



Meaning in Life, an Existential Protection Against Drinking to Cope

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Abstract

Meaning in Life has been established to have an inverse relationship to drinking behaviour. As such, it has been described as a protective factor against drinking, on the one hand by reducing alcohol valuation, and on the other by helping individuals to adaptively cope with negative events. Considering that drinking to cope is a key element in the understanding of alcohol use disorder, this study proposes firstly that the relationship between meaning and drinking is negatively correlated, and secondly that such relationship is mediated by a reduction in drinking to cope. Additionally, meaning is often distinguished by the process of search for meaning and presence of meaning. The connection between search and drinking is explored, by arguing that experiencing negative affect during such search plays a moderating role. Surveying 459 Dutch individuals (226 males, 229 females, average age 28.6 years) in a cross-sectional correlational study, no significant direct relationship between meaning and drinking was found. However, upon consideration of drinking to cope as a mediating factor, said relationship turned significant, suggesting a protective role of meaning in life against drinking behaviour via reducing drinking to cope. No significant moderation of search for meaning and drinking behaviour by negative affect was established, which further indicates the independence of the presence and search for meaning concepts. This study is consistent with the view that meaning in life disincentivizes the use of drinking as a coping mechanism by protecting against negative events and promoting alternative coping mechanisms, and may therefore offer opportunity for application in treatment settings.

Keywords: Alcohol Use Disorder, Drinking to Cope, Meaning in Life, Negative Affect, Search for Meaning

Meaning in Life, an Existential Protection Against Drinking to Cope

The question about meaning in life, both a cliché and still so fundamentally important to human experience makes one wonder: A life without meaning, is it dreadful or liberating? Although the objective inquiry into the meaning of life may be as unclear as ever, empirical sciences make an attempt to understand the much more subjective notion of experiencing meaning in life (MIL).

Currently, MIL is conceptually distinguished by means of the three differentiated but interrelated subconstructs of comprehension, purpose, and mattering. Comprehension refers to the feeling that one's life makes sense, is predictable, and unfolds harmoniously. It describes the more cognitive component of the three, as it refers to understanding life patterns and explaining experiences coherently. Purpose, as the name suggests, refers to the motivational aspect of having and pursuing meaningful goals in life. The goals and values pursued give the individual a sense of direction and engagement with life. As such, MIL often has a claim to transcend the individual needs and aspire beyond (Frankl, 1984). Important is also the belief that one's life matters. Mattering or significance, the feeling of being valued and leaving a worthwhile impact in the world, constitutes the third and evaluative/affective aspect of MIL (George & Park, 2016; Martela & Steger, 2016).

The recent trend to study MIL was inspired by the humanistic movement, notably Victor Frankl (1984), who postulates the importance of meaning as a fundamental human longing and the presence of it as helping to endure the obstacles and hardships of life. In contrast, does the lack thereof, so Frankl, lead to the experience of existential emptiness which brings about the dangers of maladaptive behaviours such as increased alcohol consumption to deal with the boredom of a meaningless life. And indeed, low MIL is associated with increased alcohol consumption (Csabonyi & Phillips, 2020). Conversely, high MIL has been associated with a variety of positive factors in many areas of human life and

functioning (Steger, 2017). Among them the parallel observation that MIL is associated with lower alcohol and drug use and may prevent such addictive behaviours (Copeland et al., 2020, 2022).

Meaning in Life, Drinking Behaviour, and Drinking to Cope

An attempt to explain the inverse relationship between MIL and drinking behaviour (DB) has come forth from the behavioural economics camp, which argues that meaning in life reduces the valuation of alcohol by means of offering a compelling alcohol-free alternative (Bickel et al., 2014). MIL thereby puts the benefits and costs of consuming alcohol into relative perspective to the goals and values (purpose) which are experienced as highly valuable (significance). For the individual, the consequences of high alcohol consumption may be incompatible with the valued goals or simply offer a better alternative to invest available time and resources. As such, the ascribed value to alcohol has been established as a mediator between MIL and DB (Copeland et al., 2022). Similarly, it was shown that MIL reduces the incentive salience of alcohol (Ostafin & Feyel, 2019).

An alternative, albeit not contradictory view, is based on the suggestion that alcohol serves a regulatory function moderating or avoiding negative affective states (Cooper et al., 1995). Whereas for Frankl (1984) such negative affective states emerged from a lack of MIL, negative reinforcement theories regard drinking to cope (DTC) as a general maladaptive coping mechanism – not just related to existential questions. Furthermore, DTC has been established as a general key factor in both the etiology and maintenance of Alcohol Use Disorder, as shown more specifically in individuals with co-occurring alcohol and internalizing disorders (Anker et al., 2017, 2019). In this context, MIL substitutes the maladaptive coping mechanism by motivating the individual to cope more proactively and shifting the focus from a short-term relief of symptoms to a stronger consideration of future negative consequences (Miao & Gan, 2019). Additionally, meaning-making – with regards to

comprehension – builds resilience against negative events. It lowers negative thinking and psychological distress experienced thereafter by offering an explanation for the occurrence, as well as putting the negative events into perspective (Ostafin & Proulx, 2020).

MIL can therefore be argued to not only render alcohol a less valuable activity but to protect against negative internal states by stimulating a proactive coping approach and reframing the impact of negative events – limiting the use of DTC as a coping alternative. This makes it plausible to hypothesize that MIL is negatively associated with DB, and that DTC mediates such an inverse relationship.

Presence of Meaning and Search for Meaning

The literature distinguishes between two general states of meaning attainment, namely the presence of meaning (PM), and the search for meaning (SM). Here PM, as the experience of a comprehensive, purposeful, and significant life, is contrasted with SM – a state of concern with the attainment of a meaningful life by enhancing the comprehension, significance, and purpose of life (Steger, Oishi, et al., 2009). Although the inverse relationship between PM and DB would suggest a positive correlation between SM and DB, the data has elicited mixed findings (Copeland et al., 2020; Csabonyi & Phillips, 2020). Such findings can be explained by the distinct, but not opposing, concepts of PM and SM which have been shown to be independent of each other (Steger et al., 2006). It seems that across individuals SM and PM can manifest in different ways. Both negatively correlate with each other, but even though low PM is predictive of SM, low SM is not a conclusive indicator for PM (Steger et al., 2008). That means that an individual who is low in PM exhibits high SM, however, that someone high on SM may not necessarily be lacking PM. It is therefore possible for an individual to be high on both SM and PM, and consequently to not experience SM as a negative endeavour. Therefore, how SM impacts an individual affectively may vary, also with regards to the context and approach to SM. A healthy SM is inspired by engagement

with life, as exemplified by the SM of growing up adolescents, which has been shown to positively correlate with later PM (Brassai et al., 2012). In contrast, an unhealthy search may be hindered by difficulties to make sense of experiences, thereby eliciting stronger negative affect. A plausible explanation for the mixed findings, and the question of how SM may relate to DB, could be partly explained by a moderating role of negative affect (NA), in that individuals who experience SM as negatively show a stronger tendency to drink – as this study hypothesises.

Hypotheses Summary

Thus, this study was conducted with the intention to investigate the intricate relationship of MIL to DB in a cross-sectional correlational design. More specifically, by means of a regression, mediation, and moderation analysis these three hypotheses are tested for:

H1: MIL is inversely related to DB.

H2: The relationship between MIL and DB is mediated by DTC.

