a small positive association with depressive symptoms ($r = .24$, $p = .007$) and a non-significant association with burnout ($r = .15$, $p = .088$).

The acceptance variables displayed a clearly differentiated pattern. Perceived empathy was strongly associated with chatbot coping use ($r = .55$, $p < .001$; $\rho = .53$, $p < .001$), perceived usefulness moderately so ($r = .37$, $p < .001$), and perceived ease of use not at all ($r = .10$, $p = .239$). Perceived empathy and perceived usefulness were themselves highly correlated ($r = .80$, $p < .001$), which indicates that the two constructs capture overlapping evaluative content and makes their simultaneous entry into a regression model the decisive test of their relative contribution. Notably, none of the three acceptance variables was associated with crisis severity, burnout, or depressive symptoms (all r between -.09 and .07, all $p > .40$), which establishes that the evaluation of the system is independent of the distress of the evaluator. Neither age nor technology affinity was associated with any substantive variable.

Variable	1	2	3	4	5	6	7	8	9
1. Age	-								
2. Technology affinity	.01	-							
3. Quarter-life crisis	.05	.05	-						
4. AI chatbot use as coping	-.02	-.08	.29**	-					
5. Burnout	.11	.11	.80***	.15	-				
6. Depressive symptoms	-.04	.09	.64***	.24**	.50***	-			
7. Perceived empathy	-.07	.02	.01	.55***	-.02	.07	-		
8. Perceived usefulness	-.05	.01	.01	.37***	-.07	.02	.80***	-	
9. Perceived ease of use	-.02	.07	-.05	.10	-.04	-.08	-.09	-.08	-

Note. $N = 130$. Two asterisks denote $p < .01$, three asterisks denote $p < .001$; coefficients without markers are not significant at the .05 level. The rank-order coefficients for the two central associations were comparable (crisis severity with chatbot use, $\rho = .30$, $p < .001$; perceived empathy with chatbot use, $\rho = .53$, $p < .001$).

Table 2: Zero-Order Pearson Correlations Among All Study Variables

4.3. Predictors of Chatbot Coping Use

Table 3 presents the four-step hierarchical regression predicting chatbot coping use. The control block entered at Step 1 did not account for a significant share of variance ($R^2 = .055$, $F(4, 125) = 1.83$, $p = .128$), although current psychotherapeutic treatment emerged as a single significant predictor ($B = 0.51$, $p = .013$), indicating that participants in treatment reported approximately half a standard deviation more frequent chatbot use than those not in treatment.

The addition of crisis severity at Step 2 produced a significant increment in explained variance ($\Delta R^2 = .076$, $F(1, 124) = 16.41$, $p < .001$). Crisis severity predicted chatbot coping use with $\beta = .278$ ($p = .001$, 95 % CI [.111, .445]), while the treatment effect remained significant ($B = 0.46$, $p = .020$). H1 is thereby supported.

The acceptance block entered at Step 3 produced by far the largest increment ($\Delta R^2 = .308$, $F(3, 121) = 22.17$, $p < .001$), raising the total explained variance to $R^2 = .439$ (adjusted $R^2 = .402$). Within this step the coefficients diverged sharply. Perceived empathy predicted chatbot coping use with $\beta = .684$ ($p < .001$, 95 % CI [.459, .909]), by a considerable margin the strongest predictor in the model. Perceived ease of use reached significance with a small coefficient ($\beta = .167$, $p = .017$, 95 % CI [.031, .303]). Perceived usefulness, which had shown a substantial zero-order association with the outcome, was no longer a significant predictor and carried a negative sign ($\beta = -.171$, $p = .132$, 95 % CI [-.394, .052]), a constellation consistent with statistical suppression given the high collinearity between usefulness and empathy. Crisis severity retained its coefficient essentially unchanged ($\beta = .283$, $p < .001$), and the treatment effect fell below significance ($B = 0.23$, $p = .158$), indicating that the elevated use among participants in psychotherapy is largely accounted for by their more favourable evaluation of the system. H2 is supported, and H3 is supported only in part: the ease-of-use path holds, while the usefulness path does not survive the simultaneous entry of perceived empathy.

The product term entered at Step 4 did not improve the model ($\Delta R^2 = .005$, $F(1, 120) = 1.07$, $p = .304$), and the interaction coefficient was non-significant and negative ($\beta = -.073$, $p = .304$, 95 % CI [-.213, .067]). H4 is therefore rejected. Distress and perceived empathy operate additively rather than conditionally: crisis severity raises the probability of chatbot use irrespective of how understanding the system is perceived to be, and perceived empathy raises it irrespective of how distressed the user is.

