Link2Care Distress Tolerance Scale Analysis Report

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# Overview

DT is defined as one’s perceived or behavioral capacity to withstand distress related to affective, cognitive, and/or physical states (Simons & Gaher, 2005; Zvolensky, Bernstein, & Vujanovic, 2011). Lower DT has been found to be associated with increased mental health problems and addictive behavior as well as physical health problems (Buhr and Dugas, 2010; Leyro et al., 2010).

## The purpose of this study was to

1. Evaluate the association between DT and psychosocial variables in homeless adults, including XYZ; and
2. Examine the buffering effect of social support for these relationships.

## Hypotheses

1. It was hypothesized that total lifetime homelessness will be negatively related DT.
2. It was hypothesized that lower DT would relate to increased depression, aggression, hostility, perceived stress, anxiety, perceived discrimination, and recent victimization among this vulnerable group.
3. Additionally, it was hypothesized that social support would buffer the effect of DT on outcomes such that the association between DT and outcomes would be weaker among those who report higher social support.

Table

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## 2021-04-16 Update

We decided to additionally add the following analyses:

* Independent variables: The 4 DTS subscales
* Dependent variables: Depression (PHQ

# Results

🔴Age & DTS

There doesn't appear to much of a relationship between distress tolerance and age.

🔴Sex & DTS

There doesn't appear to be a relationship between distress tolerance and gender.

🟡Race/Ethnicity & DTS

There doesn't appear to be a relationship between distress tolerance and race/ethnicity.

🟡Lifetime homelessness & DTS

There may be a relatively weak negative correlation between distress tolerance and lifetime number of months spent homeless.

People who are homeless for longer periods of time tend to have less distress tolerance. The direction of causality isn't self-evident to me on this one.

One of the study hypotheses is was: 'It was hypothesized that total lifetime homelessness will be negatively related DT.' There is some evidence to support that hypothesis.

🔴Current homelessness & DTS

There does not appear to be a correlation between distress tolerance and current number of months spent homeless.

🟢PHQ 8 & DTS

There is a moderate negative correlation between distress tolerance and depression. People who have less tolerance to distress tend to also have more depressive symptoms. On the surface, it seems reasonable that distress tolerance is the cause and depression is the effect.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between DTS and depression. On average, PHQ depression scores decrease by 0.77 points for each one point increase in DTS.

🟢PHS 8 and DTS: Tolerance subscale

There is a moderate negative correlation between the DTS tolerance subscale and depression. People who have less tolerance (on the tolerance subscale) to distress tend to also have more depressive symptoms. On the surface, it seems reasonable that distress tolerance is the cause and depression is the effect.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between the DTS tolerance subscale and depression. On average, PHQ depression scores decrease by 0.63 points for each one point increase in the DTS tolerance subscale.

🟢PHS 8 and DTS: Absorption subscale

There is a moderate negative correlation between the DTS absorption subscale and depression. People who have less tolerance (on the absorption subscale) to distress tend to also have more depressive symptoms. On the surface, it seems reasonable that distress tolerance is the cause and depression is the effect.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between the DTS absorption subscale and depression. On average, PHQ depression scores decrease by 0.67 points for each one point increase in the DTS absorption subscale.

🟢PHS 8 and DTS: Appraisal subscale

There is a moderate negative correlation between the DTS tolerance subscale and depression. People who have less tolerance (on the appraisal subscale) to distress tend to also have more depressive symptoms. On the surface, it seems reasonable that distress tolerance is the cause and depression is the effect.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between the DTS appraisal subscale and depression. On average, PHQ depression scores decrease by 0.73 points for each one point increase in the DTS appraisal subscale.

🟡PHS 8 and DTS: Regulation subscale

There is a weak negative correlation between the DTS regulation subscale and depression. People who have less tolerance (on the regulation subscale) to distress tend to also have more depressive symptoms. On the surface, it seems reasonable that distress tolerance is the cause and depression is the effect.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there was no statistically significant association between the DTS regulation subscale and depression.

🟢GAD 7 & DTS

There is a moderate negative correlation between distress tolerance and anxiety. People who have less tolerance to distress tend to also have more anxiety symptoms. On the surface, it seems reasonable that distress tolerance is the cause and anxiety is the effect.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between DTS and anxiety. On average, GAD 7 scores decrease by 2.44 points for each one point increase in DTS.

🟢Aggression & DTS

There is a moderate negative correlation between distress tolerance and aggression. People who have less tolerance to distress tend to also have more aggression. On the surface, it seems reasonable that distress tolerance is the cause and aggression is the effect.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between DTS and aggression. On average, aggression scores decrease by 3.54 points for each one point increase in DTS.