H3: The SM and DB relationship is moderated by NA

Methods

Participants and Data Collection

This study was part of a larger research project approved by the Ethics Committee Psychology (ECP; PSY-2223-S-0020), with the aim of validating the Dutch version of the Multidimensional Existential Meaning Scale (George & Park, 2016), as well as examining the relationship between MIL, eating disorders, alcohol use, and other internalising symptoms. The data for the study was acquired using Prolific (www.prolific.co) – an internet-based sampling platform – and was carried out for approximately one month between mid-December 2022 till mid-January 2023. Participants were eligible for the study if they met following criteria: they were required to be natives in the Dutch language as well as a

minimum 18 years of age. For their participation they received a compensation of 8.7 Euros. In total 459 participants were included in the study, a sample composed of an approximately even proportion of men (N = 226) and woman (N = 229), as well as 3 non-binary individuals, and one abstention. The participant's ages ranged from 18 to 70, even though the sample consisted of mostly younger people, with the average participant being 28.6 years old (SD = 8.7, Q1 = 23, Q3 = 32).

Measures

DB

The dependent variable DB will be measured using the averaged out score of the Alcohol Use Disorders Identification Test (AUDIT; Babor et al., 2001). The 10-Item questionnaire measures quantity of use (e.g. *“How often do you have a drink containing alcohol?”*), dependency (e.g. *“How often during the last year have you found that you were not able to stop drinking once you had started?”*), as well as harmful drinking behaviours (e.g. *“Have you or someone else been injured because of your drinking?”*) on a five-point scale (with a higher score indicating higher consumption, dependency, and harmful drinking). The AUDIT is considered a validated instrument, and a Cronbach's alpha of .837 demonstrated sufficient inter-item reliability.

MIL

For the measurement of MIL the 15 item long Multidimensional Existential Meaning Scale (MEMS; George & Park, 2016) was chosen. It is conceptually designed to measure the three subconstructs of meaning in life (comprehension, mattering, and purpose) and offers therefore a much more strongly concretized and definite orientation towards measuring MIL – i.e. leaves less room for interpretation of the what MIL constitutes to the individual. The items for comprehension (e.g. *“My life makes sense”*), mattering (e.g. *“There is nothing special about my existence”*), and purpose (e.g. *“I have aims in my life that are worth striving for”*)

are scored on a 7-point scale from “*very strongly disagree*” to “*very strongly agree*”. The average score of each participant is used for the analysis. Overall, the MEMS is a validated construct and demonstrated good internal reliability also within this study with a Cronbach’s alpha of .858.

DTC

The measurement of DTC will be based on the Drinking Motives Questionnaire (DMQ; Cooper et al., 1995) and the Drinking Behaviour Pattern (DBP) developed by Kurihara et al. (2022). The DBP is a 20 Item questionnaire based on a four-point scale (1 = *never* to 4 = *almost always*), and includes subscales measuring coping with negative affect, the automaticity of the drinking behaviour, as well as social and stimulating aspects. For the measurement of DTC six items from the coping with negative affect subscale (e.g., “*I drink when I am anxious*”) are used. With regards to the DMQ, four additional items scored on a 5-point scale (1 = “*Almost Never/Never*” to 5 = “*Almost Always/Always*”) also reflecting coping strategies are included (e.g., “*You drink... To cheer up when you are in a bad mood*”).

The measure used for the analysis is composed of the average score from altogether ten items of both instruments. To adjust for the differing scales, a weight of 1.25 has been applied to the DBP items to match the scale of 1 to 5 from the DMQ. All items displayed good inter-item reliability with a Cronbach’s alpha of .955.

PM/SM

The MLQ developed by Steger et al. (2006) was designed to measure both concepts of PM (e.g. “*My life has a clear sense of purpose*”) and SM (e.g. “*I am looking for something that makes my life feel meaningful*”) based on a 7-point Likert scale, ranging from “*Absolutely Untrue*” to “*Absolutely True*”. Both validated subscales PM ($\alpha = .901$) and SM ($\alpha = .879$) have a good internal reliability as measured by Cronbach’s Alpha. The average score of the five SM items is used for the moderation analysis.

NA

The measurement of NA was based on the Depression, Anxiety, and Stress Scale (DASS; Lovibond & Lovibond, 1995). The average of all 21 items (e.g., “*I couldn't seem to experience any positive feeling at all*”) was used for the analysis. They were measured on a 4-point scale from 0 = “*Did not apply to me at all*” to 3 = “*Applied to me very much, or most of the time*”. A Cronbach’s alpha of .929 indicated good internal reliability.

Attention Checks

Throughout this questionnaire 5 attention checks have been included, as well as two final self-report indications on both language understanding and attention. In total 25 participants failed the attention checks and at a cut-off score of 70% another 20 the Dutch language requirements. From the initial 504 participants 459 are included in the analysis.

Study Design and Data Analysis

This study is designed as a simple correlational inquiry performed at one point in time to test for the above-mentioned hypotheses. Participants filled out pre-validated questionnaires designed to measure the key variables of MIL, DTC, DB, NA, and SM (all relevant questions used in this study can be found in Appendix A). For the measurement of H1, a simple regression analysis is performed with MIL as the predictor variable and DB as the outcome. The more extensive Mediation and Moderation analysis will be conducted by use of the PROCESS macro version 4.2, an analysis tool based on the principles of ordinary least squares and logistic regression. The mediation of MIL (X-variable) and DB (Y-variable) by DTC (mediator M) will be examined using Model 4 of the macro. The moderation of SM (X-variable) and DB (Y-variable) by NA (moderator W) is based on Model 1. The statistical significance threshold is set to $p \leq .05$. Grounded on the final sample size of 459 participants, a power analysis was conducted for hypothetical small ($f^2 = 0.02$), medium ($f^2 = 0.15$), and large ($f^2 = 0.35$) effect sizes. For the linear regression model, this study achieved a

hypothetical power of 0.856, 1, and 1 for small, medium, and large effects respectively. Similarly, a power of 0.856 (small), 1 (medium), and 1 (large) was achieved for the moderation effect. The power analysis with regards to the mediation effect is based on a paper by Fritz and MacKinnon (2007) which calculated required sample sizes for different effect combinations ($S = 0.14$, $H = 0.26$, $M = 0.39$, and $L = 0.59$) of the indirect pathway and a power of 0.8. For all combinations of pathway sizes the required sample size was reached, except for the smallest effect size combination (SS), for which marginally three more individuals (462) are required to reach the aspired power.

Results

Preliminary Analysis

Due to using Prolific as a sampling platform and the minimal participation requirements, the observations are assumed to be independent.

Even though no variable met the assumption of normality as determined by the Shapiro-Wilk test at a significance level of 0.05, the variables MIL and SM appear to be approximately normally distributed when visually inspected. NA has an only slightly positive skewed distribution. The histograms of DB and DTC on the other hand are much more strongly right skewed and display a violation of statistical normality. These measurements also contained a couple of statistical outliers – as defined by the three SD rule – which, in consideration of conceptual expectations, do not violate the norm. All normality tests including Q-Q plots and histograms can be inspected in Appendix B.

All descriptive statistics for the relevant variables as well as the correlations are displayed in Table 1. Results show expected correlations between MIL and DTC, as well as DTC and DB. Moreover, NA and MIL were shown to be negatively correlated, as well as NA and DTC, and NA and SM positively. Neither SM nor MIL are shown to have a significant

negative correlation with DB, with the latter going contrary to expectations. No scatterplots showed a violation of linearity.