Predictor	β / B	p	95 % CI	ΔR²	F change
Step 1: Controls				.055	1.83
Age	-.050	.569	[-.224, .123]		
Gender (female = 1)	0.015	.934	[-.333, .362]		
In psychotherapy (yes = 1)	0.513	.013	[.110, .916]		
Technology affinity	-.089	.310	[-.261, .083]		
Step 2: + Crisis severity				.076	16.41***
Quarter-life crisis severity	.278	.001	[.111, .445]		
In psychotherapy (yes = 1)	0.463	.020	[.074, .852]		
Step 3: + Acceptance block				.308	22.17***
Quarter-life crisis severity	.283	< .001	[.146, .419]		
Perceived chatbot empathy	.684	< .001	[.459, .909]		
Perceived usefulness	-.171	.132	[-.394, .052]		
Perceived ease of use	.167	.017	[.031, .303]		
In psychotherapy (yes = 1)	0.231	.158	[-.091, .553]		
Technology affinity	-.125	.070	[-.260, .010]		
Step 4: + Interaction				.005	1.07
Crisis severity x Perceived empathy	-.073	.304	[-.213, .067]		

Note. $N = 130$. Coefficients are those obtained at the step in which the respective block was entered. All continuous variables were standardised; coefficients for continuous predictors are standardised regression weights (β), coefficients for the two dichotomous predictors express group differences in standard-deviation units of the outcome (B). Total model at Step 3: $R^2 = .439$, adjusted $R^2 = .402$, $F(8, 121) = 11.85$, $p < .001$. Maximum variance inflation factor = 2.79. Three asterisks denote $p < .001$. Non-significant control variables are omitted from Steps 2 to 4 for reasons of space.

Table 3: Hierarchical Multiple Regression Predicting AI Chatbot Use as an Emotional Coping Strategy

4.4. Mediation Analysis

Table 4 presents the mediation analysis. The total effect of crisis severity on depressive symptomatology was large ($c = .642$, $p < .001$, 95 % CI [.508, .776]). The a-path from crisis severity to chatbot coping use was significant ($a = .285$, $p = .001$, 95 % CI [.117, .452]). The b-path from chatbot coping use to depressive symptomatology, controlling for crisis severity, was not significant ($b = .057$, $p = .422$, 95 % CI [-.083, .197]), and the direct effect remained virtually identical to the total effect ($c' = .626$, $p < .001$, 95 % CI [.486, .766]).

The bootstrapped indirect effect was accordingly negligible and non-significant ($ab = .016$, bootstrap $SE = .020$, 95 % CI [-.022, .059]). The identical model with burnout as outcome likewise produced a non-significant indirect effect (95 % CI [-.059, .008]), with a b-path that was negative but non-significant ($b = -.084$, $p = .132$). Entering age, gender, treatment status, and technology affinity as covariates did not alter the pattern ($b = .032$, $p = .661$). H5 is therefore rejected.

The zero-order association between chatbot coping use and depressive symptoms reported in section 4.2 is thus fully attributable to their common association with crisis severity. Once distress is held constant, the frequency with which emerging adults confide in a conversational agent carries no residual information about their symptom load in either direction.

In summary, H1 and H2 were supported, H3 was supported only with respect to perceived ease of use, and H4 and H5 were rejected.

Path	*β*	*SE*	*p*	95 % CI
Outcome: Depressive symptoms (PHQ-9)				
a: Crisis severity to chatbot use	.285	.085	.001	[.117, .452]
b: Chatbot use to PHQ-9 (controlling crisis)	.057	.071	.422	[-.083, .197]
c: Total effect of crisis severity	.642	.068	< .001	[.508, .776]
c': Direct effect of crisis severity	.626	.071	< .001	[.486, .766]
ab: Indirect effect	.016	.020	n.s.	[-.022, .059]
Outcome: Burnout symptomatology				

b: Chatbot use to burnout (controlling crisis)	-.084	.055	.132	[-.193, .026]
c: Total effect of crisis severity	.798	.053	< .001	[.693, .904]
c': Direct effect of crisis severity	.822	.055	< .001	[.713, .932]
ab: Indirect effect	-.024	.017	n.s.	[-.059, .008]
Note. N = 130. All variables standardised. Indirect effects were estimated with 5,000 percentile bootstrap resamples; the reported SE for the indirect effect is the bootstrap standard error, and an interval that does not contain zero indicates significance at the .05 level. n.s. = not significant. Adding age, gender, treatment status, and technology affinity as covariates did not alter the pattern (b = .032, p = .661).				