🟢Aggression and DTS: Tolerance subscale

There is a moderate negative correlation between distress (on the tolerance subscale) tolerance and aggression. People who have less tolerance to distress (on the tolerance subscale) tend to also have more aggression.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between the DTS tolerance subscale and aggression. On average, aggression scores decrease by 2.71 points for each one point increase on the DTS tolerance subscale.

🟢Aggression and DTS: Absorption subscale

There is a moderate negative correlation between distress tolerance (on the absorption subscale) and aggression. People who have less tolerance to distress (on the absorption subscale) tend to also have more aggression.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between the DTS absorption subscale and aggression. On average, aggression scores decrease by 3.15 points for each one point increase on the DTS absorption subscale.

🟢Aggression and DTS: Appraisal subscale

There is a moderate negative correlation between distress tolerance (on the appraisal subscale) and aggression. People who have less tolerance to distress (on the appraisal subscale) tend to also have more aggression.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between the DTS appraisal subscale and aggression. On average, aggression scores decrease by 2.92 points for each one point increase on the DTS appraisal subscale.

🟡Aggression and DTS: Regulation subscale

There is a weak negative correlation between distress tolerance and aggression. People who have less tolerance to distress (on the regulation subscale) tend to also have more aggression.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there was no statistically significant association between the DTS regulation subscale and aggression.

🟢Hostility & DTS

There is a moderate negative correlation between distress tolerance and hostility. People who have less tolerance to distress tend to also have more hostility. On the surface, it seems reasonable that distress tolerance is the cause and hostility is the effect.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between DTS and hostility. On average, hostility scores decrease by 4.20 points for each one point increase in DTS.

🟢Hostility and DTS: Tolerance subscale

There is a moderate negative correlation between distress tolerance (on the tolerance subscale) and hostility. People who have less tolerance to distress (on the tolerance subscale) tend to also have more hostility.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between the DTS tolerance subscale and hostility. On average, hostility scores decrease by 3.32 points for each one point increase on the DTS tolerance subscale.

🟢Hostility and DTS: Absorption subscale

There is a moderate negative correlation between distress tolerance (on the absorption subscale) and hostility. People who have less tolerance to distress (on the absorption subscale) tend to also have more hostility.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between the DTS absorption subscale and hostility. On average, hostility scores decrease by 3.22 points for each one point increase on the DTS absorption subscale.

🟢Hostility and DTS: Appraisal subscale

There is a moderate negative correlation between distress tolerance (on the appraisal subscale) and hostility. People who have less tolerance to distress (on the appraisal subscale) tend to also have more hostility.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between the DTS appraisal subscale and hostility. On average, hostility scores decrease by 3.66 points for each one point increase on the DTS appraisal subscale.

🟢Hostility and DTS: Regulation subscale

There is a moderate negative correlation between distress tolerance (on the regulation subscale) and hostility. People who have less tolerance to distress (on the regulation subscale) tend to also have more hostility.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between the DTS regulation subscale and hostility. On average, hostility scores decrease by 1.38 points for each one point increase on the DTS regulation subscale.

🟢Urban life stress & DTS

There is a moderate negative correlation between distress tolerance and experienced stress. People who have less tolerance to distress tend to also have more experienced stress. This seems sort of self-evident to me. Aren't they sort of just two sides of the same coin?

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between DTS and urban life stress. On average, ULS scores decrease by 8.36 points for each one point increase in DTS.

🟢Urban life stress and DTS: Tolerance subscale

There is a moderate negative correlation between distress tolerance (on the tolerance subscale) and experienced stress. People who have less tolerance to distress (on the tolerance subscale) tend to also have more experienced stress.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between the DTS tolerance subscale and urban life stress. On average, ULS scores decrease by 6.01 points for each one point increase on the DTS tolerance subscale.

🟢Urban life stress and DTS: Absorption subscale

There is a moderate negative correlation between distress tolerance (on the absorption subscale) and experienced stress. People who have less tolerance to distress (on the absorption subscale) tend to also have more experienced stress.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between the DTS absorption subscale and urban life stress. On average, ULS scores decrease by 7.63 points for each one point increase on the DTS absorption subscale.

🟢Urban life stress and DTS: Appraisal subscale

There is a moderate negative correlation between distress tolerance (on the appraisal subscale) and experienced stress. People who have less tolerance to distress (on the appraisal subscale) tend to also have more experienced stress.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between the DTS appraisal subscale and urban life stress. On average, ULS scores decrease by 7.81 points for each one point increase on the DTS appraisal subscale.