Table 1

Descriptives & Correlations

	Mean	SD	MIL	DB	DTC	SM	NA
MIL	4.334	0.883	1	-.024	-.269**	.019	-.472**
DB	1.617	0.467	-.024	1	.541**	.074	.074
DTC	1.802	0.907	-.269**	.541**	1	.099*	.309**
SM	4.367	1.205	.019	.074	.099*	1	.189**
NA	1.735	0.495	-.472**	.074	.309**	.189**	1

Note. MIL = Meaning in Life. DB = Drinking Behaviour. DTC = Drinking to Cope. SM = Search for Meaning. NA = Negative Affect.

* $p < .05$, ** $p < .01$

With regards to the linear regression, no apparent violation of the homoscedasticity assumption was found upon graphical inspection. The residual plot is included in Appendix B.

Main Analysis

H1 – MIL predicts DB

The first hypothesis stated that MIL is inversely predicts DB. To test H1 a simple linear regression with MIL as the predictor was run. As in line with an insignificant correlation ($r = -.024$, $p = .609$), the regression resulted in a non-significant model ($R^2 = .001$, $F(1, 457) = 0.261$, $B = -0.013$, $t = -.511$, $p = .609$). The model explains less than one percent of the variation in the dependent variable, and the insignificant unstandardized coefficient B

would predict a decrease in DB of only -0.013 per one unit increase of MIL. In light of this finding, it seems that MIL is not a straightforward predictor of DB in our sample.

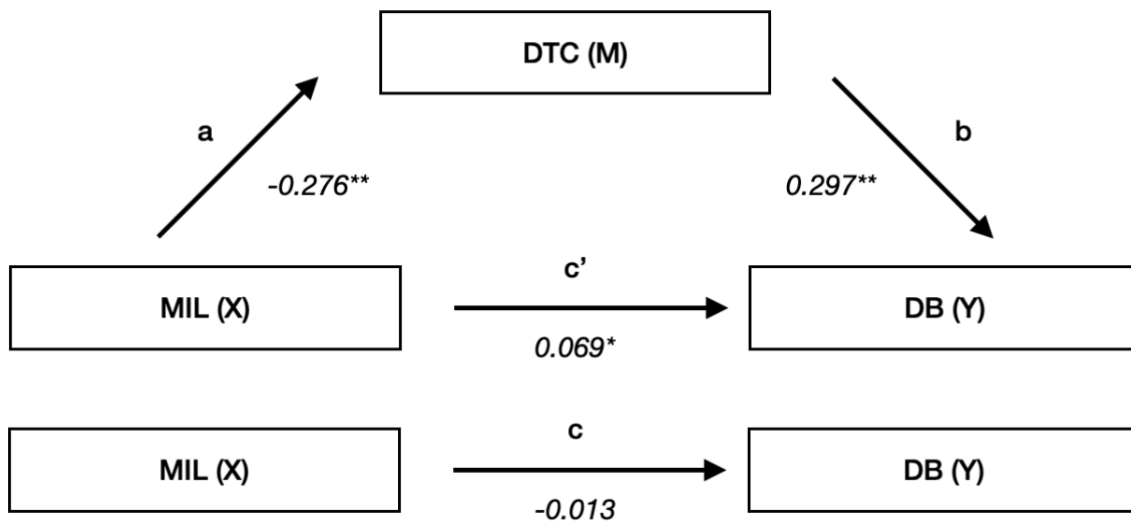
H2 – MIL and DB relationship is mediated by DTC

Hypothesis two claimed that the relationship between MIL and DB is mediated by DTC. The PROCESS macro model 4 was used with MIL as the predictor variable X, DB as outcome variable Y, and DTC as the mediator variable M. In total four relationships were assessed, which are visualized in Figure 1. The total effect of MIL on DB (c), the effect of MIL on DTC (a), the effect of DTC on DB (b), the direct effect of MIL on DB (c') which takes DTC into consideration, and the indirect effect of MIL on DB via DTC (a*b).

The total effect (c), as paralleled by the regression of H1, was insignificant ($R^2 = .001$, $F(1, 457) = 0.262$, $B = -0.013$, $t = -0.511$, $p = .609$). In contrary, MIL predicted DTC (a) significantly ($R^2 = .072$, $F(1, 457) = 35.658$, $B = -0.276$, $t = -5.974$, $p < .001$). The direct effects model also showed significance ($R^2 = .308$, $F(2, 456) = 101.561$, $p < .001$), both for pathway b – the effect of DTC on DB ($B = 0.297$, $t = 14.239$, $p < .001$) – and pathway c' – the direct effect of MIL on DB when including DTC in the model ($B = 0.069$, $t = 3.239$, $p = .0013$). Moreover, the indirect effect (a*b) was significant (Effect = -.082, 95% CI [-.119; -.05]), concluding a successful mediation of MIL and DB through DTC.

Figure 1

Overall research model of the current study including label and B coefficients



* $p < .05$, ** $p < .001$

Considering the significance of the direct and indirect effect, the mediation can be categorized as a partial mediation, in which only some part of the relationship between MIL and DB can be accounted for by DTC. To remark is also the categorization of the model as a competitive mediation within more contemporary views on mediation analyses (Meule, 2019). Statistically determined by the multiplication of pathways a, b, and c', the negative sign of the hypothetical product describes the opposing directions of influence the direct and indirect effects have on DB. In such a context, DTC would serve the role of a suppressor and explain the significant direct effect in presence of an insignificant total effect (Rucker et al., 2011). It seems that in our sample for individuals who engage in DTC, MIL is inversely related to DB, whereas for the others it is positively. These opposing forces could also offer grounds for understanding the insignificant total effect.

H3 – SM and DB relationship moderated by NA

The third hypothesis specified that a possible relationship between SM and DB is moderated by NA. The statistical analysis is based on model 1 of the PROCESS macro, in which SM was plugged in as the predictor variable X, DB as the outcome variable Y, and NA

as the moderator W. The whole model turned out nonsignificant ($R^2 = .01$, $F(3, 455) = 1.49$, $p = .217$), with neither predictors SM ($B = -0.006$, $t = -0.092$, $p = .927$) and NA ($B = -0.019$, $t = -0.113$, $p = .91$), nor the interaction (i.e. the moderation; $R^2 \text{ Change} = .001$, $F(1,455) = 0.236$, $B = -0.018$, $t = 0.486$, $p = .672$) being significant. The model, therefore, suggests no relationship between SM and DB, even under the consideration of NA.

Discussion

The current study explored the relationship between drinking behaviour (DB) and meaning in life (MIL). Firstly, by predicting a direct negative relationship between the two variables, and furthermore by proposing a mediation model in which drinking to cope (DTC) mediates said relationship. In contrary to the initial hypothesis that low MIL would lead to increased DB, no significant relationship was found using linear regression analysis. When including the mediation pathway, however, the model turned out significant – a finding aligned with the study's expectations. The significance of the mediation model thereby suggests that people with low MIL are more likely to resort to DTC and therefore show increased DB. Contrary to expectations, the direct relationship of DB and MIL turned significant when including the mediator in the multiple regression model, insinuating that in individuals in which DTC does not play a role, high MIL is predictive of higher DB. Additionally, this study looked at how search for meaning (SM) is related to DB, by investigating whether negative affect (NA) moderates this link. The moderation model, which suggested that a negatively experienced SM is associated with DB, was not found significant. The implications of the findings are discussed below.