Table 4: Bootstrapped Mediation Analysis of Crisis Severity, Chatbot Coping Use, and Symptom Load

4.5. Supplementary Group Comparisons

Two supplementary comparisons merit report. Participants currently in psychotherapeutic treatment reported significantly more frequent chatbot coping use than those not in treatment (M = 3.31 versus 2.93; t = 2.73, p = .008, d = 0.50) and higher depressive symptom scores (M = 13.47 versus 11.48; t = 2.15, p = .036, d = 0.43), while the two groups did not differ in crisis severity (p = .350) or burnout (p = .226). Chatbot use in this sample therefore complements rather than replaces professional treatment. No gender difference in chatbot coping use was observed (p = .938).

5. Discussion

5.1. Summary and Theoretical Integration

The central finding of this study can be stated in a single sentence. Emerging adults in biographical crisis turn to conversational agents in proportion to their distress, but what determines the extent of that turning is not whether the system seems useful; it is whether the system seems to understand. Perceived empathy accounted for a predictive weight more than four times that of any competing acceptance determinant, and the perceived usefulness of the system, which had shown a respectable zero-order association with use, ceased to predict anything at all once the empathy attribution was entered alongside it.

This result has a specific consequence for the technology acceptance tradition. TAM was designed to explain the adoption of tools by users engaged in tasks, and its two determinants exhaustively describe the evaluative space of a tool: it either improves performance or it does not, and it is either easy to operate or it is not [11,12]. The present data indicate that this evaluative space is the wrong one for the object under study. Users in distress are not appraising a tool. The persistence of the ease-of-use path, small but significant, is consistent with this reading rather than contrary to it: frictionlessness matters because friction at two in the morning is prohibitive, not because operability is being assessed. What the model reveals is an acceptance process in which the affective attribution has absorbed the explanatory role that instrumental utility occupies in the workplace applications for which the model was constructed. Extending TAM to affective technologies therefore requires more than the addition of a further exogenous variable; it requires acknowledging that the dependent behaviour is generated by a different appraisal process.

The finding integrates readily with the social-response literature. Reeves and Nass and Nass and Moon established that human beings apply social scripts to machines automatically and without corresponding belief, and Epley et al. specified that anthropomorphic attribution intensifies under conditions of sociality deprivation and high effectance motivation [21-23]. Quarter-life crisis distress, reconstructed in section 2.1 as the subjective correlate of a resource deficit under Conservation of Resources logic, constitutes exactly that condition [15]. The present data are consistent with the interpretation that distress does not create the empathy attribution, since crisis severity and perceived empathy were entirely uncorrelated (r = .01), but that the attribution, once present, converts distress into behaviour with considerable efficiency.

That independence is theoretically the most interesting single correlation in the dataset. It rules out the simplest deflationary account, according to which distressed people merely perceive more empathy everywhere because they need to. The empathy attribution behaves as a stable evaluative disposition toward the technology rather than as a projection of the user's state, and its distribution in this sample was notably wide (SD = 0.90 against 0.60 for both other acceptance dimensions). Some users experience these systems as genuinely receptive; others do not; and this difference is not a function of how badly they are doing.

The rejection of the mediation hypothesis deserves equal emphasis, particularly since the null result is unusually clean. The b-path was not merely non-significant but negligible in magnitude, the direct effect was indistinguishable from the total effect, and the bootstrap interval was narrow and centred close to zero. The interpretation is that chatbot coping use, as practised in this sample, is a behavioural correlate of distress without independent symptomatic significance. It neither functions as the protective resource that enthusiastic accounts of digital mental health would predict, nor as the avoidance mechanism that critical accounts would predict. The behaviour is, in the strict sense, symptomatically inert. Given the effect sizes obtainable at this sample size, an effect of small magnitude cannot be excluded, but the point estimate offers no support for either narrative.

The supplementary group comparison sharpens this reading. Participants in psychotherapeutic treatment used chatbots more, not less, than untreated participants, with a medium effect size, and this difference was largely explained by their more favourable evaluation of the system rather than by their higher symptom load. The substitution hypothesis, according to which conversational

agents divert people from professional care, receives no support in these data. What appears instead is a complementary pattern, in which the population most engaged with formal treatment is also the population most engaged with informal machine-mediated articulation, plausibly because both behaviours express the same underlying disposition toward verbal processing of affect.