🟡Urban life stress and DTS: Regulation subscale

There is a weak negative correlation between distress tolerance (on the regulation subscale) and experienced stress. People who have less tolerance to distress (on the regulation subscale) tend to also have more experienced stress.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between the DTS regulation subscale and urban life stress. On average, ULS scores decrease by 2.06 points for each one point increase on the DTS regulation subscale.

🟢Discrimination & DTS

There is a weak'ish positive correlation between distress tolerance and discrimination. People who have less tolerance to distress tend to also experience less discrimination. On the surface, it seems like causality might be reversed on this one. I am exposed to more discrimination, therefore I build up a tolerance for it.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between DTS and discrimination. On average, discrimination scores increase by 4.05 points for each one point increase in DTS.

Personal victimization & DTS

🟢Q1

In the past 30 days, has anyone used violence, such as in a mugging, fight, or sexual assault, against you?

So, on average, people who experienced violence in the past 30 days had a DTS score that was 0.36 points lower (on a scale of 1-5) than people who did not.

The way the analysis table is written, the team wants to model experienced violence as a result of DTS score.

These results show a statistically significant association between distress tolerance and being victimized. For each one-point increase in distress tolerance scale score (on a scale of 1 to 5), the odds of violence victimization in the past 30 days decrease by 36%, on average.

People who have more tolerance to distress tend to also experience less violence victimization. The direction of causality is not clear to me on this one.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between distress tolerance and being victimized. For each one-point increase in distress tolerance scale score (on a scale of 1 to 5), the odds of violence victimization in the past 30 days decrease by 37%, on average.

Personal victimization & DTS

🟡Q2

In the past 30 days, how many times have you been a witness to acts of violence?

Let's pretend this is a uncensored count variable for a minute. Ideally, I think that's what it would be. Unfortunately, it isn't because it's right censored at 11. We will deal with that below.

When we pretend this is a non-censored count variable and model the relationship using standard Poisson regression, the results indicate that for each one-point increase in DTS we expect a 26% decrease in the mean number of acts of violence witnessed. But, keep in mind that the assumptions of this model are violated.

Because it's censored, we model the relationship this personal victimization question and DTS using censored poisson regression.

The results of the unadjusted censored Poisson regression analysis indicate that for each one-point increase in DTS we expect a 26% decrease in the mean number of acts of violence witnessed. If we go this route, I will need to do a little more checking and make sure the model assumptions are met (I've never used a censored poisson model before). However, there's another issue -- practically, does this make sense? Why would your internal tolerance to distress have any causal effect on the number of times you witness a person experience violence victimization? In this case, wouldn't make more sense to model DTS as the outcome?

## DTS as the outcome

This actually makes more sense to me. It seems more plausible that the amount of violence a person witnesses could affect their internal tolerance for distress.

This actually makes more sense to me. It seems more plausible that the amount of violence a person witnesses could affect their internal tolerance for distress.

People who witnessed more than 5 violent acts in the past 30 days had a distress tolerance scale score that was 0.39 points (on a scale of 1 to 5) lower, on average, than people who witnessed 5 or fewer violent acts.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between distress tolerance and witnessing more than 5 acts of violence in the past 30 days. people who witnessed more than 5 violent acts in the past 30 days had a distress tolerance scale score that was 0.41 points (on a scale of 1 to 5) lower, on average, than people who witnessed 5 or fewer violent acts.

Personal victimization & DTS

🟢Q3

In the past 6 months, how many times have you been a witness to acts of violence?

In this case, I'm going to skip straight to modeling DTS as the outcome for all the same reasons I explained above.

People who witnessed more than 5 violent acts in the past 6 months had a distress tolerance scale score that was 0.53 points (on a scale of 1 to 5) lower, on average, than people who witnessed 5 or fewer violent acts.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between distress tolerance and witnessing more than 5 acts of violence in the past 6 months. People who witnessed more than 5 violent acts in the past 6 months had a distress tolerance scale score that was 0.58 points (on a scale of 1 to 5) lower, on average, than people who witnessed 5 or fewer violent acts.

🟢Social support & DTS

There is a weak'ish positive correlation between distress tolerance and social support. People who have more tolerance to distress tend to also have more social support.

After adjusting for age, sex, race/ethnicity, education (<HS/HS+), and Length of current homelessness, there is a statistically significant association between DTS and social support. On average, social support scores increase by 2.59 points for each one point increase in DTS.

🔴Effect Modification

relationships between DTS and psychosocial outcomes explored above. We found no evidence of statistically significant moderation effects.

🔴Mediation

Finally, we we investigated the possible mediating role that DTS plays in the current homelessness -> DTS -> depression/anxiety pathway using the Preacher-Hayes method. We found no evidence that DTS is a mediator in that pathway.