Theoretical Implications

This current study showed no direct evidence for H1, the claim that high MIL is related to low DB. This finding goes against a large pool of well-established research claiming a significant negative relationship (Copeland et al., 2020, 2022; Csabonyi & Phillips,

2020). Although initial conclusions may evoke the refutation of the effects of MIL on alcohol valuation and affect regulation, in light of strong previous evidence this paper argues for a more complex and nuanced indirect relationship between MIL and DB, which may be sensitive to various cultural and sample specific variables. This argument is expanded further by our findings for a significant moderation effect of MIL and DB by DTC, as hypothesized by H2. The results indicate that despite an insignificant total effect, the significant indirect pathway through DTC is a valid form of mechanism which argues in favour of the protective role that MIL offers. More precisely, at least in individuals who engage in DTC (i.e. with a need to cope), high MIL seems predictive of low DB through a significant negative relationship with DTC. This suggests that MIL may indeed protect individuals against the negative affective consequences of aversive events (Ostafin & Proulx, 2020), thereby disincentivizing engagement in DTC – as predicted by negative reinforcement theories (Blevins et al., 2016) – and motivating the use of alternative coping mechanisms (Copeland et al., 2022).

A further peculiar finding with regard to the mediation refers to a significant direct relationship between MIL and DB. When DTC was accounted for in the model, the variables MIL and DB displayed a significant relationship, thereby characterizing the mediation as a competitive mediation. These opposing directions of direct and indirect effect statistically explain the insignificant total effect, and conceptually suggest that in individuals without the need to cope, MIL may actually be a positive predictor of DB. This observed discrepancy may be explainable by the different meanings attached to alcohol consumption. It is plausible to put forth that observed effects of MIL on alcohol valuation (Bickel et al., 2014; Copeland et al., 2022) may be strongly contextual. That is, in contexts of harmful DB, high MIL (i.e. a life worth preserving) may put the benefits into perspective to the long term consequences and personal goals, whereas in other contexts alcohol valuation may not be as strongly impacted.

For instance, in individuals without a need to cope, alcohol intake may be more an expression of a rich social life (e.g. drinking champagne with friends on new year's) or attempts at social integration (for example in adolescents; Brassai et al., 2011), and therefore possibly connected to experiencing higher MIL.

Another finding of this study regards H3, the proposed moderation effect of NA on the relationship between SM and DB. The insignificant finding adds to the ambivalent body of evidence, arguing for an insignificant direct connection between SM and DB (Copeland et al., 2020, 2022; Csabonyi & Phillips, 2020). This finding further reflects the independence between the concepts of SM and PM. Even though SM was significantly correlated with NA, and NA with DB respectively, no direct relationship nor moderating effect was found. In alignment with previous studies, the results reflect that on average SM is experienced negatively (Steger, Mann, et al., 2009), and NA leads to an increased DB (Lai et al., 2015; Pedrelli et al., 2016). However, the experience of NA during their SM does not motivate individuals to increase DB. It could therefore be that the NA experienced may not represent the typical hopeless existential angst as hypothesized to be evoked by lack of PM, but more of a stress related to the search. Individuals high in SM are, by definition, motivated to increase their meaning in life, and therefore may have no need to use DB as a form of coping mechanism.

Practical Implications

The practical implications regarding the relationship between MIL, DTC, and DB lie within their possible applicability in treatment. Even though our study revealed no protective averaged effect of MIL on DB, it did in individuals who engage in DTC. The relevance can therefore still be applicable to more specific populations who engage in DTC, such as individuals suffering from Alcohol Use Disorder, for which DTC forms a key element in the development and maintenance (Anker et al., 2017). More specifically, a meaning-based

treatment offers the opportunity to approach the issue from several angles. As the vicious cycle model puts forth, DTC plays an important role in both the establishment of an AUD as a reaction to internalizing disorders or NA, as well as maintaining it by constant re-initiation through the habituated DB. MIL would address this issue by firstly decreasing the valuation of alcohol and thereby not only portraying DTC cognitively as a worse coping mechanism but also disincentivizing the consumption of alcohol in a habitual manner. And secondly protecting against maladaptive coping with NA by offering a much stronger coping alternative.

Limitations, Strengths, and Future Research

This study was statistically limited by the lack of normality in the data with respect to the variables DTC and DB. Both variable averages showed an accumulation of low ratings. This floor effect, possibly caused by a Likert-scale restriction, makes conceptual sense in that it implies that most people of the population may score low on DB and therefore DTC. Such findings could potentially indicate the characteristic of the non-specific population chosen. Therefore, it is not to expect that the participants resort to DTC or show high DB on average. Albeit this is a statistical limitation which can lead to an increase in either type I or type II error, conceptually it did not violate any expectations. Additionally, the violation of normality could have been enhanced by the large sample size of the current study.

One further limitation corresponds to the nature of the cross-sectional correlational nature of the data, which does not allow for any causal inference of the effects of MIL on DB. Future research could therefore examine the temporal causality of MIL on DTC and DB, for example by administration of a meaning-based intervention.

A strength of the study pertains to the high number of participants in the study which arguably protects against some of the statistical limitations. Moreover, the method of sampling aimed at trying to represent the average Dutch population and therefore offers fairly

good generalizability of the findings. It must be noted though that this may limit the use of the findings in clinical application, as the variables may for example interact differently in individuals with AUD. Also is this the case with respect to culture in the broader sense, as motivations to engage in DTC or DB in general may differ, a complexity to be explored in future research.

Another potential field of expansion could regard the individual sub-constructs of MIL as defined by the tripartite view. Even though MIL may be experienced as a unified phenomenon, the individual aspects could contribute to differing parts of the whole meaning-based coping. Whereas purpose may help individuals already engaging in DTC to re-evaluate advantages and disadvantages and ultimately discontinue, comprehension or mattering could offer more relevance for the existential protection towards aversive life events – consequently lowering the need for DTC.

Conclusion

This study provides further evidence for the importance of MIL and its relation to DB. Contrary to the literature, MIL seemed not to decrease DB directly. Upon consideration of the mediation model, high MIL has been shown to decrease the need for DTC, and consequently reduce DB indirectly through DTC. DTC has therefore been further validated as a key factor in the understanding of the relationship between MIL and DB, as well as DB in general. The interplay of SM and DB however remains unclear. No moderating effect was found, and the experience of NA when engaged in SM has not been shown to enhance DB. In conclusion, this study highlights the significance of understanding the psychological process of experiencing meaning and meaning-making, especially with reference to coping mechanisms and the clinical treatment of alcohol use disorder.

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Appendix A

The Multidimensional Existential Meaning Scale (MEMS)

Answered on a scale from 1 to 7 (very strongly disagree, strongly disagree, disagree, neither disagree nor agree, agree, strongly agree, very strongly agree)

1. My life makes sense
2. There is nothing special about my existence (a)
3. I have aims in my life that are worth striving for
4. Even a thousand years from now, it would still matter whether I existed or not
5. I have certain life goals that compel me to keep going
6. I have overarching goals that guide me in my life
7. I know what my life is about
8. I can make sense of the things that happen in my life
9. I have goals in life that are very important to me
10. I understand my life
11. Whether my life ever existed matters even in the grand scheme of the universe
12. My direction in life is motivating to me
13. I am certain that my life is of importance
14. Looking at my life as a whole, things seem clear to me
15. Even considering how big the universe is, I can say that my life matters

a = Reverse scored

Scoring syntax:

Comprehension = 1, 7, 8, 10, 14

Purpose = 3, 5, 6, 9, 12

Mattering = 2, 4, 11, 13, 15

Alcohol Use Disorders Identification Test (AUDIT)

Responses rated on a scale from 1 to 5. Questions on a scale of 1, 3, 5.