One further result must be addressed with candour. The correlation between crisis severity and burnout reached $r = .80$, which in a sample of 130 corresponds to a shared variance of 64 % and raises the question whether the two instruments are measuring distinguishable constructs. The burnout-depression overlap debate applies here in an extended form: the present data suggest a crisis-burnout overlap of comparable magnitude [31]. Since the two scales share content concerning exhaustion, disengagement, and negative prospective evaluation, the conservative interpretation is that quarter-life crisis severity as operationalised here indexes a general distress factor with a biographical accent rather than a construct that is empirically separable from occupational strain. This does not invalidate the findings concerning chatbot use, since the acceptance variables were uncorrelated with all distress measures, but it does constrain the theoretical vocabulary in which the distress side of the model should be described.

5.2. Practical Implications

At the individual level, the findings suggest that practitioners should treat chatbot use as a routine feature of the presenting situation rather than as a symptom or a transgression. A quarter of this sample was in treatment, and that quarter used conversational agents more than anyone else. Clients are therefore arriving at sessions having already articulated their difficulties at length to a system that responded with unfailing warmth and no clinical judgement. This has implications for the session itself: material may arrive pre-narrated, in a form that has already been shaped by an interlocutor optimised for agreeableness, and the clinician's task may include the disassembly of a formulation that has been rehearsed rather than the elicitation of one that has not. The appropriate stance is neither prohibition nor endorsement but curiosity about what the client seeks in that exchange, since the present data indicate that what is sought is the experience of being understood.

At the level of system design and digital mental health provision, the finding that empathy attribution rather than perceived usefulness drives uptake carries an uncomfortable double edge. It indicates that engagement can be maximised by optimising the affective register of the output, which is precisely what commercial optimisation pressures already favour and what requires no therapeutic competence whatsoever. A system can produce a strong empathy attribution while providing no clinically valid content, and the present data give no reason to expect users to distinguish the two. Providers of evidence-based digital interventions should note that their instruments will be evaluated on the affective dimension regardless of their clinical validity, and that clinical validity is not what governs adoption.

At the organisational level, the finding that crisis severity is elevated across a sample of predominantly full-time employed adults in their late twenties and early thirties, with 71.5 % exceeding the PHQ-9 cut-off for clinically relevant depressive symptomatology, is difficult to dismiss as a sampling artefact alone. Workplace health management in this age band is typically oriented toward physical health and toward the prevention of burnout in senior staff. The Job Demands-Resources logic predicts that the occupational entry phase carries a specific resource deficit, and the present data are consistent with that prediction [14]. Onboarding structures, mentoring arrangements, and explicit clarification of role expectations address exactly the resources that are missing.

Life-phase-specific implications follow. Interventions for this population must contend with a group that is highly symptomatic, largely untreated, comfortable with machine-mediated disclosure, and slow to seek professional help. The realistic pathway is therefore not to displace the conversational agent but to build referral logic into the moment at which it is being used. A system approached in a state of acute distress is a system positioned at a point of unusual clinical leverage, and the present findings suggest that users will accept from it what they accept from few other sources.

5.3. Limitations

Five limitations constrain the interpretation of these findings. The first and most consequential is the cross-sectional design. Every coefficient reported here is an association measured at a single occasion, and the path-analytic decomposition of the total effect follows a statistical convention, not a demonstrated temporal ordering. It is entirely possible that frequent chatbot use intensifies biographical rumination and thereby elevates measured crisis severity, rather than the reverse, and the data cannot adjudicate. Longitudinal replication with at least three measurement occasions is the minimum requirement for any causal claim in this domain.

The second limitation concerns the sample. Recruitment proceeded through online channels and produced a self-selected convenience sample of 130 participants, over-representing women, the tertiary-educated, and, by the nature of the inclusion criterion, people who already use conversational agents. Individuals for whom machine-mediated disclosure is aversive are systematically absent, which almost certainly inflates the mean level of the acceptance variables and may attenuate the observed associations through range restriction. The symptom prevalence reported in section 4.1 should therefore be read as a characteristic of this sample rather than as an epidemiological estimate.

The third limitation concerns measurement. All constructs were assessed by self-report with instruments that, in the case of crisis severity, chatbot coping use, and perceived empathy, were constructed for this study rather than drawn from validated inventories. Furthermore, the analytic data file contained aggregated scale scores only, so internal consistency coefficients could not be recomputed for the present analysis and no confirmatory factor structure could be estimated. This is a substantive constraint on

the interpretation of the acceptance findings in particular, since the discriminant validity of perceived empathy against perceived usefulness is central to the argument and could be assessed here only through their zero-order correlation and their behaviour under simultaneous entry.