- 1) How often do you have a drink containing alcohol? *Never, Monthly or less, 2-4 times a month, 2-3 times a week, 4 or more times a week*
- 2) How many drinks containing alcohol do you have on a typical day when you are drinking? *1 or 2, 3 or 4, 5 or 6, 7 to 9, 10 or more*
- 3) How often do you have six or more drinks on one occasion? *Never, Less than monthly, Monthly, Weekly, Daily or almost daily*
- 4) How often during the last year have you found that you were not able to stop drinking once you had started? *Never, Less than Monthly, Monthly, Weekly, Daily or almost daily*
- 5) How often during the last year have you failed to do what was normally expected of you because of drinking? *Never, Less than Monthly, Monthly, Weekly, Daily or almost daily*
- 6) How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session ? *Never, Less than Monthly, Monthly, Weekly, Daily or almost daily*
- 7) How often during the last year have you had a feeling of guilt or remorse after drinking? *Never, Less than Monthly, Monthly, Weekly, Daily or almost daily*

- 8) How often during the last year have you been unable to remember what happened the night before because of your drinking? *Never, Less than Monthly, Monthly, Weekly, Daily or almost daily*
- 9) Have you or someone else, been injured because of your drinking? *No, Yes but not in the last year, Yes during the last year*
- 10) Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down? *No, Yes but not in the last year, Yes during the last year*

Drinking Motives Questionnaire (DMQ)

Items are scored from 1 to 5 (Almost Never/Never, Some of the time, Half of the time, Most of the time, Almost always/ always)

- 1) To forget your worries.
- 2) Because it helps you when you feel depressed or nervous.
- 3) To cheer up when you are in a bad mood.
- 4) To forget about your problems.

Drinking Behavior Pattern (DBP)

Answer on a scale from 1 to 4 (never, only occasionally, often, almost always)

"How frequent do you feel like drinking alcohol under the following conditions?"

- 1) Stress : "I drink when I feel stress"
- 2) Escape from reality : "I drink when I want to escape from reality"

- 3) Anxiety : "I drink when I am anxious"
- 4) Irritable mood : "I drink when I am irritable"
- 5) Unpleasant events : "I drink after I experienced unpleasant events"
- 6) Desperation: "I drink when I am desperate"

The Meaning in Life Questionnaire (MLQ)

Items scored on a scale from 1 to 7 (Absolutely Untrue, Mostly Untrue, Somewhat Untrue, Can't Say True or False, Somewhat True, Mostly True, Absolutely True)

- 1) I understand my life's meaning.
- 2) I am looking for something that makes my life feel meaningful.
- 3) I am always looking to find my life's purpose.
- 4) My life has a clear sense of purpose.
- 5) I have a good sense of what makes my life meaningful.
- 6) I have discovered a satisfying life purpose.
- 7) I am always searching for something that makes my life feel significant.
- 8) I am seeking a purpose or mission for my life.
- 9) My life has no clear purpose. (a)
- 10) I am searching for meaning in my life.

a = Reverse Coded

MLQ syntax to create Presence and Search sub-scales:

Presence: 1, 4, 5, 6, & 9

Search: 2, 3, 7, 8, & 10

Appendix B

Table B1

Tests and Descriptions of Normality

Variables	Skewness	Kurtosis	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic (Std. Error)	Statistic (Std. Error)	Statistic	df	Sig.	Statistic	df	Sig.
MIL	-0.319 (0.114)	0.369 (0.227)	.069	459	<.001	.989	459	.002
DTC	1.521 (0.114)	1.437 (0.227)	.236	459	<.001	.749	459	<.001
DB	1.263 (0.114)	2.735 (0.277)	.127	459	<.001	.913	459	<.001
SM	-0.513 (0.114)	-0.1 (0.227)	.095	459	<.001	.975	459	<.001
NA	0.9 (0.114)	0.652 (0.227)	.110	459	<.001	.940	459	<.001

Note. MIL = Meaning in Life. DTC = Drinking to Cope. DB = Drinking Behaviour. SM = Search for Meaning. NA = Negative Affect.