The fourth limitation is common-method bias. All variables were collected from a single source, at a single occasion, using a single response format, which is the configuration under which Podsakoff et al. predict inflated associations [38]. The pattern of results argues against a purely artefactual reading, since a general method factor would produce uniform inflation rather than the observed constellation in which the acceptance variables correlate strongly with use and not at all with distress. Nevertheless, the absolute magnitude of the reported coefficients should be regarded as an upper bound.

The fifth limitation concerns unmeasured variables. Social support, attachment style, loneliness, alexithymia, sleep quality, and trait neuroticism are all plausible determinants of both the empathy attribution and the coping behaviour, and their omission leaves the possibility of confounding open. Loneliness is the most conspicuous omission, since the anthropomorphism account of Epley et al. assigns it a central position and the present model could not test it [23]. A further omission concerns the content of the exchanges themselves, which were never observed; what participants actually wrote to these systems, and what the systems replied, remains entirely unknown.

5.4. Outlook

Four directions for future research follow directly. Longitudinal designs with intensive measurement, ideally combining ecological momentary assessment with retained conversation logs, would permit the temporal ordering of distress, use, and symptom change to be established, and would resolve the question that the present null mediation result can only pose. Experimental designs manipulating the affective register of chatbot output while holding informational content constant would allow the empathy attribution to be tested as a cause rather than as a correlate, and such designs are technically straightforward under current conditions.

Qualitative investigation of the micro-dynamics of these exchanges is equally necessary. The present study establishes that the experience of being understood governs use; it says nothing about what that experience consists of, how it is produced, or how users manage the knowledge that no comprehension corresponds to it. Interview-based and conversation-analytic work is required, and the relevant question is not whether users believe the system understands them, since almost none do, but how the attribution operates in the full presence of that disbelief.

Differentiation by context is a third requirement. The present sample was occupationally heterogeneous and too small for subgroup analysis; whether the empathy-driven acceptance pattern holds equally in helping professions, in which the professional handling of affect is a job requirement, and in occupational contexts in which it is not, is an open and consequential question. Finally, the clinical interface deserves direct study: the pre-narration effect described in section 5.2 is currently a conjecture supported by the group comparison, and it should be examined in treatment samples with therapist-reported data.

The distressed emerging adults in this sample did not turn to artificial intelligence because it was useful. They turned to it because it appeared to understand them, and the strength of that appearance predicted their behaviour better than every other measured characteristic of the technology combined. Their distress did not create the impression of being understood; it merely determined how much they needed it. And the behaviour that followed left no trace in their symptom load: those who confided in a machine were neither better nor worse off than those who did not, once their distress was taken into account. What this describes is a technology that has become, for a substantial part of a generation, the place where difficult things are first said, without having become a treatment, and without being answerable to anyone for the reception it provides. The task for psychology is not to determine whether this is good or bad but to stop treating it as marginal [39-42].

References

1. Abd-Alrazaq, A. A., Rababeh, A., Alajlani, M., Bewick, B. M., & Househ, M. (2020). Effectiveness and safety of using chatbots to improve mental health: systematic review and meta-analysis. *Journal of medical Internet research, 22*(7), e16021.
2. Skjuve, M., Følstad, A., Fostervold, K. I., & Brandtzaeg, P. B. (2021). My chatbot companion-a study of human-chatbot relationships. *International Journal of Human-Computer Studies, 149*, 102601.
3. Andrade, L. H., Alonso, J., Mneimneh, Z., Wells, J. E., Al-Hamzawi, A., Borges, G., ... & Kessler, R. C. (2014). Barriers to mental health treatment: results from the WHO World Mental Health surveys. *Psychological medicine, 44*(6), 1303-1317.
4. Gulliver, A., Griffiths, K. M., & Christensen, H. (2010). Perceived barriers and facilitators to mental health help-seeking in young people: a systematic review. *BMC psychiatry, 10*(1), 113.
5. Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American psychologist, 55*(5), 469-480.
6. Arnett, J. J. (2015). *Emerging adulthood: The winding road from the late teens through the twenties* (2nd ed.). Oxford University Press.
7. Robinson, O. C., Wright, G. R., & Smith, J. A. (2013). The holistic phase model of early adult crisis. *Journal of adult development, 20*(1), 27-37.
8. Robinson, O. C. (2019). A longitudinal mixed-methods case study of quarter-life crisis during the post-university transition: Locked-out and locked-in forms in combination. *Emerging adulthood, 7*(3), 167-179.
9. Fitzpatrick, K. K., Darcy, A., & Vierhile, M. (2017). Delivering