Figure B1

Q-Q Plot of MIL

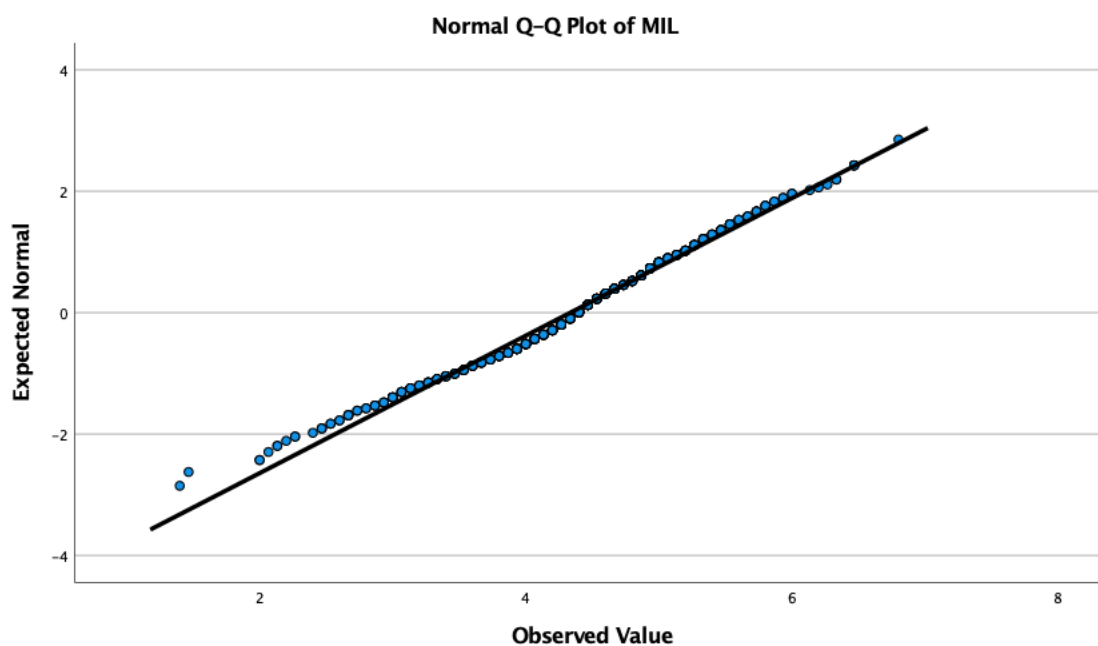


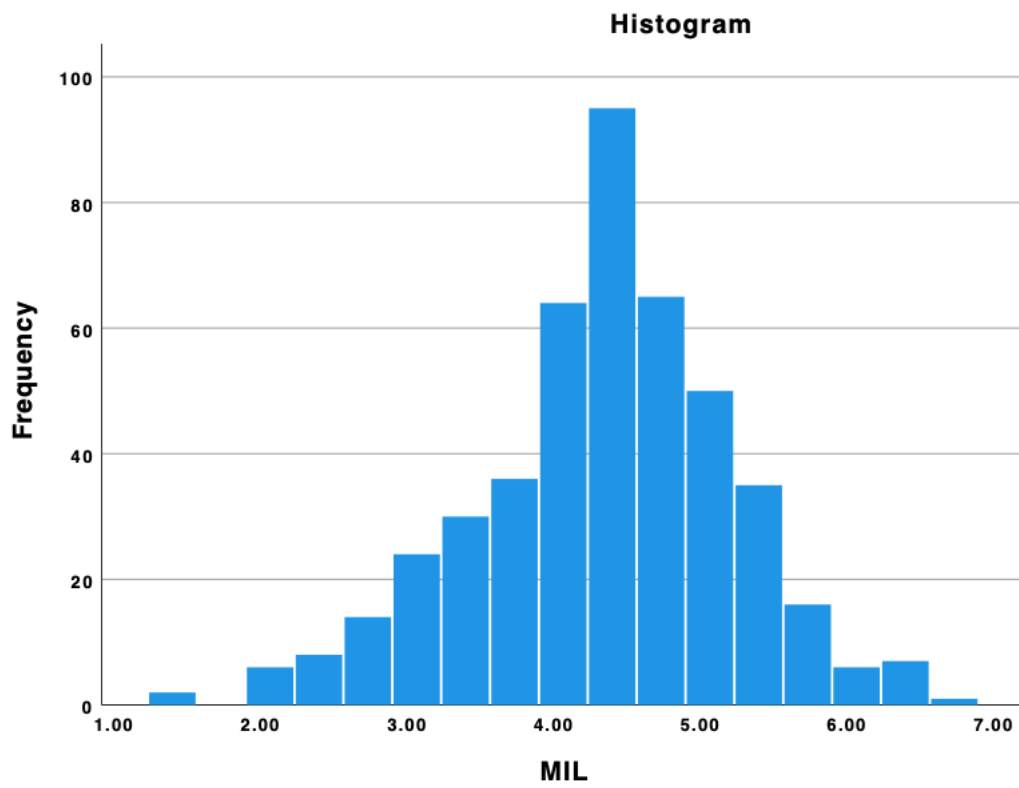
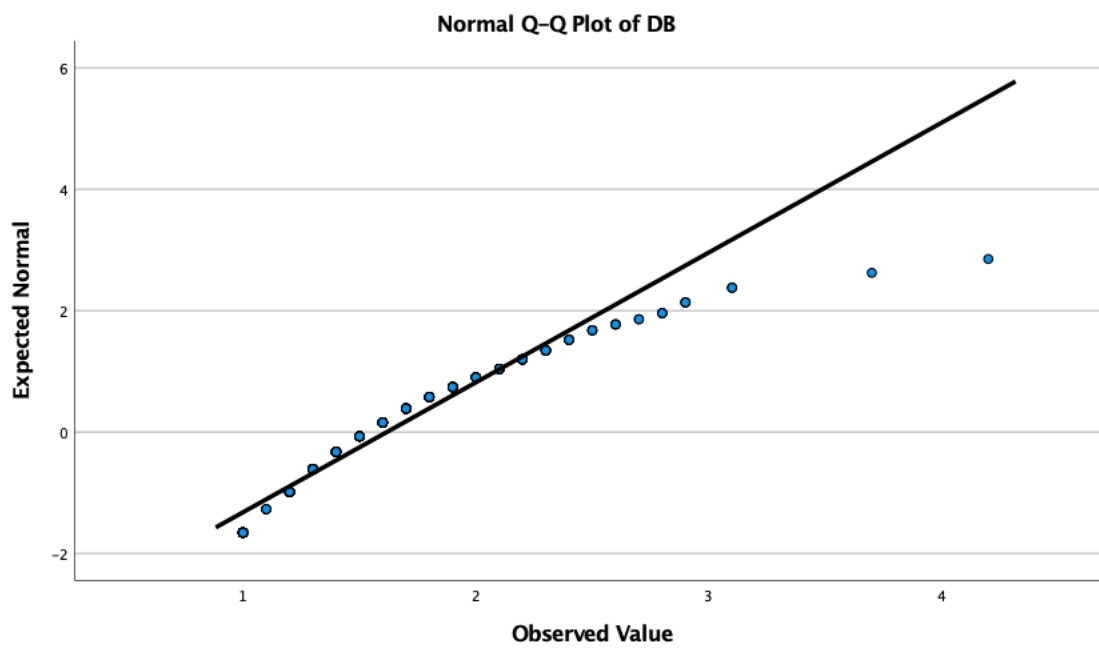
Figure B2*Histogram of MIL***Figure B3***Q-Q Plot of DB*

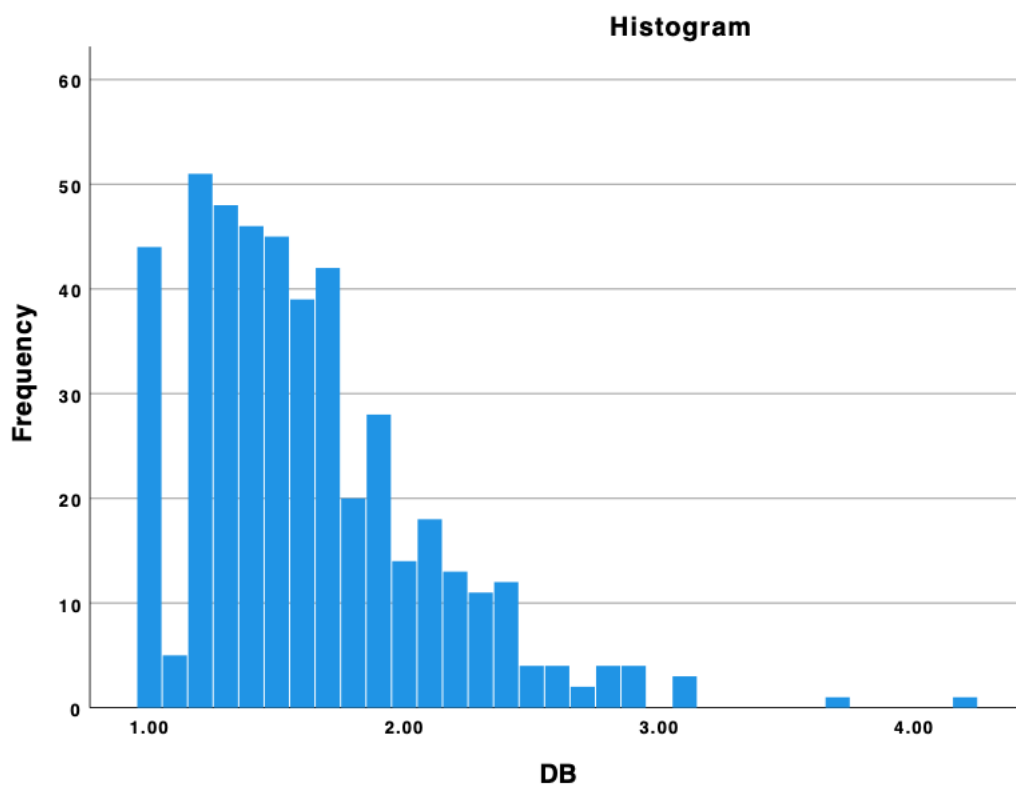
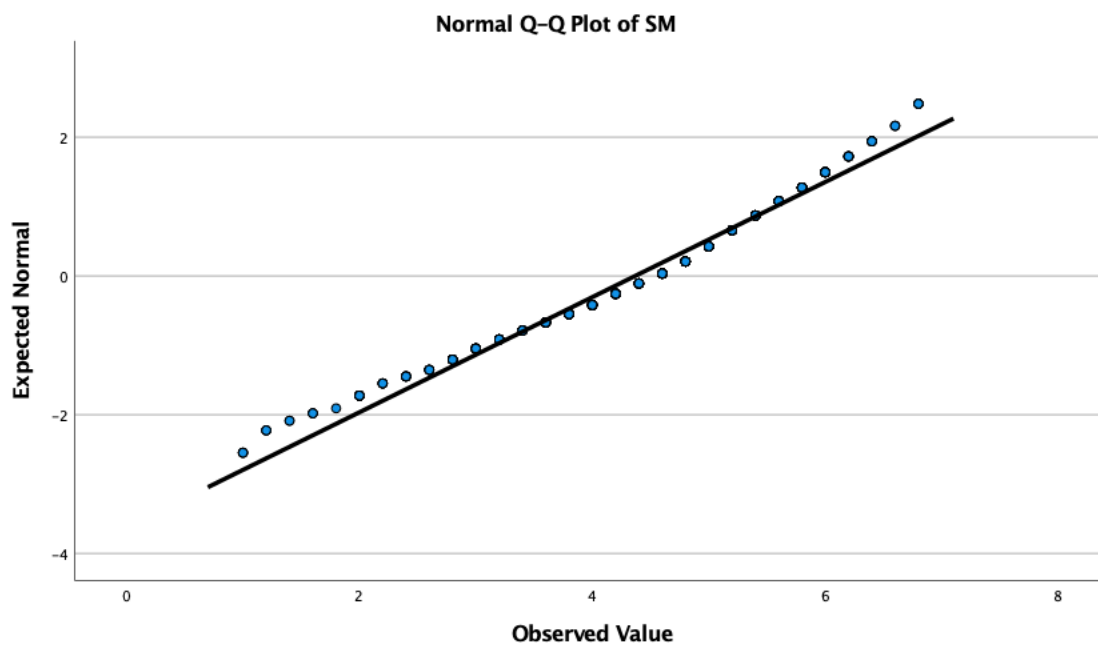
Figure B4*Histogram of DB***Figure B5***Q-Q Plot of SM*

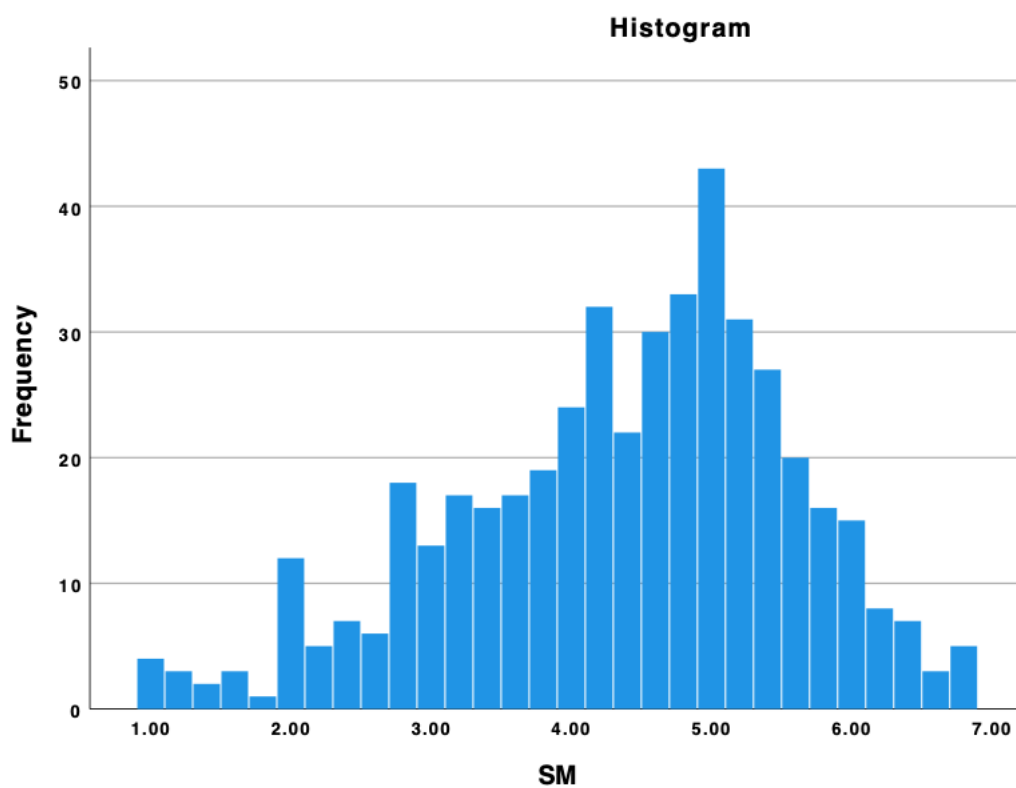
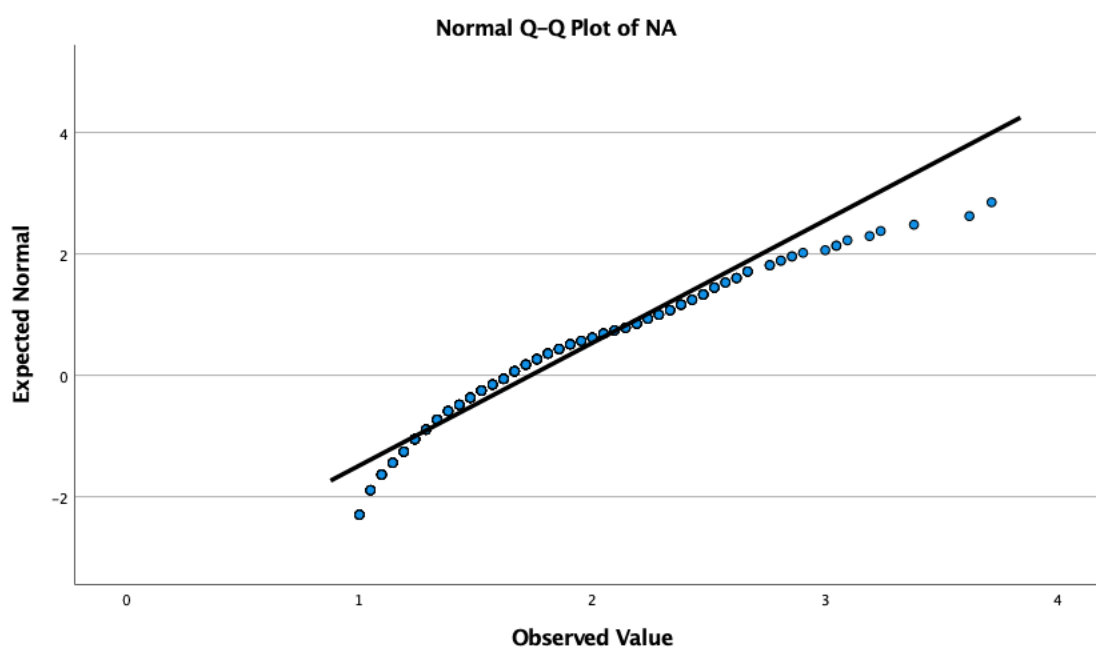
Figure B6*Histogram of SM***Figure B7***Q-Q Plot of NA*