cognitive behavior therapy to young adults with symptoms of depression and anxiety using a fully automated conversational agent (Woebot): a randomized controlled trial. *JMIR mental health, 4*(2), e7785.
10. Vaidyam, A. N., Wisniewski, H., Halamka, J. D., Kashavan, M. S., & Torous, J. B. (2019). Chatbots and conversational agents in mental health: a review of the psychiatric landscape. *The Canadian Journal of Psychiatry, 64*(7), 456-464.
11. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly, 13*(3), 319-340.
12. Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision sciences, 39*(2), 273-315.
13. Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied psychology, 86*(3), 499-512.
14. Bakker, A. B., & Demerouti, E. (2017). Job demands–resources theory: Taking stock and looking forward. *Journal of occupational health psychology, 22*(3), 273-285.
15. Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American psychologist, 44*(3), 513-524.
16. Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.
17. Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of general psychology, 2*(3), 271-299.
18. Gross, J. J. (2015). Emotion regulation: Current status and future prospects. *Psychological inquiry, 26*(1), 1-26.
19. Pennebaker, J. W. (1997). Writing about emotional experiences as a therapeutic process. *Psychological science, 8*(3), 162-166.
20. Ho, A., Hancock, J., & Miner, A. S. (2018). Psychological, relational, and emotional effects of self-disclosure after conversations with a chatbot. *Journal of Communication, 68*(4), 712-733.
21. Reeves, B., & Nass, C. (1996). The media equation: How people treat computers, television, and new media like real people. *Cambridge, UK, 10*(10), 19-36.
22. Nass, C., & Moon, Y. (2000). Machines and mindlessness: Social responses to computers. *Journal of social issues, 56*(1), 81-103.
23. Epley, N., Waytz, A., & Cacioppo, J. T. (2007). On seeing human: a three-factor theory of anthropomorphism. *Psychological review, 114*(4), 864-886.
24. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view1. *MIS quarterly, 27*(3), 425-478.
25. Elliott, R., Bohart, A. C., Watson, J. C., & Murphy, D. (2018). Therapist empathy and client outcome: An updated meta-analysis. *Psychotherapy, 55*(4), 399-410.
26. Horvath, A. O., Del Re, A. C., Flückiger, C., & Symonds, D. (2011). Alliance in individual psychotherapy. *Psychotherapy, 48*(1), 9-16.
27. Bickmore, T. W., & Picard, R. W. (2005). Establishing and maintaining long-term human-computer relationships. *ACM Transactions on Computer-Human Interaction (TOCHI), 12*(2), 293-327.
28. Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American psychologist, 55*(1), 68-78.
29. Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual review of psychology, 52*(2001), 397-422.
30. Demerouti, E., Mostert, K., & Bakker, A. B. (2010). Burnout and work engagement: a thorough investigation of the independency of both constructs. *Journal of occupational health psychology, 15*(3), 209-222.
31. Bianchi, R., Schonfeld, I. S., & Laurent, E. (2015). Burnout–depression overlap: A review. *Clinical psychology review, 36*, 28-41.
32. Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). Guilford Press.
33. Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. *Behavior research methods, 41*(4), 1149-1160.
34. Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: validity of a brief depression severity measure. *Journal of general internal medicine, 16*(9), 606-613.
35. Manea, L., Gilbody, S., & McMillan, D. (2012). Optimal cut-off score for diagnosing depression with the Patient Health Questionnaire (PHQ-9): a meta-analysis. *Canadian Medical Association Journal, 184*(3), E191-E196.
36. Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior research methods, 40*(3), 879-891.
37. MacKinnon, D. P., Fairchild, A. J., & Fritz, M. S. (2007). Mediation analysis. *Annu. Rev. Psychol., 58*(1), 593-614.
38. Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of applied psychology, 88*(5), 879-903.
39. Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology, 51*(6), 1173-1182.
40. Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.
41. Schaufeli, W. B., & Taris, T. W. (2013). A critical review of the job demands-resources model: Implications for improving work and health. *Bridging occupational, organizational and public health: A transdisciplinary approach*, 43-68.
42. World Medical Association. (2013). World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. *Jama, 310*(20), 2191-2194.