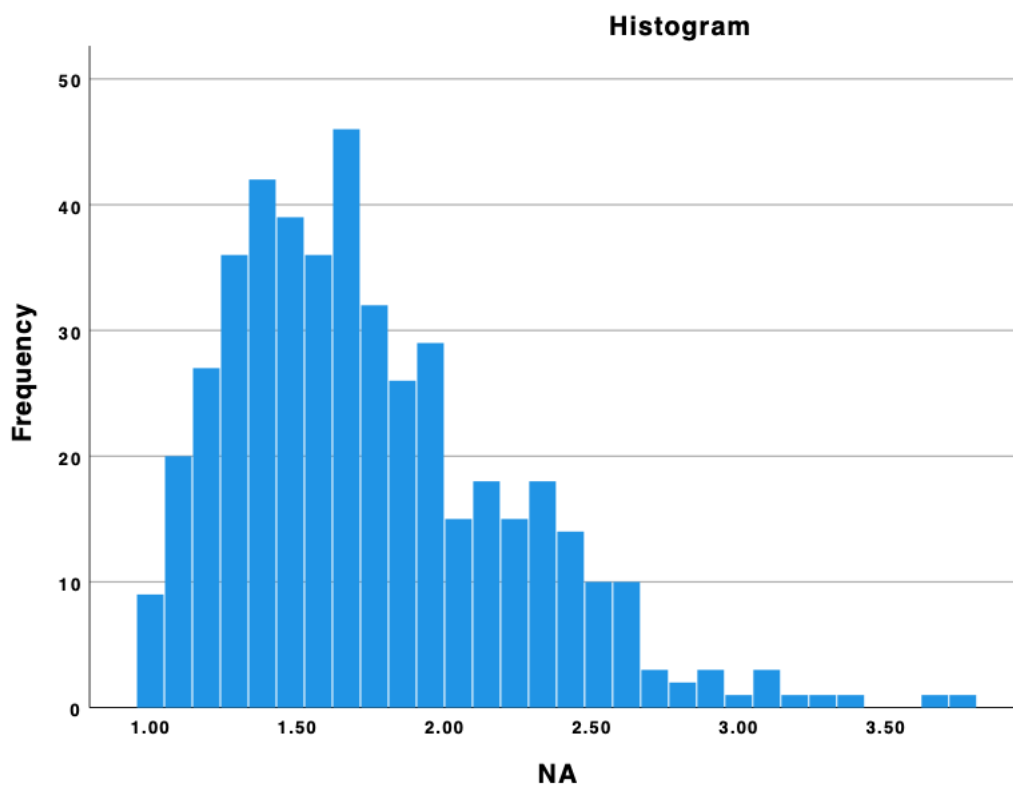
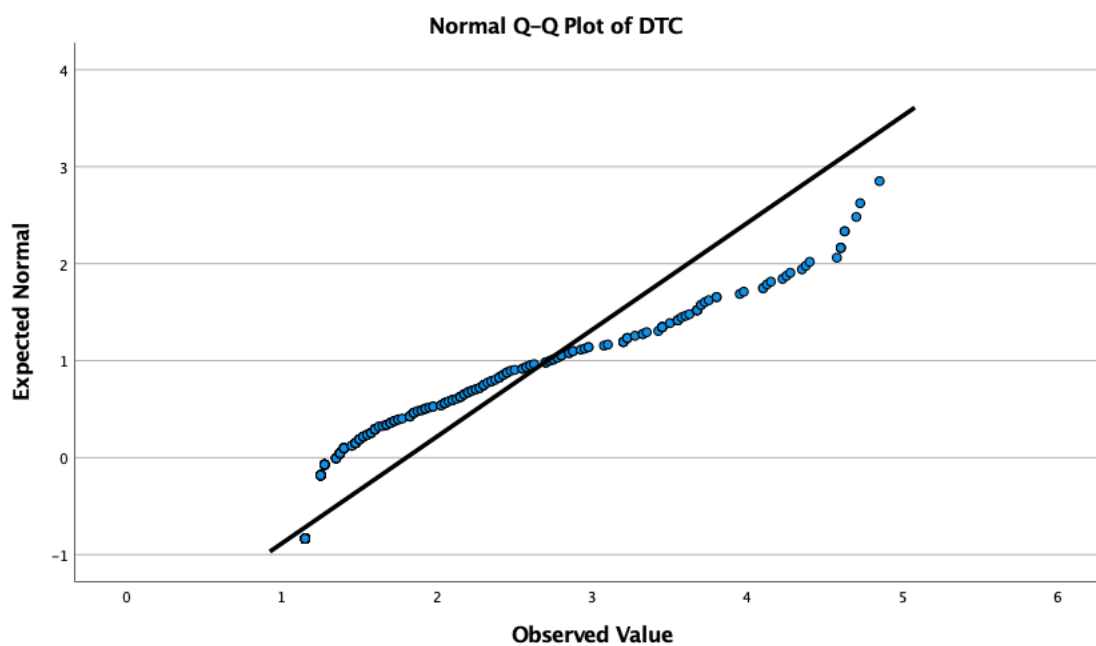
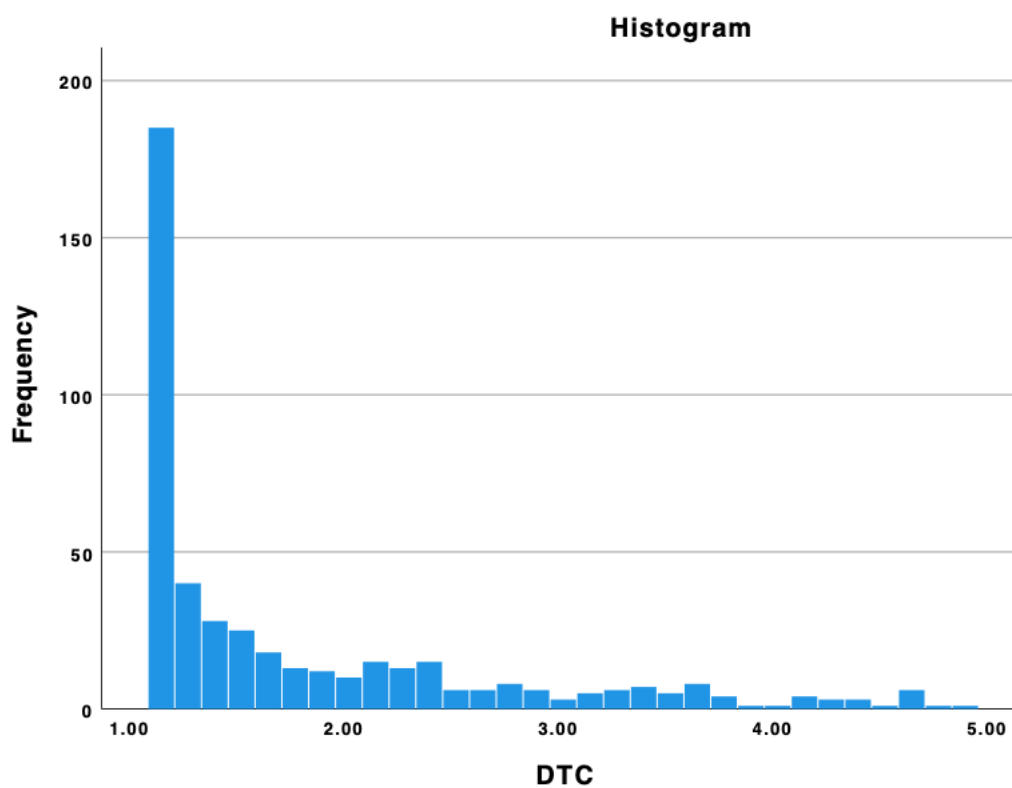
Figure B8*Histogram of NA***Figure B9***Q-Q Plot of DTC*

Figure B10*Histogram of DTC***Figure B11***Standardised Residual Plot of Regression*